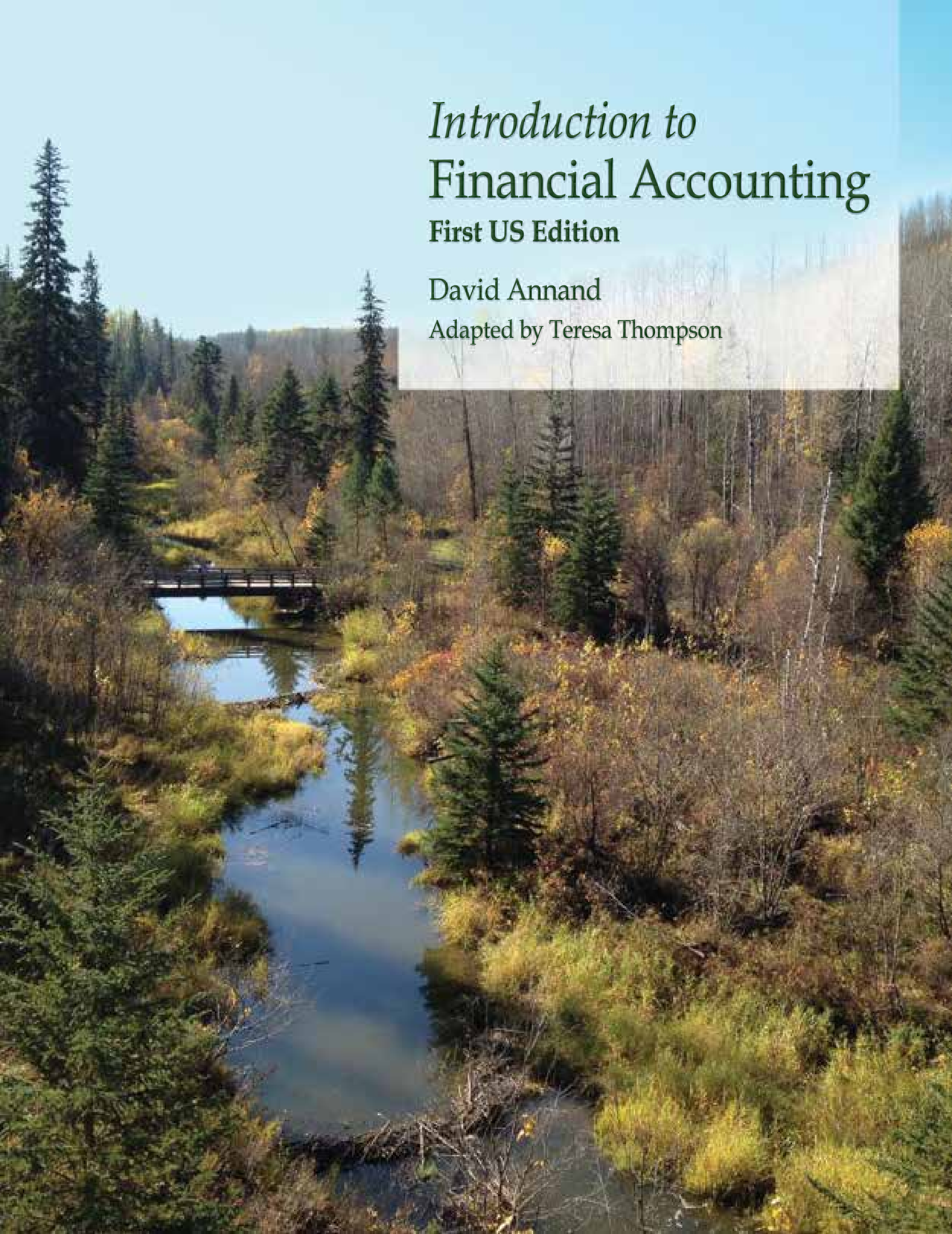
Introduction to
Financial Accounting

First US Edition

David Annand

Adapted by Teresa Thompson



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Introduction to Financial Accounting

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A. Accounting Defined

LO1 – Define accounting.

Accounting is often called the language of business because it uses a unique vocabulary to communicate information to decision makers. In this chapter, we will discuss what financial accounting is and briefly introduce how financial information is communicated through financial statements. Then we will study how financial transactions are analyzed and reported on financial statements.

Accounting is the process of identifying, measuring, recording, and communicating an organization's economic activities to users. Users need information for decision making. **Internal users** of accounting information work for the organization and are responsible for planning, organizing, and operating the entity. The area of accounting known as **managerial accounting** serves the decision-making needs of internal users. **External users** do not work for the organization and include investors, creditors, labor unions, and customers. **Financial accounting** is the area of accounting that presents financial information of interest to external users. This book deals with financial accounting.

B. Business Organizations

LO2 – Identify and describe the forms of business organizations.

An **organization** is a group of individuals who come together to pursue a common set of goals and objectives. There are typically two types of organizations: *business* and *non-business*. A **business organization** sells products or services for profit. A **non-business organization**, such as a charity or hospital, exists to meet various societal needs and does not have profit as a goal. All organizations record, report, and, most importantly, *use* accounting information for making decisions.

This book focuses on business organizations. There are three common forms of business organizations—a *proprietorship*, a *partnership*, and a *corporation*.

Proprietorship

A **proprietorship** is a business owned by one person. It is not a separate legal entity, which means that the business and the owner are considered to be the same. For example, the profits of a proprietorship are reported on the owner's personal income tax return. Proprietorship accounting is covered in a later chapter.

Partnership

A **partnership** is a business owned by two or more individuals. Like the proprietorship, it is not a separate legal entity. Partnership accounting is also covered in a later chapter.

Corporation

A **corporation** is a business owned by one or more owners.[1] The owners are known as *stockholders*. A **stockholder** owns stock of the corporation. **Stock** are units of ownership in a corporation. For example, if a corporation has 1,000 stock, there may be three stockholders who own 700 stock, 200 stock, and 100 stock respectively. The number of stock held by a stockholder represents how much of the corporation they own. The first stockholder who owns 700 stock owns 70% of the corporation (700/1,000 = 70%). A corporation can have different types of stock; this topic is discussed in a later chapter.

Unlike the proprietorship and partnership, a corporation is a separate legal entity. This means, for example, that from an income tax perspective, a corporation files its own tax return. The owners or stockholders of a corporation are not responsible for the corporation's debts so have **limited liability** meaning that the most they can lose is the amount they invested in the corporation. They are not responsible for all the debts of an organization.

In larger corporations, there can be many stockholders. In these cases, stockholders do not manage a corporation but participate indirectly through the election of a **Board of Directors.** The Board of Directors does not participate in the day-to-day management of the corporation but delegates this responsibility to the officers of the corporation. An example of this delegation of responsibility is illustrated in Figure 1-1.

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[1] Equivalent designations for a corporation are "Corp.", "Incorporated", "Inc.", "Limited", and "Ltd."

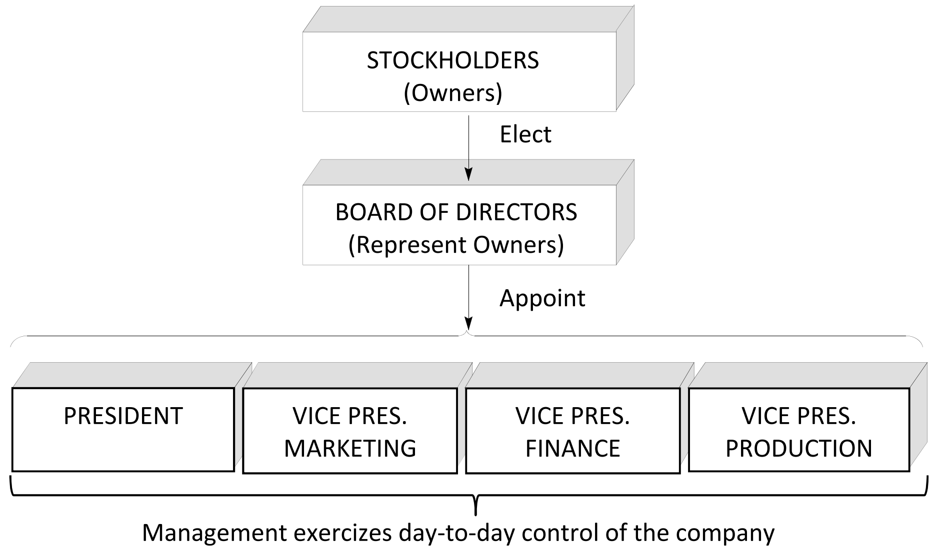


Figure 1-1 Generalized Form of a Corporate Organization

Stockholders usually meet annually to elect a Board of Directors. The Board of Directors meets regularly to review the corporation's operations and to set policies for future operations.

C. Generally Accepted Accounting Principles (GAAP)

LO3 – Identify and explain generally accepted accounting principles (GAAP).

The goal of accounting is to ensure information provided to decision makers is useful. To be useful, information must be relevant and faithfully represent a business's economic activities. This requires **ethics**, beliefs that help us differentiate right from wrong, in the application of underlying accounting concepts or principles. These underlying accounting concepts or principles are known as **generally accepted accounting principles (GAAP).**

Accounting principles differ among countries. In the United States, public companies use **US GAAP** when reporting their financial transactions. These accounting principles are established by the **Securities and Exchange Commission (SEC).** The SEC is a government agency tasked with overseeing capital markets, protecting investors, and ensuring public companies follow the accounting standards pronouncements. For the most part, the SEC relies on the **Financial Accounting Standards Board (FASB)** to specify accounting principles. Companies violating accounting principles may face sanctions, fines, and even jail time for certain individuals.

In countries other than the US, GAAP for publicly accountable enterprises is based on **International Financial Reporting Standards (IFRS)**. IFRS are issued by the **International Accounting Standards Board (IASB)**. The IASB's mandate is to promote the adoption of a single set of global accounting standards through a process of open and transparent discussions among corporations, financial institutions, and accounting firms around the world. US and IFRS accounting regulations are gradually converging. The focus of this text will be on US GAAP. Differences with IFRS will be noted.

Regardless of country-specific regulations, GAAP are undergirded by qualitative characteristics and principles that inform how financial information is presented. It is well-established that financial information should possess characteristics of:

- **relevance** – the ability to make a difference in the decision-making process;
- **faithful representation** – provision of information that is complete, neutral, and free from error;
- **comparability** – reporting similar information across similar entities in a similar manner;
- **verifiability** – the ability of an independent observer to reproduce the same financial information given the same input data and assumptions;
- **timeliness** – the provision of new information to decision makers while it is still useful; and
- **understandability** – presentation of information in a manner that is clear and concise.

In practice, these characteristics are demonstrated through the following accounting conventions:

Accounting convention	*Explanation*
Accrual accounting	Recognizes revenues when earned and expenses when incurred regardless of when cash is exchanged. Example: Repair services are performed on January 15 for $2,000. Revenue is recorded at this date, even if the customer will not pay in cash until February. Example: Supplies are purchased for $700 on credit and used immediately. They are reported as expenses even though the $700 will not paid in cash until February.

Business entity	Requires that each economic entity maintain separate records. Example: An owner of an unincorporated business keeps one set of accounting records for business transactions and one for personal transactions.
Consistency	Requires that a business use the same accounting policies and procedures from period to period. Example: A business records a sale when goods are shipped to a customer, even if cash may not have been received yet. In the future, it cannot change the way in which it accounts for sales (by recognizing sales when cash is received, for instance).
Historical Cost	Requires that each economic transaction be based on original cost. Example: A business purchased a piece of land for $70,000 ten years ago. Even though the land can be now sold for more than this, it is not revalued in the financial statements. It remains recorded at $70,000.
Full disclosure	Requires that accounting information communicate sufficient information to allow users to make knowledgeable decisions. Example: A business is being sued for $20,000,000 and management is certain that it will lose. The financial statements must disclose the lawsuit even though no damages have been finalized.
Going concern	Assumes that a business has the resources needed to continue to operate indefinitely into the future. Example: A bakery does not expense an item like a delivery truck in the year in which it is purchased. Rather, it writes-off the purchase price of the truck gradually over the estimated number of years it will provide useful service into the future.
Matching	Requires that expenses be reported in the period in which they are incurred or related revenues are earned, not when cash is paid. Though IFRS does not mention the matching concept, it still underlies the practice of accrual accounting. Example: Merchandise purchased for resale is not recorded as an expense until it is sold and the related

	sales revenue is recognized.
Materiality	Allows another accounting principle to be violated if the effect on the financial statements is so small that users will not be misled. Example: A business purchases a desk for $100 that will last ten years. Technically, cost of the desk should be written off gradually over ten years. However for accounting convenience, the business will usually record the $100 as an expense in the current year instead of gradually reducing the “book value” of the desk each year. Expensing it immediately will not affect the financial results enough to mislead financial statement readers.
Stable monetary unit	Requires that financial information be communicated in unchanging units of money. Example: Goods are purchased for $10,000 in 2020 that will be sold to customers in 2020. In early 2020, the same amount and type of goods are purchased for $10,100. The cost has increased due to inflation. If the goods purchased in 2020 are still unsold, they are not revalued to reflect the inflationary effect.
Revenue recognition	Requires that sale of goods or provision of services should be recognized when the process is substantially complete. This is accomplished through accrual accounting. Example: A product is sold on March 5. The customer receives the product on March 5 but agrees to pay for it on April 5. The corporation recognizes the revenue from the sale on March 5 when the sale occurred even though the cash will not be received until a later date.

Figure 1–2 Conventions of Generally Accepted Accounting Principles

D. Financial Statements

LO4 – Identify and explain the uses of the four financial statements.

Recall that financial accounting focuses on communicating information to external users. That information is communicated using **financial statements**. There are four financial statements: the income statement, statement of changes in equity, balance sheet, and statement of cash flows. Each of these is briefly introduced in the following sections using an example based on a fictitious corporate organization called Big Dog Carworks Corp. (“Corp.” is the abbreviated form of “Corporation”.)

The Income Statement

An **income statement** or **statement of profit and loss** communicates information about a business’s financial performance by summarizing **revenues** less **expenses** over a period of time. Revenues are created when a business provides products or services to a customer in exchange for assets. Assets are resources resulting from past events and from which future economic benefits are expected to result. Examples of assets include cash, equipment, and supplies. Assets will be discussed in more detail later in this chapter. Expenses are the assets that have been used up or the obligations incurred in the course of earning revenues. When revenues are greater than expenses, the difference is called **net income** or **profit**. When expenses are greater than revenue, a **net loss** results.

Consider the following income statement of Big Dog Carworks Corp. (BDCC). This business was started on January 1, 2017 by Bob “Big Dog” Baldwin in order to repair automobiles. All the stock of the corporation are owned by Bob.

At January 31, the income statement shows total revenues of $10,000 and various expenses totaling $7,800. Net income, the difference between $10,000 of revenues and $7,800 of expenses, equals $2,200.

Big Dog Carworks Corp.
Income Statement
For the Month Ended January 31, 2017

The heading shows the name of the entity, the type of financial statement, and in this case, the *period-in-time* date.

Revenues		
Repairs		$10,000
Expenses		
Rent	$1,600	
Salaries	4,000	
Supplies	1,500	
Truck operating	700	
Total expenses		7,800
Net income		$2,200

The net income is transferred to the statement of changes in equity.

The Statement of Changes in Equity

The **statement of changes in equity** provides information about how the balances in common stock and retained earnings changed during the period. **Common stock** is a heading in the stockholders' equity section of the balance sheet and represents how much ordinary stockholders have invested. When stockholders buy stock or *shares*, they are investing in the business. The number of shares of stock they purchase will determine how much of the corporation they own. The type of ownership unit purchased by Big Dog's stockholders is known as *common stock*. These and other types of stock will be discussed in a later chapter. For now, all ownership units will be called common stock. When a corporation sells its stock to stockholders, the corporation is said to be *issuing shares* to stockholders.

In the statement of changes in equity shown below, common stock and retained earnings balances at January 1 are zero because the corporation started the business on that date. During January, common stock of $10,000 was issued to stockholders so the January 31 balance is $10,000.

Retained earnings is the sum of all net incomes earned by a corporation over its life, less any distributions of these net incomes to stockholders. Distributions of net income to stockholders are called **dividends**.

Stockholders generally have the right to share in dividends according to the percentage of their ownership interest. To demonstrate the concept of retained earnings, recall that Big Dog has been in business for one month in which $2,200 of net income was reported. If dividends of $200 are distributed, these are subtracted from retained earnings. Big Dog's retained earnings are therefore $2,000 at January 31, 2017 as shown in the statement of changes in equity below.

The heading shows the name of the entity, the type of financial statement, and in this case, the *period-in-time* date.

Big Dog Carworks Corp.
Statement of Changes in Equity
For the Month Ended January 31, 2017

	Common stock	*Retained earnings*	*Total equity*
Opening balance	$ -0-	$ -0-	$ -0-
Stock issued	10,000		10,000
Net income		2,200	2,200
Dividends		(200)	(200)
Ending balance	$10,000	$2,000	$12,000

These totals are transferred to the balance sheet at January 31, 2017.

To demonstrate how retained earnings would appear in the next accounting period, let's assume that Big Dog reported a net income of $5,000 for February, 2017 and dividends of $1,000 were paid to the stockholder. Based on this information, retained earnings at the end of February would be $6,000, calculated as the $2,000 January 31 balance plus the $5,000 February net income less the $1,000 February dividend. The balance in retained earnings continues to change over time because of additional net incomes/losses and dividends.

The Balance Sheet

The **balance sheet** shows a business's assets, liabilities, and equity at a point in time. The balance sheet of Big Dog Carworks Corp. at January 31, 2017 is shown below.

The heading shows the name of the entity, the type of financial statement and the *point-in-time* date.

Big Dog Carworks Corp.
Balance Sheet
At January 31, 2017

Assets		*Liabilities*		
Cash	$ 6,200	Bank loan	$ 9,000	
Accounts receivable	2,500	Accounts payable	700	
Prepaid insurance	2,400	Unearned revenue	400	
Equipment	3,000	Total liabilities		$10,100
Truck	8,000			
		Stockholders' Equity		
		Common stock	$10,000	
		Retained earnings	2,000	12,000
Total assets	$22,100	Total liabilities and equity		$22,100

Total assets ($22,100) always equal total liabilities ($10,100) plus stockholders' equity ($12,000).

What Is an Asset?

Assets are economic resources that provide future benefits to the business. Examples include cash, accounts receivable, prepaid expenses, equipment, and trucks. **Cash** is coins and currency, usually held in a bank account, and is a financial resource with future benefit because of its purchasing power. **Accounts receivable** represent amounts to be collected in cash in the future for goods sold or services provided to customers on credit. **Prepaid expenses** are assets that are paid in cash in advance and have benefits that apply over future periods. For example, a one-year insurance policy purchased for cash on January 1, 2017 will provide a benefit until December 31, 2017 so this a prepaid asset when purchased. The equipment and truck were purchased on January 1, 2017 and will provide benefits for 2017 and beyond so these are assets.

What Is a Liability?

A **liability** is an obligation to pay an asset in the future. It is also known as **debt.** For example, Big Dog's bank loan represents an obligation to repay cash in the future to the bank. **Accounts payable** are obligations to pay a creditor for goods purchased or services rendered. A **creditor** owns the right to receive payment from an individual or business. **Unearned revenue** represents an advance payment of cash from a customer for Big Dog's services or products to be provided in the future. For example, Big Dog collected cash from a customer in advance for a repair to be done in the future.

What Is Stockholders' Equity?

Stockholders' equity represents the net assets owned by the owners (the stockholders). **Net assets** are assets minus liabilities. For example, in Big Dog's January 31 balance sheet, net assets are $12,000, calculated as total assets of $22,100 minus total liabilities of $10,100. This means that although there are $22,100 of assets, only $12,000 are owned by the stockholders and the balance, $10,100, are financed by debt. Notice that net assets and total stockholders' equity are the same value; both are $12,000. Stockholders' equity consists of common stock and retained earnings. Common stock represents how much the stockholders have invested in the business. Retained earnings are the sum of all net incomes earned by a corporation over its life, less any dividends distributed to stockholders. Stockholders have a right to these accumulated earnings because they own the corporation.

In summary, the balance sheet is represented by the equation:

Assets = Liabilities + Stockholders' equity

The Statement of Cash Flows

The fourth financial statement is the **statement of cash flows (SCF)**. The SCF explains the sources (inflows) and uses (outflows) of cash over a period of time. The preparation and interpretation of the SCF will be covered in a later chapter.

Notes to the Financial Statements

An essential part of financial statements are the notes that accompany them. These notes are generally located at the end of a set of financial statements. The notes provide greater detail about various amounts shown in the financial statements, or provide non-quantitative information that is useful to users. For example, a note may indicate the estimated useful lives of long-lived assets, or loan repayment terms. Examples of note disclosures will be provided in later chapters.

E. Transaction Analysis and Double-entry Accounting

LO5 – Analyze transactions using the accounting equation.

The **accounting equation** is foundational to accounting. It shows that the total assets of a business must always equal the total claims against those assets by creditors and owners. The equation is expressed as:

ASSETS	=	LIABILITIES	+	STOCKHOLDERS' EQUITY
(economic resources owned by an entity)		(creditors' claims on assets)		(owners' claims on assets)

When financial transactions are recorded, combined effects on assets, liabilities, and stockholders' equity are always exactly offsetting. This is the reason that the balance sheet always balances.

Each economic exchange is referred to as a **financial transaction**—for example, when an organization exchanges cash for land and buildings. Incurring a liability in return for an asset is also a financial transaction. Instead of paying cash for land and buildings, an organization may borrow money from a financial institution. The company must repay this with cash payments in the future. The accounting equation provides a system for processing and summarizing these sorts of transactions.

Accountants view financial transactions as economic events that change components within the accounting equation. These changes are usually triggered by information contained in **source documents** (such as sales invoices and bills from creditors) that can be verified for accuracy.

The accounting equation can be expanded to include all the items listed on the balance sheet of Big Dog at January 31, 2017, as follows:

ASSETS									=	LIABILITIES					+	S/H EQUITY		
Cash	+	Accounts Receivable	+	Prepaid Insurance	+	Equipment	+	Truck	=	Bank Loan	+	Accounts Payable	+	Unearned Revenue	+	Common Stock	+	Retained Earnings

If one item within the accounting equation is changed, then another item must also be changed to balance it. In this way, the equality of the equation is maintained. For example, if there is an increase in an asset account, then there must be a decrease in another asset or a corresponding increase in a liability or stockholders' equity account. This equality is the essence of *double-entry accounting*. The equation itself always remains in balance after each transaction. The operation of double-entry accounting is illustrated in the following section, which shows 10 transactions of Big Dog Carworks Corp. for January 2017.

Transaction number	Date	Description of transaction	ASSETS	=	LIABILITIES	+	S/H EQUITY
			Effect on the accounting equation				
1	Jan. 1	Big Dog Carworks Corp. issued 1,000 stock to Bob Baldwin for $10,000 cash.					
		The asset *Cash* is increased while the equity item *Common stock* is also increased. The impact on the equation is:	↑				↑
		CASH →	+10,000				
		COMMON STOCK →					+10,000
		Note that both sides of the equation are in balance.					
2	Jan. 2	Big Dog Carworks Corp. borrowed $4,000 from the bank and deposited the cash into the business's bank account.					
		The asset *Cash* is increased and the liability *Bank Loan* is also increased. The impact on the equation is:	↑		↑		
		CASH	+4,000				
		BANK LOAN			+4,000		
3	Jan. 2	The corporation purchased $3,000 of equipment for cash.					
		There is an increase of the asset *Equipment* and a decrease to another asset, *Cash*. The impact on the equation is:	↑ ↓				
		EQUIPMENT	+3,000				
		CASH	-3,000				
4	Jan. 3	The corporation purchased a tow truck for $8,000, paying $1,000 cash and incurring an additional bank loan for the remaining $7,000.					
		The asset *Cash* is decreased while the asset *Truck* is increased and the liability *Bank Loan* is also increased. The impact on the equation is:	↑ ↓		↑		
		CASH	-1,000				
		TRUCK	+8,000				
		BANK LOAN			+7,000		

Transaction Number	Date	Description of transaction	ASSETS	=	LIABILITIES	+	S/H EQUITY
			Effect on the accounting equation				
5	Jan. 5	Big Dog Carworks Corp. paid $2,400 for a one-year insurance policy, effective January 1.					
		Here the asset *Prepaid Insurance* is increased and the asset *Cash* is decreased. The impact on the equation is:					
		PREPAID INSURANCE	+2,400				
		CASH	-2,400				
		Since the one-year period will not be fully used at January 31 when financial statements are prepared, the insurance cost is considered to be an asset at the payment date. The transaction does not affect liabilities or stockholders' equity.					
6	Jan. 10	The corporation paid $2,000 cash to the bank to reduce the loan outstanding.					
		The asset *Cash* is decreased and there is a decrease in the liability *Bank Loan*. The impact on the equation is:					
		BANK LOAN			-2,000		
		CASH	-2,000				
7	Jan. 15	The corporation received $400 as an advance payment from a customer for services to be performed over the next two months as follows: $300 for February, $100 for March.					
		The asset *Cash* is increased by $400 and a liability, *Unearned Revenue*, is also increased since the revenue will not be earned by the end of January. It will be earned when the work is performed in later months. At January 31, these amounts are repayable to customers if the work is not done (and thus recorded as a liability). The impact on the equation is:					
		CASH	+400				
		UNEARNED REVENUE			+400		
8	Jan. 31	Automobile repairs of $10,000 were made for customers; $7,500 of repairs was paid in cash and $2,500 of repairs will be paid in the future by customers.					
		Cash and *Accounts Receivable* assets of the corporation increase. The repairs are a revenue; revenue causes an increase in net income and an increase in net income causes an increase in stockholders' equity. The impact on the equation is:					
		CASH	+7,500				
		ACCOUNTS RECEIVABLE	+2,500				
		REPAIR REVENUE					+10,000
		This activity increases assets and net income.					

Transaction Number	Date	Description of transaction	ASSETS	=	LIABILITIES	+	S/H EQUITY
			Effect on the accounting equation				
9	Jan. 31	The corporation incurred operating expenses for the month as follows: $1,600 for rent; $4,000 for salaries; and $1,500 for supplies expense. These were paid in cash. $700 for truck operating expenses (e.g., oil, gas) was incurred. This will be paid in the future.					
		There is a $7,100 decrease in the asset *Cash*. There is a $700 increase in the liability *Accounts Payable*. Expenses cause net income to decrease. A decrease in net income causes retained earnings and stockholders' equity to decrease. The impact on the equation is:	↓		↑		↓
		RENT EXPENSE					-1,600
		SALARIES EXPENSE					- 4,000
		SUPPLIES EXPENSE					- 1,500
		TRUCK OPERATING EXPENSE					- 700
		CASH	-7,100				
		ACCOUNTS PAYABLE			+700		
10	Jan. 31	Dividends of $200 were paid in cash to the stockholder, Bob Baldwin.					
		Dividends are a distribution of net income. They cause retained earnings to decrease. A decrease in retained earnings will decrease stockholders' equity. The impact on the equation is:	↓				↓
		DIVIDENDS					-200
		CASH	-200				

These various transactions can be recorded in the expanded accounting equation as shown below:

	ASSETS					= LIABILITIES			+ S/H EQUITY	
Trans.	Cash	+ Acc. Rec.	+ Ppd. Insur.	+ Equip.	+ Truck	= Bank Loan	+ Acc. Pay.	+ Un. Rev.	+ Common Stock	+ Retained Earnings
1.	+10,000								+10,000	
2.	+4,000					+4,000				
3.	-3,000			+3,000						
4.	-1,000				+8,000	+7,000				
5.	-2,400		+2,400							
6.	-2,000					-2,000				
7.	+400							+400		
8.	+7,500	+2,500								+10,000
9.	-7,100						+700			- 1,600 - 4,000 - 1,500 - 700
10.	-200									- 200
	6,200 +	2,500 +	2,400 +	3,000 +	8,000 =	9,000 +	700 +	400 +	10,000 +	2,000

These numbers are used to prepare the Statement of Cash Flows.

These numbers are used to prepare the Income Statement

Transactions in these columns are used to prepare the Statement of Changes in Equity.

Column totals are used to prepare the Balance Sheet.

ASSETS = $22,100

LIABILITIES + EQUITY = $22,100

Figure 1-3a Transactions Worksheet for January 31, 2017

Transactions summary:

1. Issued common stock for $10,000 cash.
2. Assumed a bank loan for $4,000.
3. Purchased equipment for $3,000 cash.
4. Purchased a truck for $8,000; paid $1,000 cash and incurred a bank loan for $7,000.
5. Paid $2,400 for a comprehensive one-year insurance policy effective January 1.
6. Paid $2,000 cash to reduce the bank loan.
7. Received $400 as an advance payment for repair services to be provided over the next two months as follows:
   $300 for February,
   $100 for March.
8. Performed repairs for $7,500 cash and $2,500 to be paid by customers at a later date.
9. Paid a total of $7,100 for operating expenses incurred during the month; also incurred an expense on account for $700.

10. Dividends of $200 were paid in cash to the only stockholder, Bob Baldwin.

The transactions summarized in Figure 1-3a were used to prepare the financial statements described earlier, and reproduced in Figure 1-3b below.

Big Dog Carworks Corp.
Balance Sheet
At January 31, 2017

Assets		
Cash	$ 6,200	
Accounts receivable	2,500	
Prepaid insurance	2,400	
Equipment	3,000	
Truck	8,000	
		$22,100
Liabilities		
Bank loan	$ 9,000	
Accounts payable	700	
Unearned revenue	400	10,100
Stockholders' Equity		
Common stock	$10,000	
Retained earnings	2,000	
		12,000
		$22,100

The components of equity are shown on the balance sheet

Big Dog Carworks Corp.
Income Statement
For the Month Ended January 31, 2017

Revenue		
Repairs		$10,000
Expenses		
Rent	$ 1,600	
Salaries	3,500	
Supplies	2,000	
Truck operating	700	
Total expenses		7,800
Net Income		$2,200

Net income becomes part of retained earnings

Big Dog Carworks Corp.
Statement of Changes in Equity
For the Month Ended January 31, 2017

	Common stock	*Retained earnings*	*Total equity*
Opening balance	$ -0-	$ -0-	$ -0-
Stock issued	10,000		10,000
Net income		2,200	2,200
Dividends		(200)	(200)
Ending balance	$10,000	$2,000	$12,000

Figure 1-3b Financial Statements of Big Dog Carworks Corp.

Accounting Time Periods

Financial statements are prepared at regular intervals—usually monthly or quarterly—and at the end of each 12-month period. This 12-month period is called the **fiscal year**. The timing of the financial statements is determined by the needs of management and other users of the financial statements. For instance, financial statements may also be required by outside parties, such as bankers and stockholders if there are many. However, accounting information must possess the qualitative characteristic of timeliness—it must be available to decision makers in time to be useful—which is typically a minimum of once every 12 months.

Accounting reports, called the *annual financial statements*, are prepared at the end of each 12-month period, which is known as the **year-end** of the entity. Most companies' year-ends are on December 31, though this may not always be the case.

Summary of Chapter 1 Learning Objectives

LO1 – Define accounting.

Accounting is the process of identifying, measuring, recording, and communicating an organization's economic activities to users for decision making. Internal users work for the organization while external users do not. Managerial accounting serves the decision-making needs of internal users like managers. Financial accounting reports financial information useful for users external to the organization, like stockholders.

LO2 – Identify and describe the forms of business organizations.

There are two types of organizations. A business organization sells products or services for profit. A non-business organization such as a charity or hospital, exists to meet various societal needs and does not have profit as a goal. Three types of business organizations are a proprietorship, partnership, and corporation. A corporation is different because it is considered a separate legal entity from stockholders, and these stockholders have limited liability for the debts of the corporation.

LO3 – Identify and explain generally accepted accounting principles (GAAP).

GAAP are the guidelines that shape the way financial information is reported in financial statements prepared for external users. GAAP have qualitative characteristics of relevance, faithful representation, comparability, verifiability, timeliness, and understandability. Development of GAAP is guided by the principles of the business entity, consistency, historical cost, full disclosure, going concern, matching, materiality, a stable monetary unit, and revenue recognition.

LO4 – Identify, explain, and prepare the financial statements.

The four financial statements are: income statement, statement of changes in equity, balance sheet, and statement of cash flows. The income statement reports financial performance by detailing revenues less expenses to arrive at net income for the period. The statement of changes in equity shows the changes during the period to common stock and retained earnings. The balance sheet identifies financial position at a point in time by listing assets, liabilities, and stockholders' equity. Finally, the statement of cash flows details the sources and uses of cash during the period.

LO5 – Analyze transactions by using the accounting equation.

The accounting equation (Assets equals liabilities plus stockholders' equity, or A = L + E), describes the asset investments (the left side of the equation) and the liabilities and stockholders' equity that financed the assets (the right side of the equation). The accounting equation provides a system for processing and summarizing financial transactions resulting from a business's activities. A financial transaction is an economic exchange between two parties that impacts the accounting equation. The equation must always balance.

A S S I G N M E N T   M A T E R I A L S

Concept Self-check

1. What is the difference between managerial and financial accounting?
2. What is the difference between a business organization and a non-business organization?
3. What are the three types of business organizations?
4. What does the term *limited liability* mean?
5. Describe what GAAP refers to.
6. Identify and explain the six qualitative characteristics of GAAP.
7. What is the general purpose of financial statements? What are the four types of financial statements?
8. What is the purpose of an income statement? a balance sheet? How do they interrelate?
9. Define the terms “revenue” and “expense”.
10. What is net income? What information does it convey?
11. What is the purpose of a statement of changes in equity?
12. Stockholders’ equity consists of what two components?
13. Explain how retained earnings and dividends are related.
14. What are the three primary components of the balance sheet?
15. What are assets?
16. To what do the terms “liability” and “stockholders’ equity” refer?
17. What information is provided in the statement of cash flows?
18. What are notes to the financial statements?
19. Illustrate how the double-entry accounting system works.
20. Why are financial statements prepared at regular intervals? Who are the users of these statements?
21. What is the basic accounting equation? How does it work?
22. Explain what is meant by the term “financial transaction”. Give an example of a financial transaction.

Comprehension Problems

CP 1–1

The following list covers many of the types of financial transactions. Notice that each transaction has an equal and offsetting effect on the accounting equation.

Types of accounting transactions

	ASSETS	=	LIABILITIES	+	STOCKHOLDERS' EQUITY
1.	(+)				(+)
2.	(+)		(+)		
3.	(+)(-)				
4.	(-)				(-)
5.	(-)		(-)		
6.			(+)		(-)
7.			(-)		(+)
8.			(+)(-)		
9.					(+)(-)

Required: Using the appropriate accounting equation, study the following transactions and identify the effect of each on assets, liabilities and stockholders' equity, as applicable. Use a (+) to denote an increase and a (–) to denote a decrease, if any.

A = L + E

Example:

A	L	E	
(+)	__	(+)	Issued common stock for cash
__	__	__	Purchased a truck for cash
__	__	__	Received a bank loan to pay for equipment
__	__	__	Purchased the equipment for cash
__	__	__	Made a deposit for electricity service to be provided in the future
__	__	__	Paid rent for the month just ended
__	__	__	Signed a new union contract that provides for increased wages in the future
__	__	__	Hired a messenger service to deliver letters during a mail strike
__	__	__	Received a parcel; paid the delivery service
__	__	__	Billed customers for services performed
__	__	__	Made a cash payment to satisfy an outstanding obligation

__ __ __ Received a payment of cash in satisfaction of an amount owed by a customer

__ __ __ Collected cash from a customer for services rendered the same day

__ __ __ Paid cash for truck operating expenses (gas, oil, etc.)

__ __ __ Made a monthly payment on the bank loan; this payment included a payment on part of the loan and also an amount of interest expense. (*Hint:* This transaction affects more than two parts of the accounting equation.)

__ __ __ Issued stock in the company to pay off a loan

__ __ __ Paid a dividend with cash.

CP 1–2

Refer to the list of accounting transactions in Comprehension Problem 1–1.

Required: Study the following transactions and identify, by number (1 to 9), the type of transaction. Some transactions may not require an accounting entry.

Example:

__1__ Issued common stock for cash

____ Paid an account payable

____ Borrowed money from a bank

____ Collected an account receivable

____ Collected a commission on a sale made today

____ Paid for this month's advertising in a newspaper

____ Repaid money borrowed from a bank

____ Signed a contract to purchase a computer

____ Received a bill for supplies used during the month

____ Received a payment of cash in satisfaction of an amount owed by a customer

____ Sent a bill to a customer for repairs made today

____ Sold equipment for cash

____ Purchased a truck on credit, to be paid in six months

____ Requested payment from a customer of an account receivable that is overdue

____ Increased employee vacations from four to six weeks

____ Recorded the amount due to the landlord as rent for the past month.

____ Received the monthly telephone answering service bill

CP 1–3

Required: Calculate the missing amounts for companies A to E.

	A	*B*	*C*	*D*	*E*
Cash	$3,000	$1,000	$?	$6,000	$2,500
Equipment	8,000	6,000	4,000	7,000	?
Accounts payable	4,000	?	1,500	3,000	4,500
Common stock	2,000	3,000	3,000	4,000	500
Retained earnings	?	1,000	500	?	1,000

CP 1–4

Required: Calculate the net income earned during the year. Assume that the change to stockholders' equity results only from net income earned during the year.

	Assets	*Liabilities*
Balance Jan. 1, 2019	$50,000	$40,000
Balance Dec. 31, 2019	35,000	20,000

CP 1–5

Required: Indicate whether each of the following is an asset (A), liability (L), or a stockholders' equity (E) item.

1. Accounts payable
2. Accounts receivable
3. Bank loan
4. Cash
5. Equipment
6. Insurance expense
7. Loan payable
8. Prepaid insurance
9. Rent expense
10. Repair revenue
11. Common stock
12. Truck operating expense
13. Unused office supplies
14. Dividends

CP 1–6

The following accounts are taken from the records of Jasper Inc. at January 31, 2019, its first month of operations.

Cash	$33,000
Accounts receivable	82,000
Unused supplies	2,000
Land	25,000
Building	70,000
Equipment	30,000
Bank loan	15,000
Accounts payable	27,000
Common stock	?
Net income	40,000
Dividends	1,000

Required:

1. Calculate the amount of total assets.
2. Calculate the amount of total liabilities.
3. Calculate the amount of common stock.

CP 1–7

Required: A corporation has been in business for one month. From the financial information at January 31 shown below, complete an income statement, statement of changes in stockholders' equity, and balance sheet.

Accounts receivable	$ 4,000
Accounts payable	5,000
Cash	1,000
Common stock	4,000
Equipment	8,000
Insurance expense	1,500
Miscellaneous expense	2,500
Office supplies expense	1,000
Service revenue	20,000
Wages expense	9,000
Dividends	2,000

CP 1–8

A junior bookkeeper of Adams Ltd. prepared the following financial statements at January 31, 2019, the end of its first month of operations.

Adams Ltd.
Income Statement
For the Month Ended January 31, 2019

Revenue		$3,335
Expenses		
Accounts payable	$ 300	
Land	1,000	
Dividends	500	1,635
Miscellaneous expenses	335	
Net income		$1,200

Balance Sheet

Assets		*Liabilities and Stockholder's Equity*	
Cash	$1,000	Rent expense	$ 300
Repairs expense	500	Common stock	3,000
Salaries expense	1,000	Retained earnings	1,200
Building	2,000		
	$4,500		$4,500

Required: Prepare a revised income statement, a statement of changes in equity, and a revised balance sheet.

CP 1–9

Financial statements are prepared according to a number of accounting principles, some of which are listed below:

1. Business entity
2. Going concern
3. Stable monetary unit
4. Historical cost
5. Revenue recognition
6. Consistency
7. Full disclosure
8. Matching
9. Materiality

Required: Identify the principle that would apply in each of the following situations. Explain your choice.

____________ a. An accountant for Caldwell Corporation records a $25 stapler with a five–year life as an expense. Caldwell has total assets of $1,000,000.

____________ b. Fred Rozak, an independent consultant, must keep a set of books for his consulting firm and a separate set of books for his personal records.

____________ c. A machine is recorded at its purchase price of $9,000 and is not revalued at the end of the accounting period to reflect its market value of $10,000.

____________ d. Land purchased in 1985 for $10,000 is not revalued even though it would take $30,000 in equivalent money to purchase the land today.

____________ e. Accountants of Hull Corporation do not record the value of its production equipment at the much lower amount for which it could be sold in the near future.

____________ f. Investors of Spellman Corporation note that the accounting policy for valuing inventory has not changed from the prior fiscal year.

____________ g. Looten Corporation senior managers decide to disclose a recent $2 million lawsuit in a note to the financial statements even though the case will not likely be settled for two years.

Problems

P 1–1

The following balances appeared on the transactions worksheet of Hill Chairs Inc. on April 1, 2019.

ASSETS							=	LIABILITY	+	EQUITY		
Cash	+	Accounts Receivable	+	Prepaid Expense	+	Unused Supplies	=	Accounts Payable	+	Comm. Stock	+	Retained Earnings
1,400		3,600		1,000		350		2,000		4,350		

The following transactions occurred during April:

a. Collected $2,000 cash in satisfaction of an amount owed by a customer
b. Billed $3,000 to customers for chairs rented to date
c. Paid the following expenses: advertising, $300; salaries, $2,000; telephone, $100
d. Paid half of the accounts payable
e. Received a $500 bill for April truck operating expenses
f. Collected $2,500 in satisfaction of an amount owed by a customer
g. Billed $1,500 to customers for chairs rented to date
h. Transferred $500 of prepaid expenses to rent expense
i. Counted $200 of supplies still on hand (recorded the amount used as an expense)
j. Issued additional common stock and received $1,000 cash
k. Paid $200 dividend in cash.

Required: Record the opening balances and the above transactions on a transactions worksheet and calculate the total of each column at the end of April. (Use the headings above on your worksheet.)

P 1–2

The following transactions of Larson Services Inc. occurred during August 2019, its first month of operations.

Aug.	1	Issued common stock for $3,000 cash
	1	Borrowed $10,000 cash from the bank
	1	Paid $8,000 cash for a used truck
	4	Paid $600 for a one–year truck insurance policy effective August 1 (record as an asset)
	5	Collected $2,000 fees from a client for work to be performed at a later date
	7	Billed a client $5,000 for services performed today
	9	Paid $250 for supplies purchased and used today
	12	Purchased $500 of supplies on credit (record as an asset)
	15	Collected $1,000 of the amount billed August 7
	16	Paid $200 for advertising in The News during the first two weeks of August
	20	Paid $250 of the amount owing for supplies purchased on August 12
	25	Paid the following expenses: rent for August, $350; salaries, $2,150; telephone, $50; truck operating, $250
	28	Called clients about payment of the balances owing from August 7
	29	Billed a client $6,000 for services performed today, including $1,500 related to cash received August 5
	31	Transferred $50 of August's prepaid expenses to insurance expense
	31	Counted $100 of supplies still on hand (recorded the amount used as an expense).

Required:

1. Record the above transactions on a transactions worksheet and calculate the total of each column at the end of August. Use the following headings on your worksheet.

ASSETS									=	LIABILITIES			+	EQUITY		
		Acct.		Ppd.		Un.				Bank		Acct.		Comm.		Ret.
Cash	+	Rec.	+	Exp.	+	Supp.	+	Truck	=	Loan	+	Pay.	+	Stock	+	Earn.

2. Prepare an income statement and statement of changes in equity for the month ended August 31, 2019, and a balance sheet at August 31, 2019. Identify the revenue earned as Fees. Record the expenses in alphabetical order.

P 1–3

Following are the asset, liability, and stockholders' equity balances of Dumont Inc. at January 31, 2019 after its first month of operations.

ASSETS		=	LIABILITIES		+	STOCKHOLDERS' EQUITY	
Cash	$1,300		Bank loan	$8,000		Common stock	$2,000
Accounts rec.	2,400		Accounts pay.	1,000		Service revenue	7,500
Prepaid exp.	550					Advertising expense	500
Unused supp.	750					Commissions expense	720
Truck	9,000					Insurance expense	50
						Interest expense	80
						Rent expense	400
						Supplies expense	100
						Telephone expense	150
						Wages expense	2,300
						Dividend paid	200

Required:

1. Prepare an income statement and statement of changes in equity for the month ending January 31, 2019. Record the expenses in alphabetical order. Assume no common stock was issued during the month.
2. Prepare a balance sheet at January 31.

P 1–4

The following is an alphabetical list of data from the records of Kenyon Services Corporation at March 31, 2019.

Accounts payable	$9,000	Equipment rental expense	$ 500
Accounts receivable	3,900	Fees earned	4,500
Advertising expense	300	Insurance expense	400
Cash	3,100	Interest expense	100
Common stock	2,000	Truck operating expense	700
Equipment	5,000	Wages expense	1,500

Required:

1. Prepare an income statement and statement of changes in equity for the month ended March 31, 2019. Record the expenses in alphabetical order. Assume no common stock was issued during the month and that there were no retained earnings at March 1.
2. Prepare a balance sheet at March 31.

P 1–5

The following "financial statement" was prepared from the records of Laberge Sheathing Inc. for the eight-month period ended August 31, 2019.

Laberge Sheathing Inc.
Financial Statement
For the Eight Month Period Ended August 31, 2019

Cash	$ 400	Accounts payable	$ 7,800
Accounts receivable	3,800	Common stock	3,200
Unused supplies	100	Service revenue	6,000
Equipment	8,700		
Advertising expense	300		
Interest expense	500		
Maintenance expense	475		
Supplies expense	125		
Wages expense	2,000		
Dividends	600		
	$17,000		$17,000

Required:

1. When is the corporation's likely fiscal year-end?
2. Prepare an income statement and statement of changes in equity for the eight-month period ended August 31, 2019.
3. Prepare a balance sheet at August 31.

P 1–6

The following transactions took place in McIntyre Builders Corporation during June 2019, its first month of operations.

Jun.	1	Issued common stock for $8,000 cash
	1	Purchased $5,000 equipment on credit
	2	Collected $600 cash for renovations completed today
	3	Paid $20 for supplies used June 2
	4	Purchased $1,000 supplies on credit (record supplies as an asset)
	5	Billed customers $2,500 for renovations completed to date
	8	Collected $500 of the amount billed June 5
	10	Paid half of the amount owing for equipment purchased June 1
	15	Sold excess equipment for a promise from the buyer to pay $1,000 in the future. The same amount is the same as the original cost of this equipment. Record as a loan payable.
	18	Paid for the supplies purchased June 4
	20	Received a bill for $100 for electricity used to date (record as utilities expense)
	22	Paid $600 to the landlord for June and July rent (record as prepaid expense)
	23	Signed a union contract
	25	Collected $1,000 of the amount billed June 5
	27	Paid the following expenses: advertising, $150; telephone, $50; truck operating expense (repairs, gas), $1,000; wages, $2,500
	30	Billed $2,000 for repairs completed to date
	30	Transferred the amount for June rent to rent expense
	30	Counted $150 of supplies still on hand (recorded the amount used as an expense)
	30	Paid $30 dividend in cash.

Required:

1. Record the above transactions on a transactions worksheet and calculate the total of each column at the end of June. Use the following headings on your worksheet.

ASSETS									=	LIABILITY	+	S/H EQUITY		
Cash	+	Acct. Rec.	+	Ppd. Exp.	+	Un. Supp.	+	Equip.	=	Acct. Pay.	+	Comm. stock	+	Ret. Earn.

2. Prepare an income statement and statement of changes in equity for the one-month period ended June 30, 2019 and a balance sheet at June 30. Identify the revenue earned as “Renovations”. Record the expenses on the income statement in alphabetical order.

P 1–7

Clarke Limited had the following balances in its accounting equation at the end of September 30, 2019:

ASSETS		=	LIABILITIES		+	S/H EQUITY	
Cash	$14,215		Accounts payable	$ 3,853		Common stock	$?
Accounts receivable	11,785		Loan payable	25,000			
Unused supplies	1,220						
Land	?						
Building	?						
Furniture	8,000						
Equipment	60,000						
Truck	3,210						
	$?			$28,853			$?

Land and building were acquired at a cost of $30,000. It was estimated that one-third of the total cost should be applied to the cost of land. The following transactions were completed during the month of October:

Oct.	2	Paid $110 to satisfy an account payable
	3	Collected in full an account receivable of $670
	4	Purchased office supplies for $400 for credit (record supplies as an asset)
	8	Issued additional common stock for $16,000 cash
	10	Collected $1,000 cash owed by a customer
	11	Purchased equipment for $22,000; made a cash payment of $2,000, the balance to be paid within 30 days
	15	Paid $400 cash to satisfy an account payable
	20	Paid $10,000 in cash in partial settlement of the liability of October 11; took out a long-term loan for the balance
	31	Collected in full an account receivable of $300.

Required:

1. Calculate the missing figures in the September 30 accounting equation.
2. Record the September 30 balances on a transactions worksheet and record the October transactions. Total the columns and ensure that the accounting equation balances.
3. Calculate net income for the month of October.

CHAPTER TWO

The Accounting Process

Chapter 2 looks more closely at asset, liability, and stockholder's equity accounts and how they are affected by double-entry accounting. The transactions introduced in Chapter 1 for Big Dog Carworks Corp. are used to explain "debit" and "credit" analysis. The preparation of a trial balance will be introduced. Additionally, this chapter will demonstrate how transactions are recorded in a general journal and posted to a general ledger. Finally, the concept of the accounting cycle is presented.

Chapter 2 Learning Objectives

LO1 – Describe asset, liability, and equity accounts, identifying the effect of debits and credits on each.

LO2 – Analyze transactions using double-entry accounting.

LO3 – Prepare a trial balance, explain its use, and prepare financial statements from it.

LO4 – Record transactions in a general journal and post them to a general ledger.

LO5 – Define the accounting cycle.

A. Accounts

LO1 – Describe asset, liability, and equity accounts, identifying the effect of debits and credits on each.

Chapter 1 reviewed the analysis of financial transactions and the resulting impact on the accounting equation. We now expand that discussion by introducing the way transaction is recorded in an *account*. An **account** accumulates detailed information regarding the increases and decreases in a specific asset, liability, or stockholders' equity item. Accounts are maintained in a **general ledger**. We now review and expand our understanding of asset, liability, and stockholders' equity accounts.

Asset Accounts

Recall that assets are resources that have future economic benefits for the business. The primary purpose of assets is that they be used in day-to-day operating activities in order to generate revenue either directly or indirectly. A separate account is established for each asset. Examples of asset accounts are reviewed below.

- Cash has future purchasing power. Coins, currency, checks, and bank account balances are examples of cash.

- Accounts receivable occur when products or services are sold on account (or "on credit"). When a sale occurs on account or on credit, the customer has not paid cash but promises to pay in the future.

- **Notes receivable** are formal promises to pay accounts receivable on a specific future date along with a predetermined amount of interest.

- **Unused supplies** are things like paper, staples, and other business stock to be used in the future. If the supplies are used before the end of the accounting period or immaterial in amounts, they are considered an expense of the period rather than an asset.

- **Merchandise inventory** are goods held for sale.

- *Prepaid insurance* represents an amount paid in advance for insurance. The prepaid insurance will be used in the future.

- *Prepaid rent* represents an amount paid in advance for rent. The prepaid rent will be used in the future.

- **Buildings** indirectly help a business generate revenue over future accounting periods since they provide space for day-to-day operating activities.

- **Land** cost must be in a separate account from any building that might be on the land. Land usually has an indefinite useful life.

Liability Accounts

As explained in Chapter 1, a liability is an obligation settled in time through the transfer of economic benefits like cash. One purpose of liabilities is to finance the purchase of assets like land, buildings, and equipment. Liabilities are also used to finance day-to-day operating activities. Examples of liability accounts are reviewed below.

- Accounts payable are debts owed to suppliers for goods purchased or services received as a result of day-to-day operating activities. An example of a service received on credit might be a plumber billing the business for a repair.

- **Wages payable** are wages owed to employees for work performed but not paid at the balance sheet date.

- **Bank loans** are debts owed to a bank or other financial institution.

- **Unearned revenues** are payments received in advance of the product or service being provided. If a customer pays $1,000 for an automobile repair to be done in the next accounting period, this is recorded as a liability.

Stockholders' Equity Accounts

Chapter 1 explained that stockholders' equity represents the net assets owned by the owners of a corporation. There are five different types of stockholders' equity accounts: common stock, retained earnings, dividends, revenues, and expenses. Common stock represents the investments made by owners into the business and causes stockholders' equity to increase. Retained earnings is the sum of all net incomes earned over the life of the corporation to date, less any dividends distributed to stockholders over the same time period.

Therefore, the Retained Earnings account includes revenues, which cause stockholders’ equity to increase, along with expenses and dividends, which cause stockholders’ equity to decrease. Figure 2-1 summarizes stockholders’ equity accounts.

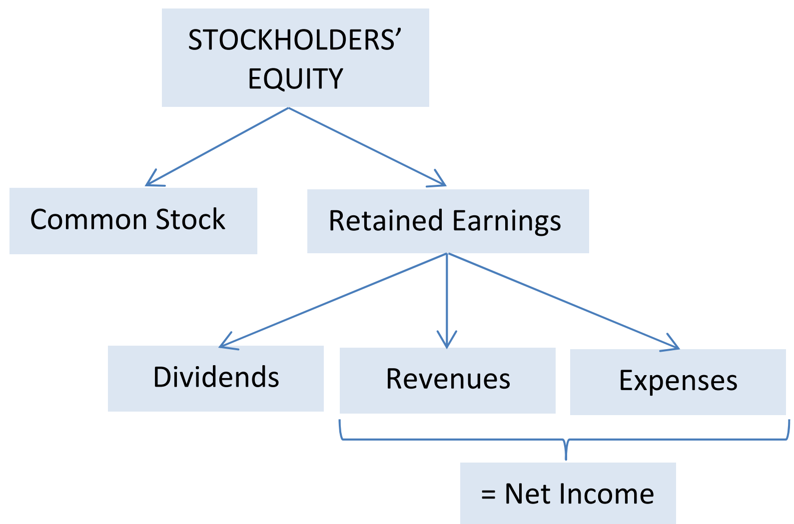
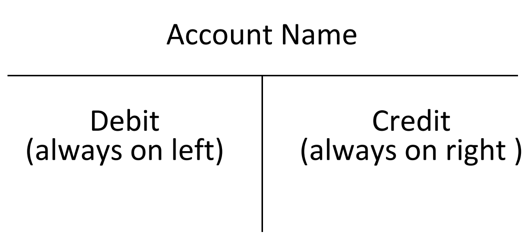


Figure 2-1 Composition of Stockholders’ Equity

T-accounts

A simplified account, called a **T-account**, is often used as a learning tool to show increases and decreases in an account. It is called a T-account because it resembles the letter *T*. As shown in the T-account below, the left side records **debit** entries and the right side records **credit** entries.



The *type* of account determines whether an increase or a decrease in a particular transaction is represented by a debit or credit. For financial transactions that affect *assets*, *dividend*s, and *expenses,* increases are recorded by debits and decreases by credits. This guideline is shown in the following T-account.

Assets, Dividends, Expenses	
Debits are always increases ↑	Credits are always decreases ↓

For financial transactions that affect *liabilities, common stock,* and *revenues*, increases are recorded by credits and decreases by debits, as follows:

Liabilities, Revenues, Common Stock	
Debits are always decreases ↓	Credits are always increases ↑

	Assets	=	Liabilities	+	S/H Equity
Increases are recorded as:	Debits		Credits		Credits*
Decreases are recorded as:	Credits		Debits		Debits**

* Revenue and common stock transactions cause stockholders' equity to increase, so they are recorded as credits.

**Expense and dividend transactions cause stockholders' equity to decrease, so they are recorded as debits.

The following summary shows how debits and credits are used to record increases and decreases in various types of accounts.

ASSETS DIVIDENDS EXPENSES	LIABILITIES COMMON STOCK
Increases are DEBITED Decreases are CREDITED	Increases are CREDITED Decreases are DEBITED

This summary will be used in a later section to illustrate the recording of debits and credits regarding the transactions of Big Dog Carworks Corp. introduced in Chapter 1.

The **account balance** is determined by adding and subtracting the increases and decreases in an account as shown below:

Cash

	Debit	*Credit*
	10,000	4,000
	3,000	2,000
	400	2,400
Balance	5,000	

Accounts Payable

	Debit	*Credit*
	700	5,000
Balance		4,300

The $5,000 debit balance in the Cash account was calculated by adding all the debits and subtracting the credits (10,000 + 3,000 + 400 – 4,000 – 2,000 – 2,400). The $5,000 is recorded on the debit side of the T-account because the debits are greater than the credits. In Accounts Payable, the balance is a $4,300 credit calculated by subtracting the debits from the credits (5,000 – 700).

Notice that Cash shows a debit balance while Accounts Payable shows a credit balance. The Cash account is an asset so its *normal balance* is a debit. A **normal balance** is the side on which increases occur. Accounts Payable is a liability and because liabilities increase with credits, the normal balance in Accounts Payable is a credit as shown in the T-account above.

Chart of Accounts

A business will create a list of accounts called a **chart of accounts** where each account is assigned both a name and a number. A common practice is to have the accounts arranged in a manner that is compatible with the order of their use in financial statements. For instance, Asset accounts may begin with the digit ‘1’, liability accounts with the digit ‘2’, and stockholders’ equity accounts (excluding revenues and expenses) with the digit ‘3’. Each business will have a unique chart of accounts that corresponds to its specific needs. Assume Big Dog Carworks Corp. uses the following numbering system for its accounts:

100-199	Asset accounts
200-299	Liability accounts
300-399	Common stock, retained earnings, and dividends
400-499	Revenue accounts
600-699	Expense accounts

B. Transaction Analysis Using Accounts

LO2 – Analyze transactions using double-entry accounting.

In Chapter 1, transactions for Big Dog Carworks Corp. were analyzed to determine the change in each item of the accounting equation. In this next section, these same transactions will be used to demonstrate double-entry accounting. **Double-entry accounting** means each transaction is recorded in at least two accounts where the total debits always equal the total credits. As a result of double-entry accounting, the sum of all the debit balance accounts in the ledger must equal the sum of all the credit balance accounts. The rule that debits = credits is rooted in the accounting equation:

ASSETS	=	LIABILITIES	+	STOCKHOLDERS’ EQUITY
Debits	=	Credits	+	Credits

Illustrative Problem—
Double-Entry Accounting and the Use of Accounts

In this section, the following debit and credit summary will be used to record the transactions of Big Dog Carworks Corp. into T-accounts.

ASSETS DIVIDENDS EXPENSES	LIABILITIES COMMON STOCK REVENUE
Increases are DEBITED. Decreases are CREDITED.	Increases are CREDITED. Decreases are DEBITED.

Transaction 1

Jan. 1 – Big Dog Carworks Corp. issued 1,000 shares to Bob Baldwin, the only stockholder, for $10,000 cash.

Debit: An asset account, Cash, is increased resulting in a debit.

Cash	
10,000	

Credit: Common Stock, a stockholders' equity account, is increased resulting in a credit.

Common Stock	
	10,000

Transaction 2

Jan. 2 – Borrowed $4,000 from the bank.

Debit: An asset account, Cash, is increased resulting in a debit.

Cash	
4,000	

Credit: A liability account, Bank Loan, is increased resulting in a credit.

Bank Loan	
	4,000

Transaction 3

Jan. 3 – Equipment was purchased for $3,000 cash. In this case, one asset is acquired in exchange for another asset.

Debit: An asset account, Equipment, is increased resulting in a debit.

Equipment	
3,000	

Credit: An asset account, Cash, is decreased resulting in a credit.

Cash	
	3,000

Transaction 4

Jan. 3 – A truck was purchased for $8,000; Big Dog paid $1,000 cash and incurred a $7,000 bank loan for the balance. This transaction involves one debit and two credits.

Debit: An asset account, Truck, is increased by a debit.

Truck	
8,000	

Credit: An asset account, Cash, is decreased by a credit.

Cash	
	1,000

Credit: A liability account, Bank Loan, is increased by a credit.

Bank Loan	
	7,000

Transaction 5

Jan. 5 – Big Dog Carworks Corp. paid $2,400 cash for a one-year insurance policy, effective January 1. Because the insurance provides future benefit, it is recorded as an asset until it is used.

Debit: An asset account, Prepaid Insurance, is increased by a debit.

Prepaid Insurance	
2,400	

Credit: An asset account, Cash, is decreased by a credit.

Cash	
	2,400

Transaction 6

Jan. 10 – The corporation paid $2,000 cash to reduce the bank loan.

Debit: A liability account, Bank Loan, is decreased by a debit.

Bank Loan	
2,000	

Credit: An asset account, Cash, is decreased by a credit.

Cash	
	2,000

Transaction 7

Jan. 15 – The corporation received an advance payment of $400 for repair services to be performed as follows: $300 in February and $100 in March. Since the revenue relating to this cash receipt is not earned as of this date, a liability account, Unearned Repair Revenue, is created.

Debit: An asset, Cash, is increased at the time the cash is received by a debit.

Cash	
400	

Credit: a liability account, Unearned Repair Revenue, is credited.

Unearned Repair Revenue	
	400

Transaction 8

Jan. 31 – A total of $10,000 of automotive repair services is performed for customers who paid $7,500 cash. The remaining $2,500 will be paid in 30 days. Two debits are required in this case.

Debit: An asset, Cash, is increased by a debit.

Cash	
7,500	

Debit: Another asset, Accounts Receivable, is increased by a debit.

Accounts Receivable	
2,500	

Credit: A stockholders' equity account, Repair Revenue, is increased by a credit.

Repair Revenue	
	10,000

Transaction 9

Jan. 31 – Operating expenses of $7,100 were paid in cash: rent expense, $1,600; salaries expense, $4,000; and supplies expense of $1,500. $700 for truck operating expenses were incurred on credit. This transaction increases four separate expense accounts and two separate balance sheet accounts.

Debit: An expense account, Rent Expense is increased by a debit.

Rent Expense	
1,600	

Debit: An expense account, Salaries Expense is increased by a debit.

Salaries Expense	
4,000	

Debit: An expense account, Supplies Expense is increased by a debit.

Supplies Expense	
1,500	

Debit: An expense account, Truck Operating Expense is increased by a debit.

Truck Operating Expense	
700	

Credit: An asset, Cash, is decreased by a credit.

Cash	
	7,100

Credit: A liability, Accounts Payable, is increased by a credit.

Accounts Payable	
	700

Transaction 10

Jan. 31 – Dividends of $200 were paid in cash to the stockholder, Bob Baldwin. Dividends are a distribution of net income, and reduce stockholders' equity.

Debit: The Dividends account is increased by a debit.

Dividends	
200	

Credit: An asset, Cash, is decreased by a credit.

Cash	
	200

After the January transactions of Big Dog Carworks Corp. have been recorded in the T-accounts, each account is totalled and the difference between the debits and credits is calculated, as shown in the following diagram. The numbers in parentheses refer to the transaction numbers used in the preceding section. To prove that the accounting equation is in balance, the account balances for each of assets, liabilities, and stockholders' equity are added. Notice that total assets of $22,100 equal the sum of total liabilities of $10,100 plus stockholders' equity of $12,000.

ASSETS = LIABILITIES + STOCKHOLDERS' EQUITY

Cash

(1)	10,000	(3)	3,000
(2)	4,000	(4)	1,000
(7)	400	(5)	2,400
(8)	7,500	(6)	2,000
		(9)	7,100
		(10)	200
Bal.	6,200		

Accounts Receivable

(8)	2,500		

Prepaid Insurance

(5)	2,400		

Equipment

(3)	3,000		

Truck

(4)	8,000		

Bank Loan

(6)	2,000	(2)	4,000
		(4)	7,000
		Bal.	9,000

Accounts Payable

		(9)	700

Unearned Repair Revenue

		(7)	400

Common Stock

		(1)	10,000

Dividends

(10)	200		

Repair Revenue

		(8)	10,000

Rent Expense

(9)	1,600		

Salaries Expense

(9)	4,000		

Supplies Expense

(9)	1,500		

Truck Operating Expense

(9)	700		

22,100[1] = 10,100[2] + 12,000[3]

[1] 6,200 + 2,500 + 2,400 + 3,000 + 8,000 = 22,100

[2] 9,000 + 700 + 400 = 10,100

[3] 10,000 – 200 + 10,000 – 1,600 – 4,000 – 1,500 – 700 = 12,000

C. The Trial Balance

LO3 – Prepare a trial balance, explain its use, and prepare financial statements from it.

To help prove that the accounting equation is in balance, a trial balance is normally prepared instead of the T-account listing shown in the previous section. A **trial balance** is an internal document that lists all the account balances at a point in time. The total debits must equal total credits on the trial balance. The form and content of a trial balance is illustrated below, using the account numbers, account names, and account balances of Big Dog Carworks Corp. at January 31, 2017. Assume that the account numbers are those assigned by the business.

Big Dog Carworks Corp.
Trial Balance
At January 31, 2017

Acct. No.	*Account*	*Account balances* *Debit*	*Credit*
101	Cash	$6,200	
110	Accounts receivable	2,500	
161	Prepaid insurance	2,400	
183	Equipment	3,000	
184	Truck	8,000	
201	Bank loan		$9,000
210	Accounts payable		700
247	Unearned repair revenue		400
320	Common stock		10,000
350	Dividends	200	
450	Repair revenue		10,000
654	Rent expense	1,600	
656	Salaries expense	4,000	
668	Supplies expense	1,500	
670	Truck operating expense	700	
		$30,100	$30,100

Double-entry accounting requires that debits equal credits. The trial balance establishes that this equality exists for Big Dog but it does not ensure that each item has been recorded in the proper account. Neither does the trial balance ensure that all items that should have been entered have been entered. In addition, a transaction may be recorded twice. Any or all of these errors could occur and the trial balance would still balance. Nevertheless, a trial balance provides a useful mathematical check before preparing financial statements.

Preparation of Financial Statements

Financial statements for the one-month period ended January 31, 2017 can now be prepared from the trial balance figures.

Big Dog Carworks Corp.
Trial Balance
At January 31, 2017

Acct. No.		Account Balances Debit	Credit
101	Cash	$ 6,200	
110	Accounts receivable	2,500	
161	Prepaid insurance	2,400	
183	Equipment	3,000	
184	Truck	8,000	
201	Bank loan		$ 9,000
210	Accounts payable		700
247	Unearned repair revenue		400
320	Common stock		10,000
350	Dividends	200	
450	Repair revenue		10,000
654	Rent expense	1,600	
656	Salaries expense	4,000	
668	Supplies expense	1,500	
670	Truck operating expense	700	
		$30,100	$30,100

Big Dog Carworks Corp.
Income Statement
For the Month Ended Jan. 31, 2017

Revenue		
Repairs		$10,000
Expenses		
Rent	1,600	
Salaries	4,000	
Supplies	1,500	
Truck operating	700	
Total expenses		7,800
Net income		$2,200

First, an income statement is prepared for January. Expenses are deducted from revenue to measure the amount of net income for January.

Second, net income is transferred to the statement of changes in equity as part of retained earnings.

Third, common stock and dividend amounts are transferred to the statement of changes in equity. Dividends reduce retained earnings. They are distributions of net income to owners.

Big Dog Carworks Corp.
Statement Of Changes In Equity
For the Month Ended January 31, 2017

	Common stock	*Retained earnings*	*Total equity*
Balance, January 1, 2017	$ -0-	$ -0-	$ -0-
Stock issued	10,000		10,000
Net income		2,200	2,200
Dividends		(200)	(200)
Balance, January 31, 2017	$10,000	$ 2,000	$12,000

Fourth, the columns are totalled and carried forward to the applicable section of the balance sheet (see next page).

The asset and liability accounts from the trial balance and the ending balances for common stock and retained earnings on the statement of changes in equity are used to prepare the balance sheet.

These accounts are used to prepare the balance sheet.

Big Dog Carworks Corp.
Trial Balance
At January 31, 2017

Acct. No.		*Account Balances* *Debit*	*Credit*
101	Cash	$ 6,200	
110	Accounts receivable	2,500	
161	Prepaid insurance	2,400	
183	Equipment	3,000	
184	Truck	8,000	
201	Bank loan		$ 9,000
210	Accounts payable		700
247	Unearned repair revenue		400
320	Common stock		10,000
350	Dividends	200	
450	Repair revenue		10,000
654	Rent expense	1,600	
656	Salaries expense	4,000	
668	Supplies expense	1,500	
670	Truck operating expense	700	
		$30,100	$30,100

Big Dog Carworks Corp.
Balance Sheet
At January 31, 2017

Assets		
Cash	$ 6,200	
Accounts receivable	2,500	
Prepaid insurance	2,400	
Equipment	3,000	
Truck	8,000	
Total assets		$22,100
Liabilities		
Bank loan	$ 9,000	
Accounts payable	700	
Unearned repair rev.	400	$10,100
Stockholders' Equity		
Common stock	$10,000	
Retained earnings	2,000	12,000
Total liabilities and stockholders' equity		$22,100

The common stock and retained earnings balances are transferred to the balance sheet from the statement of changes in equity.

Note the links between financial statements:

The income statement is linked to the statement of changes in equity. Revenues and expenses are reported on the income statement to show the details of net income. Because net income causes stockholders' equity to change, it is then reported on the statement of changes in equity.

The statement of changes in equity is linked to the balance sheet. The statement of changes in equity shows the details of how stockholders' equity changed during the accounting period. The balances for common stock and retained earnings that appear on the statement of changes in equity are transferred to the stockholders' equity section of the balance sheet.

The balance sheet summarizes stockholders' equity. It shows only account balances for common stock and retained earnings. To obtain the details regarding these stockholders' equity accounts, we must look at the income statement and the statement of changes in equity.

D. Using Formal Accounting Records

LO4 – Record transactions in a general journal and post them to a general ledger.

The preceding analysis of financial transactions used T-accounts to record debits and credits. T-accounts will continue to be used for illustrative purposes throughout this book. In actual practice, financial transactions are recorded in a **general journal**.

A general journal is a document that is used to chronologically record a business's debit and credit transactions (see Figure 2-2). It is often referred to as the *book of original entry*. **Journalizing** is the process of recording a financial transaction in the journal. The resulting debit and credit entry recorded in the journal is called a **journal entry**.

A **general ledger** is a record that contains all of a business's accounts. **Posting** is the process of transferring amounts from the journal to the matching ledger accounts. Because amounts recorded in the journal eventually end up in a ledger account, the ledger is sometimes referred to as a *book of final entry*.

Recording Transactions in the General Journal

Each transaction is first recorded in the journal. The January transactions of Big Dog Carworks Corp. are recorded in its journal as shown in Figure 2-2. The journalizing procedure follows these steps (refer to Figure 2-2 for corresponding numbers):

1. The year is recorded at the top and the month is entered on the first line of page 1. This information is repeated only on each new journal page used to record transactions.
2. The date of the first transaction is entered in the second column, on the first line. The day of each transaction is always recorded in this second column.
3. The name of the account to be debited is entered in the description column on the first line. By convention, accounts to be debited are usually recorded before accounts to be credited. The column titled Posting Reference (PR) indicates the number given to the account in the General Ledger. For example, the account number for Cash is 101. The amount of the debit is recorded in the debit column.

4. The name of the account to be credited is on the second line of the description column and is indented about one centimeter into the column. Accounts to be credited are always indented in this way in the journal. The amount of the credit is recorded in the credit column.
5. An explanation of the transaction is entered in the description column on the next line. It is not indented.
6. A line is usually skipped after each journal entry to separate individual journal entries and the date of the next entry recorded. It is unnecessary to repeat the month if it is unchanged from that recorded at the top of the page.

GENERAL JOURNAL Page 1

	Date 2017		Description	PR	Debit	Credit
1	Jan.	1	Cash	101	10,000	
2			Common Stock	320		10000
			To record common stock issued.			
3		2	Cash	101	4,000	
4			Bank Loan	201		4,000
5			To record receipt of bank loan.			
6						
		2	Equipment	183	3,000	
			Cash	101		3,000
			To record purchase of equipment for cash.			
		3	Truck	184	8,000	
			Bank Loan	201		7,000
			Cash	101		1,000
			To record purchase of a tow truck; paid cash and incurred additional bank loan.			
		5	Prepaid Insurance	161	2,400	
			Cash	101		2,400
			To record payment for one-year insurance policy.			

	10	Bank Loan	201	2,000	
		Cash	101		2,000
		To record payment on bank loan.			
	15	Cash	101	400	
		Unearned Repair Revenue	247		400
		To record receipt of cash for services that will not be performed in January.			
	31	Cash	101	7,500	
		Accounts Receivable	110	2,500	
		Repair Revenue	450		10,000
		To record repair revenue earned in January.			
	31	Rent Expense	654	1,600	
		Salaries Expense	656	4,000	
		Supplies Expense	668	1,500	
		Truck Operating Expense	670	700	
		Cash	101		7,100
		Accounts Payable	210		700
		To record payment of expenses for January.			
	31	Dividends	350	200	
		Cash	101		200
		To record payment of dividends.			

Figure 2–2   January General Journal Transactions for BDCC

Most of Big Dog's entries have one debit and credit. An entry can also have more than one debit or credit, in which case it is referred to as a **compound entry**. The entry dated January 3 is an example of a compound entry.

Posting Transactions to the General Ledger

The **ledger account** is a formal variation of the T-account. The ledger accounts shown in Figure 2-3 are similar to what is used in electronic/digital accounting programs. Ledger accounts are kept in the general ledger. Debits and credits recorded in the journal are transferred or "posted" to appropriate ledger accounts so that the details and balance for each account can be found easily. Figure 2-3 uses the first transaction of Big Dog Carworks Corp. to illustrate how to post amounts and record other information. The posting procedure follows these steps (refer to Figure 2-3 for corresponding numbers):

1. The date is recorded in the appropriate general ledger account.
2. The general journal page number is recorded in the Posting Reference column of each ledger account as a cross reference. In this case, the posting has been made from general journal (GJ) page 1 so the reference is recorded as “GJ1”.
3. The debit and credit amounts from the general journal are posted to the debit or credit columns in the appropriate general ledger account. Here the entry debiting Cash is posted to the Cash ledger account. The entry crediting common stock is then posted to the Common Stock general ledger account.
4. After posting the entry, a balance is calculated in the Balance column of each general ledger account. A notation is recorded in the column to the left of the Balance column indicating whether the balance is a debit (DR) or credit (CR). A brief description can be entered in the Description column of the account but this is usually not necessary since the journal includes a detailed description for each journal entry.

The general journal records each financial transaction in double-entry form. Each side of the entry is posted to a separate ledger account.

GENERAL JOURNAL Page 1

Date 2017		Description	PR	Debit	Credit
Jan.	1	Cash	101	10,000	
		Common Stock	320		10000
		To record common stock issued.			

2

1

3

The general ledger stores transactions according to account and keeps a running total of each account balance.

GENERAL LEDGER

Cash Acct. No. 101

Date 2017		Description	PR	Debit	Credit		Balance
Jan.	1		GJ1	10,000		DR	10,000

4

GENERAL LEDGER

Common Stock Acct. No. 320

Date 2017		Description	PR	Debit	Credit		Balance
Jan.	1		GJ1		10,000	CR	10,000

4

Figure 2–3 Illustration of a Transaction Posted to Two Accounts in the General Ledger

This manual process of recording, posting, summarizing, and preparing financial statements is cumbersome and time-consuming. In virtually all businesses, the use of accounting software automates much of the process. In this and subsequent chapters, either the T-account or the general ledger account format will be used to explain and illustrate concepts.

E. The Accounting Cycle

LO5 – Define the accounting cycle.

In the preceding sections, the January transactions of Big Dog Carworks Corp. were used to demonstrate the steps performed to convert economic data into financial information. This conversion was carried out in accordance with the basic double-entry accounting model. These steps are summarized in Figure 2-4.

Step 1: Transactions are analyzed and journalized.

GENERAL JOURNAL

Date		Description	PR	Debit	Credit

Step 2: Transactions are posted to the appropriate general ledger accounts.

GENERAL LEDGER

Name of Account Acct. No.

Date		Description	PR	Debit	Credit	DR CR	Balance

Step 3: A trial balance is prepared, to prove the equality of the debits and credits.

Example Corp.
Trial Balance
At January 31, 2017

Acct. No.	*Account*	*Account Debit*	*Account Credit*
101	Cash	xxx	
110	Accounts receivable	xxx	
201	Bank loan		xxx
	. . .		
		Total	Total

Step 4: Financial statements are prepared from trial balance amounts.

Income Statement
For the Year Ended . . .

Revenue	$xxx
Expenses	(xx)
Net income	$ x

Balance Sheet
At . . .

Assets	$xx
Liabilities	x
Stockholders' equity	x
Total liab. and equity	$xx

Figure 2–4 Illustrated Steps in the Accounting Cycle

The sequence just described, beginning with the journalizing of the transactions and ending with the communication of financial information in financial statements, is commonly referred to as the

accounting cycle. There are additional steps involved in the accounting cycle. These will be introduced in Chapter 3.

Summary of Chapter 2 Learning Objectives

LO1 – Describe asset, liability, and equity accounts, identifying the effect of debits and credits on each.

Assets are resources that have future economic benefits. Examples are cash, accounts receivable, prepaid expenses, and machinery. Increases in assets are recorded as debits and decreases as credits. Liabilities represent an obligation to pay an asset in the future. Examples include accounts payable and unearned revenues. Increases in liabilities are recorded as credits and decreases as debits. Stockholders' equity represents the amount of net assets of the corporation that belong to owners. It includes common stock, dividends, revenues, and expenses. Increases in stockholders' equity caused by the issuing stock and earning revenues are recorded as credits. Decreases in stockholders' equity, like paying dividends and incurring expenses, are recorded as debits.

LO2 – Analyze transactions using double-entry accounting.

In double-entry accounting, each transaction is recorded in at least two accounts where the total debits always equal the total credits. The double-entry accounting rule is rooted in the accounting equation: Assets = Liabilities + Stockholders' equity.

LO3 – Prepare a trial balance, explain its use, and prepare financial statements from it.

To help prove the accounting equation is in balance, a trial balance is prepared. The trial balance lists all the account balances at a point in time. The total debits must equal total credits on the trial balance. The trial balance is used to prepare the financial statements.

LO4 – Record transactions in a general journal and post them to a general ledger.

Recording financial transactions was introduced in this chapter using T-accounts. A business actually records transactions in a general journal, a document which chronologically lists each debit and credit journal entry. To summarize the debit and credit entries by account, the entries in the general journal are posted (or transferred) to the general ledger. The account balances in the general ledger are used to prepare the trial balance.

LO5 – Define the accounting cycle.

Analyzing transactions, journalizing them in the general journal, posting from the general journal into the general ledger, preparing the trial balance, and generating financial statements are steps followed each accounting period. These steps form the core of the accounting cycle. Additional steps in the accounting cycle will be introduced in Chapter 3.

A S S I G N M E N T   M A T E R I A L S

Concept Self-check

1. What is an ‘account’? How are debits and credits used to record transactions?
2. Why are T-accounts used in accounting?
3. How do debits and credits impact the T-account?
4. What is a chart of accounts?
5. Are increases in stockholders’ equity recorded as a debit or credit?
6. Are decreases in stockholders’ equity recorded as a debit or credit?
7. Summarize the rules for using debits and credits to record assets, expenses, dividends, liabilities, common stock, and revenues.
8. What is a trial balance? Why is it prepared?
9. How is a trial balance used to prepare financial statements?
10. A general journal is often called a book of original entry. Why?
11. What is a general ledger? Why is it prepared?
12. Explain the posting process.
13. What are the steps in the accounting cycle?

Comprehension Problems

CP 2–1

The following T–accounts show the relationship of increases (inc.) and decreases (dec.) to debits and credits:

Transaction	Any Asset		Any Liability		Common Stock		Any Revenue		Any Expense	
	Debit (inc.)	*Credit* (dec.)	*Debit* (dec.)	*Credit* (inc.)	*Debit* (dec.)	*Credit* (inc.)	*Debit* (dec.)	*Credit* (inc.)	*Debit* (inc.)	*Credit* (dec.)
(1)	X					X				
(2)										
(3)										
(4)										
(5)										
(6)										
(7)										
(8)										
(9)										
(10)										
(11)										
(12)										
(13)										

Required: For each of the following transactions, indicate in the chart above with an 'X' which accounts are debited and credited (transaction 1 is done for you):

1. Issued common stock for cash
2. Paid cash for a truck
3. Paid for prepaid insurance
4. Borrowed cash from the bank to purchase machinery
5. Received a bill from a local garage for truck repairs done last week
6. Collected cash for services performed today
7. Billed customers for services performed last week
8. Repaid part of the bank loan
9. Made a deposit for utility services to be used in the future
10. Paid cash for truck operating expenses related to 5. above
11. Received a bill for repair supplies used during the month
12. Made a cash payment to a creditor
13. Received a cash payment to satisfy an amount owed by a customer.

CP 2–2

The following list shows totals for all accounts for four different companies: A, B, C, and D. In each case, one amount is omitted.

	A	*B*	*C*	*D*
Cash	$100	$ 72	$?	$ 20
Truck	200	130	71	200
Accounts payable	50	10	5	10
Bank loan	75	?	25	61
Common stock	175	50	100	?
Net income	?	20	6	10

Required: In each case, compute the missing figure.

CP 2–3

Required: Record the debit and credit for each of the following transactions (transaction 1 is done for you):

	Assets		=	Liabilities		+	Equity	
	Debit (inc.)	*Credit* (dec.)		*Debit* (dec.)	*Credit* (inc.)		*Debit* (dec.)	*Credit* (inc.)
1. Purchased a $10,000 truck on credit	10,000				10,000			
2. Borrowed $5,000 cash from the bank								
3. Paid $2,000 of the bank loan in cash								
4. Paid $600 in advance for a one–year insurance policy								
5. Received $500 in advance from a renter for next month's rental of office space.								

CP 2–4

Required: Record the debit and credit in the appropriate account for each of the following transactions (transaction 1 is done for you):

	Debit	*Credit*
1. Issued common stock for cash	Cash	Common Stock
2. Purchased equipment on credit		
3. Paid for a one–year insurance policy		
4. Billed a customer for repairs completed today		
5. Paid this month's rent		
6. Collected the amount billed in transaction 4 above		
7. Collected cash for repairs completed today		
8. Paid for the equipment purchased in transaction 2 above		
9. Signed a union contract		
10. Collected cash for repairs to be made for customers next month		
11. Transferred this month's portion of prepaid insurance to insurance expense.		

CP 2–5

Required: Post the following transactions to the appropriate accounts:

1. Issued common stock for $5,000 cash (posted as an example)
2. Paid $900 in advance for three months' rent, $300 for each month
3. Billed $1,500 to customers for repairs completed today
4. Purchased on credit $2,000 of supplies to be used next month
5. Borrowed $7,500 from a bank
6. Collected $500 for the amount billed in transaction 3
7. Received a $200 bill for electricity used to date (the bill will be paid next month)
8. Repaid $2,500 of the bank loan
9. Used $800 of the supplies purchased in transaction 4
10. Paid $2,000 for the supplies purchased in transaction 4
11. Re. transaction 2: transferred this month's rent to expenses.

Cash	
(1) 5,000	

Bank Loan	

Common Stock	
	(1) 5,000

Repair Revenue	

Accounts Receivable	

Accounts Payable	

Electricity Expense	

Prepaid Rent	

Rent Expense	

Unused Supplies	

Supplies Expense	

CP 2–6

Required: Prepare journal entries for each of the following transactions:

1. Issued common stock for $3,000 cash
2. Purchased $2,000 of equipment on credit
3. Paid $400 cash for this month's rent
4. Purchased on credit $4,000 of supplies to be used next month
5. Billed $2,500 to customers for repairs made to date
6. Paid cash for one-half of the amount owing in transaction 4
7. Collected $500 of the amount billed in transaction 5
8. Sold one-half of the equipment purchased in transaction 2 above for $1,000 in cash.

CP 2–7

Required: Prepare the journal entries and likely descriptions of the eleven transactions that were posted to the following general ledger accounts for the month ended January 31, 2019. Do not include amounts. For instance, the first entry would be:

1. Cash
   Common Stock
   To record common stock issued.

Cash	
1	2
3	5
11	10

Bank Loan	
	11

Common Stock	
	1

Repair Revenue	
	3
	4

Accounts Receivable	
4	

Accounts Payable	
10	2
	6
	7

Electricity Expense	
7	

Prepaid Expense	
5	9

Rent Expense	
9	

Unused Supplies	
2	8

Supplies Expense	
6	
8	

CP 2–8

The following trial balance was prepared from the books of Cross Corporation at its year–end, December 31, 2019. After the company's bookkeeper left, the office staff was unable to balance the accounts or place them in their proper order. Individual account balances are correct, but debits may be incorrectly recorded as credits and vice-versa.

Acct.		*Accounts Balances*	
No.	*Account*	*Debits*	*Credits*
101	Cash	$120,400	
410	Commissions earned	5,000	
320	Common stock		$170,000
210	Accounts payable	30,000	
631	Insurance expense	100	
180	Land		8,000
181	Building		120,000
654	Rent expense		1,000
110	Accounts receivable		26,000
173	Unused supplies	6,000	
668	Supplies expense		300
201	Bank loan		80,000
656	Salaries expense		3,000
669	Telephone expense	200	
	Totals	$161,700	$408,300

Required: Prepare a trial balance showing the balances in the correct column. List the accounts in numerical order. Total the columns and ensure total debits equal total credits. Assume all accounts have normal balances.

CP 2–9

The following is Schulte Corporation's transactions worksheet for the month of March, 2019. Each line represents the dollar amount of a transaction for the month.

	ASSETS							=	LIABILITY	+	EQUITY			
			Acct.		*Ppd.*				*Acct.*		*Common*			
Mar.	*Cash*	+	*Rec.*	+	*Rent*	+	*Equip.*	=	*Pay.*	+	*Stock*	+	*Retained Earnings*	
													Revenue	*Expenses*
1	+5										+5			
2	-3						+6		+3					
3	-2				+2									
15	+4		+2										+6 (Service)	
17	+1						-1							
18									+3					-3 (Supplies)
24			+1										+1 (Service)	
31					-1									-1 (Rent)
31									+2					-2 (Truck Op.)
31	-1								-1					

Required:

1. Prepare journal entries for the ten transactions including the likely description of the transaction. Include account numbers (Posting Reference) using the same general ledger account numbers shown in chapter 2 plus:

Prepaid rent	162
Service revenue	470

2. Post the journal entries to T–accounts and total the accounts.
3. From the T–accounts, prepare a trial balance. List expenses in alphabetical order.
4. Prepare an income statement and statement of changes in equity for the month ended March 31, 2019 and a balance sheet at March 31, 2019.

CP 2–10

The following trial balance was prepared from the books of McQueen Corp. at its year–end, December 31, 2019. The new bookkeeper was unable to balance the accounts or to list them in their proper order. Individual account balances are correct, but debits may be classified as credits and vice-versa.

Acct. No.	*Account*	*Account Balances* *Debit*	*Credit*
210	Accounts payable	$ 13,250	
110	Accounts receivable		$10,000
181	Building	50,000	
320	Common stock	75,000	
101	Cash	15,500	
182	Furniture	6,000	
180	Land		12,000
161	Prepaid insurance		9,600
201	Bank loan		28,000
350	Dividends	2,350	
162	Prepaid rent		8,000
173	Unused supplies	2,800	
	Totals	$164,900	$67,600

Required: Prepare a corrected trial balance showing the accounts in numerical order and balances in the correct column. Total the columns and ensure total debits equal total credits. Assume all accounts have normal balances.

CP 2–11

The following general ledger accounts are taken from the books of Collins Corporation at June 30, 2019, the end of the first month of operation.

Cash

Jn. 1	25,000	Jn. 1	500
20	5,000	15	1,000
		23	4,000
		30	1,000
		30	2,000
		30	16,000

Bank Loan

		Jn. 30	4,000

Common Stock

		Jn. 1	25,000

Repair Revenue

		Jn. 20	5,000
		30	3,000

Prepaid Insurance

Jn. 1	2,000	Jn. 30	200

Accounts Payable

		Jn. 27	100

Rent Expense

Jn. 1	500		

Accounts Receivable

Jn. 30	3,000		

Salaries Expense

Jn. 15	1,000		
30	1,000		

Unused Supplies

Jn. 23	4,000	Jn. 30	200

Supplies Expense

Jn. 30	200		

Land

Jn. 30	5,000		

Telephone Expense

Jn. 27	100		

Building

Jn. 30	15,000		

Insurance Expense

Jn. 30	200		

Required:

1. Prepare journal entries to record the June transactions, including likely descriptions of the transactions.
2. Total the T-accounts and prepare a trial balance at June 30.
3. Prepare an income statement and statement of changes in equity for the month ended June 30, 2019 and a balance sheet at June 30, 2019.

CP 2–12

The following trial balance has been prepared from the ledger of Sabre Travels Inc.

Sabre Travels Inc.
Trial Balance
January 31, 2019

	Account Balances	
	Debits	*Credits*
Cash	$ 60	
Accounts receivable	140	
Unused supplies	10	
Equipment	300	
Building	700	
Land	300	
Bank loan		$100
Accounts payable		20
Common stock		250
Fees earned		1,875
Advertising expense	200	
Repairs expense	100	
Supplies expense	20	
Telephone expense	10	
Utilities expense	5	
Wages expense	400	

Required:

1. Calculate the total debits and credits.
2. Prepare an income statement and statement of changes in equity for the year ended January 31, 2019, and a balance sheet at January 31. Assume common stock was issued in the prior fiscal year and that opening retained earnings is zero.

CP 2–13

The following journal entries were prepared for Elgert Corporation for its first month of operation, January 2019.

			Debit	Credit
Jan.	1	Cash	10,000	
		Common Stock		10,000
		To record the stock issued.		
	5	Rent Expense	200	
		Cash		200
		To record the payment of rent for the month.		
	9	Unused Supplies	4,000	
		Cash		4,000
		To record the purchase of supplies.		
	11	Cash	1,300	
		Service Revenue		1,300
		To record service revenue earned.		
	28	Truck Operating Expense	450	
		Accounts Payable		450
		To record truck repairs.		
	30	Salaries Expense	1,800	
		Cash		1,800
		To record payment of salaries for the month.		
	31	Accounts Receivable	1,600	
		Service Revenue		1,600
		To record service revenue earned during the month.		
	31	Supplies Expense	200	
		Unused Supplies		200
		To record supplies used during the month.		
	31	Dividends	50	
		Cash		50
		To record dividends paid during the month.		

Required:

1. Prepare necessary general ledger T-accounts and post the transactions.
2. Prepare a trial balance at January 31, 2019.
3. Prepare an income statement and statement of changes in equity for the month ended January 31, 2019 and a balance sheet at January 31, 2019.

Problems

P 2–1

The following account balances are taken from the records of Fox Creek Service Limited at October 31, 2019 after its first year of operation:

Accounts Payable	$9,000	Insurance Expense	$ 500
Accounts Receivable	6,000	Repair Revenue	19,000
Advertising Expense	2,200	Supplies Expense	800
Bank Loan	5,000	Telephone Expense	250
Cash	1,000	Truck	9,000
Common Stock	2,000	Truck Operating Expense	1,250
Commissions Expense	4,500	Wages Expense	4,000
Equipment	7,000	Wages Payable	1,500

Required:

1. Prepare a trial balance at October 31, 2019. General ledger account numbers are not necessary.
2. Prepare an income statement and statement of changes in equity for the year ended October 31, 2019.
3 Prepare a balance sheet at October 31, 2019.

P 2–2

The following ledger accounts were prepared for Davidson Tool Rentals Corporation during the first month of operation ending May 31, 2019. No journal entries were prepared to support of the amounts recorded in the ledger accounts.

Cash

May 1	5,000	May 11	1,000
6	2,000	16	500
10	1,500	20	300
15	1,200	22	600
21	800	28	400
		29	3,500

Accounts Payable

May 22	600	May 11	1,000
		23	150
		24	1,100

Common Stock

		May 1	5,000

Service Revenue

		May 5	3,000
		6	2,000
		18	2,500

Advertising Expense

May 31	250		

Accounts Receivable

May 5	3,000	May 10	1,500
18	2,500	15	1,200

Commissions Expense

May 24	1,100		

Prepaid Advertising

May 16	500	May 31	250

Rent Expense

May 28	400		

Unused Supplies

May 20	300	May 30	100

Salaries Expense

May 29	3,500		

Equipment

May 11	2,000	May 21	800

Supplies Expense

May 30	100		

Telephone Expense

May 23	150		

Required:

1. Reconstruct the transactions that occurred during the month and prepare journal entries to record these transactions, including appropriate descriptions. Use the same accounts numbers (Posting Reference) as those used in the chapter plus the following:

Prepaid advertising	160
Service revenue	470
Advertising expense	610
Commissions expense	615
Telephone expense	669

   Calculate the balance in each account.
2. Prepare a trial balance in numerical order at May 31, 2019.

P 2–3

The following trial balance was prepared for Findlay Consultants Corp. at January 31, 2019, its first month of operation.

Findlay Consultants Corp.
Trial Balance
At January 31, 2019

Acct.		*Account Balances*	
No.	*Account*	*Debits*	*Credits*
210	Accounts payable	$ 9,000	
110	Accounts receivable		
610	Advertising expense	150	
101	Cash		$ 3,625
320	Common stock	2,000	
183	Equipment		7,000
182	Furniture		4,000
236	Utilities payable		1,000
631	Insurance expense	200	
641	Maintenance expense		250
160	Prepaid advertising	300	
420	Fees earned	9,500	
654	Rent expense		400
656	Salaries expense		2,600
226	Salaries payable		1,500
668	Supplies expense	350	
669	Telephone expense	125	
184	Truck	9,000	
370	Truck operating expense		750
677	Wages expense		1,500

Required:

1. Prepare a corrected trial balance at January 31. List the accounts in numerical order. Record the amounts in their proper debit or credit positions. Re-add total debits and credits and ensure they are equal. Assume all accounts have normal balances.
2. Prepare an income statement and statement of changes in equity for the month ended January 31, 2019.
3. Prepare a balance sheet at January 31, 2019.

P 2–4

The following balances appeared in the general ledger accounts of Fenton Table Rentals Corporation at April 1, 2019.

Cash	$1,400	Accounts payable	$2,000
Accounts receivable	3,600	Common stock	4,350
Prepaid rent	1,000		
Unused supplies	350		

The following transactions occurred during April:

a. Collected $2,000 cash owed by a customer
b. Billed $3,000 to customers for tables rented to date
c. Paid the following expenses: advertising, $300; salaries, $2,000; telephone, $100
d. Paid half of the accounts payable owing at April 1
e. Received a $500 bill for April truck repair expenses
f. Collected $2,500 owed by a customer
g. Billed $1,500 to customers for tables rented to date
h. Transferred $500 of prepaid rent to rent expense
i. Counted $200 of supplies on hand at April 30; recorded the amount used as an expense
j. Paid a $100 dividend.

Required:

1. Open general ledger T-accounts for the following and enter the April 1 balances (account numbers are indicated in brackets): Cash (101), Accounts Receivable (110), Prepaid Rent (162), Unused Supplies (173), Accounts Payable (210), Common Stock (320), Dividends (350),Service Revenue (470), Advertising Expense (610), Rent Expense (654), Salaries Expense ()656, Supplies Expense (668), Telephone Expense (669), and Truck Operating Expense (670).
2. Prepare journal entries to record the April transactions, including general ledger account numbers.
3. Post transactions a through j to the T- accounts.
4. Prepare a trial balance at April 30, 2019.
5. Prepare an interim income statement and statement of changes in equity for the month ended April 30, 2019 and interim balance sheet at April 30, 2019.

P 2–5

The following transactions occurred in Thorn Accounting Services Inc. during August 2019, its first month of operation.

Aug.	1	Issued common stock for $3,000 cash
	1	Borrowed $10,000 cash from the bank
	1	Paid $8,000 cash for a used truck
	4	Paid $600 for a one–year truck insurance policy effective August 1
	5	Collected $2,000 fees in cash from a client for work performed today (recorded as Fees Earned)
	7	Billed $5,000 fees to clients for services performed to date (recorded as fees earned)
	9	Paid $250 for supplies used to date
	12	Purchased $500 of supplies on credit (recorded as unused supplies)
	15	Collected $1,000 of the amount billed on August 7
	16	Paid $200 for advertising in *The News* during the first two weeks of August
	20	Paid half of the amount owing for the supplies purchased on August 12
	25	Paid cash for the following expenses: rent for August, $350; salaries, $2,150; telephone, $50; truck repairs, $250
	28	Called clients for payment of the balance owing from August 7
	29	Billed $6,000 of fees to clients for services performed to date (recorded as fees earned)
	31	Transferred the amount of August's truck insurance ($50) to insurance expense
	31	Counted $100 of supplies still on hand (recorded the amount used as supplies expense).

Required:

1. Open general ledger T-accounts for the following (account numbers are indicated in brackets): Cash (101), Accounts Receivable (110), Prepaid Insurance (161), Unused Supplies (173), Truck (184), Bank Loan (201), Accounts Payable (210), Common Stock (320), Fees Earned (420), Advertising Expense (610), Insurance Expense (631), Rent Expense (654), Salaries Expense (656), Supplies Expense (668), Telephone Expense (669), and Truck Operating Expense (670).
2. Prepare journal entries to record the August transactions including general ledger account numbers.
3. Post these entries to the T-accounts. Total each account.
4. Prepare a trial balance at August 31, 2019.

5. Prepare an income statement and statement of changes in equity for the month ended August 31, 2019 and a balance sheet at August 31, 2019.

P 2–6

The following transactions took place in Chan Renovations Corporation during June 2019, its first month of operation.

Jun.	1	Issued common stock for $8,000 cash
	1	Purchased $5,000 of equipment on credit
	2	Collected $600 cash for repairs completed today
	3	Paid $20 for supplies used today
	4	Purchased $1,000 of supplies on credit (recorded as unused supplies)
	5	Billed customers $2,500 for repairs performed to date
	8	Collected $500 of the amount billed on June 5
	10	Paid half of the amount owing for equipment purchased on June 1
	15	Sold excess equipment for $1,000 (its original cost). The buyer will pay this amount in several months. (Recorded as accounts receivable).
	18	Paid for the supplies purchased on June 4
	20	Received a $100 bill for electricity used to date (recorded as utilities expense)
	22	Paid $600 to the landlord for June and July rent (recorded as prepaid rent)
	23	Signed a union contract that will increase wages 5% this year.
	25	Collected $1,000 of the amount billed on June 5
	27	Paid the following expenses in cash: advertising, $150; telephone, $50; truck operating expense, $1,000; wages, $2,500
	30	Billed customers $2,000 for repairs completed to date
	30	Transferred the amount for June's rent to rent expense ($300)
	30	Counted $150 of supplies still on hand (recorded the amount used as supplies expense).

Required:

1. Open general ledger T-accounts for the following (account numbers are indicated in brackets): Cash (101), Accounts Receivable (110), Prepaid Rent (162), Unused Supplies (172), Equipment (183), Accounts Payable (210), Common Stock (320), Repair Revenue (450), Advertising Expense (610), Rent Expense (654), Supplies

Expense (668), Telephone Expense (669), Truck Operating Expense (670), Utilities Expense (676), and Wages Expense (677).

2. Prepare journal entries to record the June transactions including general ledger account numbers.
3. Post the June entries to the T-accounts.
4. Prepare a trial balance at June 30, 2019
5. Prepare an income statement and statement of changes in equity for the month ended June 30, 2019 and a balance sheet at June 30, 2019.

CHAPTER THREE

Financial Accounting and the Use of Adjusting Entries

Chapters 1 and 2 described the recording and reporting of accounting transactions in detail. However, the account balances used to prepare the financial statements in these previous chapters did not necessarily reflect correct amounts. Chapter 3 introduces the concept of *adjusting entries* and how these satisfy the *matching principle*. This enables revenues and expenses to be reported in the correct accounting period. The preparation of an adjusted trial balance is discussed, as well as its use in completing financial statements. At the end of the accounting period, after financial statements have been prepared, it is necessary to close temporary accounts to retained earnings. This process is introduced in this chapter, as is the preparation of a post-closing trial balance. The accounting cycle – the steps performed each accounting period to produce financial statements – is also reviewed.

Chapter 3 Learning Objectives

LO1 – Explain how adjusting entries match revenues and expenses to the appropriate time period.
LO2 – Explain the use of and prepare the adjusting entries required for prepaid expenses, depreciation, unearned revenues, accrued revenues, and accrued expenses.
LO3 – Prepare an adjusted trial balance and use it to prepare financial statements.
LO4 – Identify and explain the steps in the accounting cycle.
LO5 – Explain the purpose of closing entries and use closing entries to prepare a post-closing trial balance.

A. The Operating Cycle

LO1 – Explain how adjusting entries match revenues and expenses to the appropriate time period.

Financial transactions occur continuously during an accounting period as part of a sequence of operating activities. For Big Dog Carworks Corp., this sequence of operating activities takes the following form:

1. Operations begin with some cash on hand.
2. Cash is used to purchase supplies and to pay expenses.
3. Revenue is earned as repair services are completed for customers.
4. Cash is collected from customers.

This cash-to-cash sequence of transactions is commonly referred to as the **operating cycle** and is illustrated in Figure 3–1.

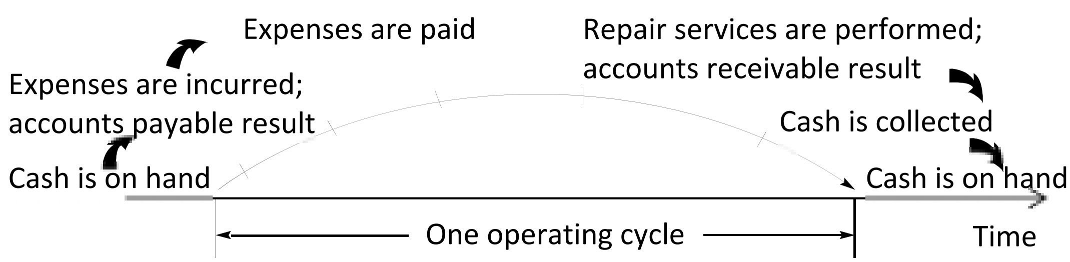


Figure 3–1 One Operating Cycle

Depending on the type of business, an operating cycle can vary in duration from short, such as one week (for example, a small grocery store) to much longer, such as one year (for example, a large construction company). Therefore, an annual accounting period could involve multiple operating cycles as shown in Figure 3-2.

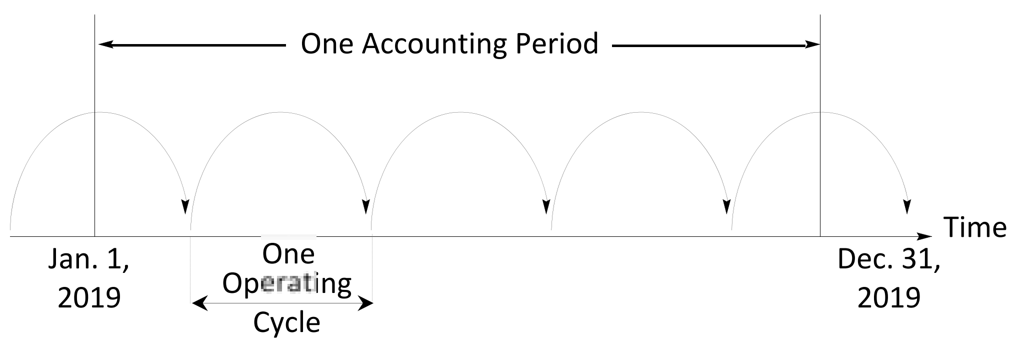


Figure 3–2 Operating Cycles within an Annual Accounting Period

Notice that not all of the operating cycles in Figure 3-2 are completed within the accounting period. Since financial statements are prepared at specific time intervals to meet the GAAP requirement of timeliness, it is necessary to consider how to record and report transactions related to the accounting period's incomplete operating cycles. There are two criteria. These are discussed in the following section.

Revenue Recognition Principle in More Detail

GAAP provide guidance about when financial transactions should be recognized in financial statements. At this point in our studies, a financial transaction is recognized when it meets two criteria:

1. It is probable that any future economic benefit (usually cash) associated with the transaction will be received or paid at some time in the future; and
2. The value of the transaction can be reliably measured.

Revenue Recognition Illustrated

Revenue recognition is the process of recording revenue in the accounting period in which it was earned; this is not necessarily when cash is received. Most corporations assume that revenue has been earned at a consistent point in the accounting cycle. For instance, it is often convenient to recognize revenue at the point when a sales invoice has been sent to a customer and the related goods have been shipped or services performed. This point can occur before receipt of cash from a customer, creating an asset called *Accounts Receivable*. This concept was illustrated in Transaction 8 in Chapter 2. The general form of the journal entry is as follows, based on the format for entries in the general journal discussed in the prior chapter:

2017			
Date	Accounts Receivable	XX	
	Revenue		XX
	To record revenue earned on credit; cash will be paid at a later date.		

When cash payment is later received, the asset *Accounts Receivable* is exchanged for the asset *Cash* and the following entry is made:

2017			
Date	Cash	XX	
	Accounts Receivable		XX
	To record cash received from credit customer.		

Revenue is recognized in the first entry (the credit to revenue), prior to the receipt of cash. The second entry has no effect on revenue.

When cash is received at the same time that revenue is recognized, the following entry is made:

2017			
Date	Cash	XX	
	Revenue		XX
	To record cash received from customer at time of sale.		

Transaction 8 in Chapter 2 illustrated these two possibilities.

When a cash deposit or advance payment is obtained *before* revenue is earned, a liability called Unearned Revenue is recorded as follows:

2017			
Date	Cash	XX	
	Unearned Revenue		XX
	To record cash received from customer for work to be done in the future.		

Transaction 7 in Chapter 2 illustrated this. There is no effect on the income statement at this point. Revenue is recognized only when the services have been performed.

At that time, the following entry is made:

2017			
Date	Unearned Repair Revenue	XX	
	Repair Revenue		XX
	To record the earned portion of Unearned Revenue.		

This entry reduces the unearned revenue account by the amount of revenue earned. At this point, revenue is recognized in the income statement account called Repair Revenue.

The matching of revenue to a particular time period, regardless of when cash is received, is an example of *accrual accounting***.** Accrual accounting is the process of recognizing revenues when earned and expenses when incurred regardless of when cash is exchanged. Accrual accounting is an important generally accepted accounting principle. It allows revenue and expenses to be matched to the applicable time period, regardless of when cash receipts or outlays occur. Recognition of expenses is discussed in the next section.

Expense Recognition Illustrated

In a business, costs are incurred continuously. To review, a cost is recorded as an asset if it will be incurred in producing revenue in future accounting periods. A cost is recorded as an expense if it will be used or consumed during the current period to earn revenue. This distinction between types of cost outlays is illustrated in Figure 3–3.

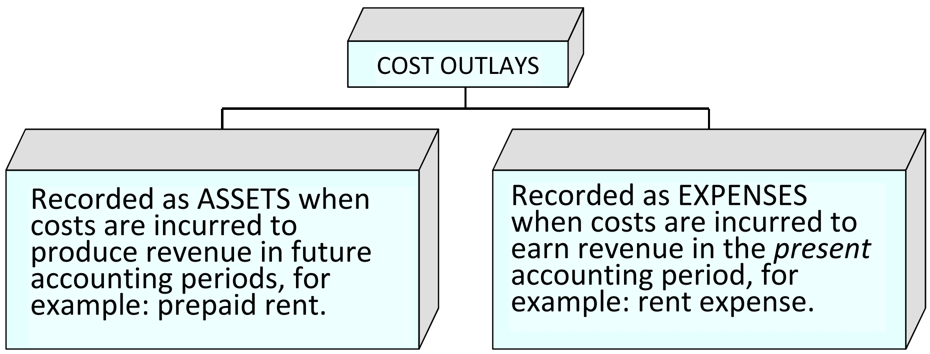


Figure 3–3 The Interrelationship between Assets and Expenses

In the previous section regarding revenue recognition, journal entries illustrated three scenarios where revenue was recognized before, at the same time as, and after cash was received. Similarly, expenses can be incurred before, at the same time as, or after cash is paid out. An example of when expenses are incurred before cash is paid occurs when the utilities expense for January is not paid until February. In this case, an account payable is created in January as follows:

2017			
Date	Utilities Expense	XX	
	Accounts Payable (or Utilities Payable)		XX
	To record January utilities expense to be paid in February.		

The utilities expense is appropriately reported in the January income statement. When the January utilities are paid with cash in February, the following is recorded:

2017			
Date	Accounts Payable (or Utilities Payable)	XX	
	Cash		XX
	To record payment in February of utilities used in January.		

This entry has no effect on expenses reported on the February income statement, since these were reported on the January income statement.

Expenses can also be recorded at the same time that cash is paid. For example, if salaries for January are paid on January 31, the entry on January 31 is:

2017			
Jan. 31	Salaries Expense	XX	
	Cash		XX
	To record payment of January salaries.		

As a result of this entry, salaries expense is reported on the January income statement when cash is paid. Transaction 9 in Chapter 2 illustrated these two options.

Finally, a cash payment can be made *before* the expense is incurred, such as insurance paid in advance. A prepayment of insurance creates an asset *Prepaid Insurance* and is recorded as:

2017			
Date	Prepaid Insurance	XX	
	Cash		XX
	To record payment of insurance in advance.		

Transaction 5 in Chapter 2 illustrated this. As the prepaid insurance benefit is used up, the appropriate expense is reported on the income statement by following entry:

2017			
Date	Insurance Expense	XX	
	Prepaid Insurance		XX
	To record the expiry of Prepaid Insurance.		

The preceding examples illustrate how to *match* expenses to the appropriate accounting period. The **matching principle** requires that expenses be reported in the same period as the revenues they helped generate. That is, expenses are reported on the income statement: a) when related revenue is recognized, or b) during the appropriate time period, regardless of when cash is paid.

To ensure the recognition and matching of revenues and expenses to the correct accounting period, account balances must be reviewed and adjusted prior to the preparation of financial statements. This is the topic of the next section.

B. Adjusting Entries

LO2 – Explain the use of and prepare the adjusting entries required for prepaid expenses, depreciation, unearned revenues, accrued revenues, and accrued expenses.

At the end of an accounting period, before financial statements can be prepared, the accounts must be reviewed for potential adjustments. This review is done by using the **unadjusted trial balance.** The trial balance of Big Dog Carworks Corp. at January 31 was prepared in Chapter 2 and is reproduced in Figure 3-4 below. It is an unadjusted trial balance because the accounts have not yet been updated for accruals and other adjustments. We will use this trial balance to illustrate how adjustments are identified and recorded.

Big Dog Carworks Corp.
Unadjusted Trial Balance
At January 31, 2017

Acct.		*Balance*	
No.	*Account*	*Debit*	*Credit*
101	Cash	$6,200	
110	Accounts receivable	2,500	
161	Prepaid insurance	2,400	
183	Equipment	3,000	
184	Truck	8,000	
201	Bank loan		$9,000
210	Accounts payable		700
247	Unearned revenue		400
320	Common stock		10,000
350	Dividends	200	
450	Repair revenue		10,000
654	Rent expense	1,600	
656	Salaries expense	4,000	
668	Supplies expense	1,500	
670	Truck operating expense	700	
		$30,100	$30,100

Figure 3–4 Unadjusted Trial Balance of Big Dog Carworks Corp. at January 31, 2017

Adjustments are recorded with **adjusting entries.** Their purpose is to ensure both the balance sheet and the income statement more accurately represent financial information. Adjusting entries help satisfy the matching principle.

There are five types of adjusting entries, each of which will be discussed in the following sections.

1. Adjust prepaid assets;
2. Adjust unearned liabilities;
3. Adjust plant and equipment assets;
4. Adjust accrued revenues; and
5. Adjust accrued expenses

An **accrued revenue** is income that has been earned but has not yet been collected or recorded. An **accrued expense** is an expense that has been incurred but has not yet been paid or recorded.

Adjusting Prepaid Asset Accounts

An asset or liability account requiring adjustment at the end of an accounting period is referred to as a **mixed account** because it includes both a balance sheet portion and an income statement portion. The income statement portion must be removed from the balance sheet account by an adjusting entry.

Refer to Figure 3-4 which shows an unadjusted balance in prepaid insurance of $2,400. Recall from Chapter 2 that Big Dog paid for a 12-month insurance policy that went into effect on January 1 (transaction 5).

The unadjusted trial balance shows the following balance in the Prepaid Insurance account:	The balance resulted when the journal entry below was recorded:

Prepaid Insurance	
2,400	

Prepaid Insurance	2,400	
Cash		2,400

At January 31, one month or $200 of the policy has expired (been used up) calculated as $2,400/12 months = $200.

The adjusting entry on January 31 to transfer $200 out of prepaid insurance and into insurance expense is:

	(a)		
2017			
Jan. 31	Insurance Expense	200	
	Prepaid Insurance		200
	To adjust for the use of one month of Prepaid Insurance.		

As shown below, the balance remaining in the Prepaid Insurance account is $2,200 after the adjusting entry is posted. The $2,200 balance represents the unexpired asset that will benefit future periods, namely, the 11 months from February to December, 2017. The $200 transferred out of prepaid insurance is posted as a debit to the Insurance Expense account to show how much insurance has been used during January.

Prepaid Insurance	
2,400	
	200
Bal. 2,200	

The asset account, Prepaid Insurance, is decreased by the $200 of insurance coverage that expired during January.

Insurance Expense	
200	

An expense account, Insurance Expense, is increased by the benefit used up in January.

If the adjustment was not recorded, assets on the balance sheet would be overstated by $200 and expenses would be understated by the same amount on the income statement.

Adjusting Unearned Liability Accounts

Recall from Chapter 2 (Transaction 7) that on January 15, Big Dog received a $400 cash payment in advance of services being performed: $300 for January and $100 for February.

The unadjusted trial balance shows the following in the Unearned Repair Revenue account:

Unearned Repair Revenue	
	400

The receipt of the $400 advance payment was recorded as follows:

Cash	400	
Unearned Repair Rev.		400

This advance payment was originally recorded as unearned revenue, since the cash was received *before* repair services were performed. Assume now that at January 31, $300 of the $400 unearned amount has been earned. Therefore, $300 must be transferred from unearned repair revenue into repair revenue.

The adjusting entry at January 31 is:

(b)

2017			
Jan. 31	Unearned Repair Revenue	300	
	Repair Revenue		300
	To adjust for repair revenue earned.		

After posting the adjustment, the $100 remaining balance in unearned repair revenue ($400 – $300) represents the amount at the end of January that will be earned in February.

Unearned Repair Revenue	
	400
300	
	100 Bal.

A liability account, unearned repair revenue, is decreased by the $300 adjustment.

Repair Revenue	
	10,000
	300
	10,300 Bal.

A revenue account, repair revenue, is increased by the $300 adjustment.

If the adjustment was not recorded, unearned repair revenue would be overstated (too high) by $300 causing liabilities on the balance sheet to be overstated. Additionally, revenue would be understated (too low) by $300 on the income statement.

Adjusting Plant and Equipment Accounts

Plant and equipment assets, also known as **long-lived assets**, are expected to generate revenues over the current and future accounting periods because they are used to produce goods, supply services, or used for administrative purposes. The truck and equipment purchased by Big Dog Carworks Corp. in January are examples of assets that provide economic benefits for more than one accounting period. Because of this, their costs also must be spread over the same time period, or **useful life**. Useful life is an estimate of how long the asset will be used to produce benefits for the business. This is done to satisfy the matching principle. For example, the $100,000 cost of a machine expected to be used over five years is not expensed entirely in the year of purchase because the benefits it provides will last for several years. Immediately expensing the purchase would cause expenses to be overstated in Year 1 and understated in Years 2, 3, 4, and 5. More appropriately, the $100,000 cost should be spread over the asset's five-year useful life.

The process of allocating the cost of a long-lived asset over the period of time it is expected to be used is called **depreciation**. Various depreciation methods and considerations are discussed in a later chapter.

For our purposes here, the benefit of plant and equipment that is used up each month will be calculated as its cost divided by its estimated useful life**,** calculated in months.

Let's work through two examples to demonstrate depreciation adjustments. Recall that in January, BDCC purchased two assets – equipment and a truck. Assume that they are considered long-lived asset because they have an estimated useful life greater than one year. The equipment was purchased for $3,000 (Transaction 3, Chapter 2). If its actual useful life is 10 years (120 months), monthly depreciation expense is $25, calculated as:

$$\frac{\text{Cost}}{\text{Estimated Useful Life}} = \frac{\$3{,}000}{120 \text{ months}} = \$25/\text{month}$$

The following adjusting entry is made in the records of BDCC on January 31:

(c)

2017			
Jan. 31	Depreciation Expense – Equipment	25	
	Accumulated Depreciation – Equipment		25
	To record one month of depreciation expense on the equipment ($3,000/120 months).		

Notice that the credit side of the entry is not made to the Equipment account. Rather, a **contra account** called "Accumulated Depreciation – Equipment" is used. A contra account is a general ledger account that is related to another account (in this case, Equipment). It has a credit balance, which is subtracted from the debit balance of its related account on the financial statements. **Accumulated depreciation** is a contra account that records the amount of a particular asset's cost that has been expensed since it was put into use. The original cost of the long-lived asset needs to be maintained in the accounting records in case it is sold. Maintaining a separate accumulated depreciation contra account allows this original cost to be retained in the records.

When this adjusting entry is posted, the accounts appear as follows:

Equipment		Accumulated Depreciation – Equipment		Depreciation Expense – Equipment	
3,000			25	25	

The Equipment account remains unchanged by the adjusting entry.	A contra account, accumulated depreciation, is increased by $25.	Depreciation expense is increased by $25, the amount of the equipment's cost that has been allocated to expense.

For financial statement reporting, the asset and contra asset accounts are combined. This **carrying amount** or **net book value** of the equipment on the balance sheet is shown as $2,975 ($3,000 – $25) at January 31, like this:

Equipment	3,000
Acc. Dep. – Equip.	(25)
Carrying amount	2,975

Recall that BDCC also purchased a truck for $8,000 during January (Transaction 4, Chapter 2). Assume the truck has an estimated useful life of 80 months. At January 31, one month of the truck cost has expired. Depreciation is calculated as:

$$\frac{\text{Cost}}{\text{Estimated Useful Life}} = \frac{\$8{,}000}{80 \text{ months}} = \$100/\text{month}$$

The adjusting entry recorded on January 31 is:

(d)

2017			
Jan. 31	Depreciation Expense, Truck	100	
	Accumulated Depreciation, Truck		100
	To record one month of depreciation expense on the truck ($8,000/80 months).		

When the adjusting entry is posted, the accounts appear as follows:

Truck		Accumulated Depreciation - Truck		Depreciation Expense - Truck	
8,000			100	100	
The Truck account remains unchanged by the adjusting entry.		A contra account, accumulated depreciation, is increased by $100.		Depreciation expense is increased by $100, the amount of the truck's cost that has been allocated to expense.	

The value of the truck on the balance sheet at January 31 is shown as $7,900 ($8,000 – $100), like this:

Truck	8,000
Acc. Dep. – Truck.	(100)
Carrying amount	7,900

Although land is a long-lived asset, it is not depreciated because its benefits do not decrease over time. Therefore, land is often referred to as a *non-depreciable asset*.

Adjusting for Accrued Revenues and Expenses

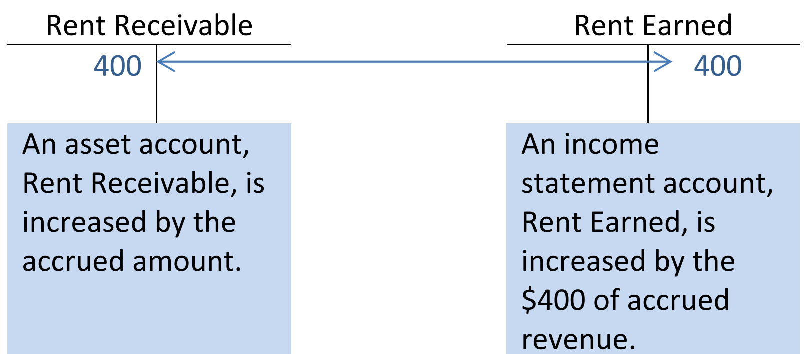
Some revenues and expenses increase as time passes and are therefore said to *accrue*. Accrued revenues and accrued expenses are items that need to be reported in the income statement for a certain time period. However, they are not recognized by the accounting system until they are received or paid in cash, because there are no source documents like sales invoices or purchase invoices to trigger their recording. Often these types or revenue and expenses need to be recognized earlier in the accounting records. This is done by adjusting entries. Common types of accrued revenues are rent and interest from investments. Common expenses are interest on debt, salaries, and income taxes.

Accrued revenues are revenues that have been earned but not yet collected or recorded. Assume that BDCC has rented out part of the building in which it operates to another business (this is often called a *sublet*) as of January 1, 2017. The rent is $400 per month. If the rent has not been paid to BDCC by January 31, and an accrued revenue amount needs to be recorded, as follows:

(e)

2017			
Jan. 31	Rent Receivable	400	
	Rent Earned		400
	To record January rent from sublet.		

When the adjusting entry is posted, the accounts appear as follows:



In this way, rent revenue would be appropriately reported in the January income statement. If the adjustment was not recorded, assets on the balance sheet would be understated by $200 and revenues would be understated by the same amount on the income statement.

If the rent payment is received on February 3, the entry to record this would be:

2017			
Feb. 3	Cash	400	
	Rent Receivable		400
	To record receipt of January rent from sublet.		

Another example of accrued revenue is interest receivable. Assume that cash on deposit with the bank pays interest every three months and that the interest revenue earned on the account is $25 at January 31. An accrued revenue amount needs to be recorded at January 31, as follows:

(f)

2017			
Jan. 31	Interest Receivable	25	
	Interest Earned		25
	To record January accrued revenue on chequing account.		

When the adjusting entry is posted, the accounts appear as follows:

Interest Receivable			Interest Earned	
25				25

An asset account, Interest Receivable, is increased by the accrued amount.	An income statement account, Interest Earned, is increased by the $25 of accrued revenue.

Accrued expenses are expenses that have been incurred but not yet paid or recorded. Like accrued revenue, these items are not usually recorded in the accounting records because they are not recorded on source documents like a sales invoice or a bill from a supplier. An example of an accrued expense in the case of BDCC is interest expense. Interest expense arises when a business borrows money from a financial institution like a bank. Interest accrues (increases) daily but is paid only at certain time, perhaps monthly or every six months.

For Big Dog Carworks Corp., the January 31, 2017 unadjusted trial balance shows a $9,000 bank loan balance. Recall from Chapter 2 that this consists of a $4,000 loan on January 2 (Transaction 2), an additional $7,000 loan on January 3 (Transaction 3), and a repayment of $2,000 on January 10 (Transaction 6). No interest has been paid on this loan as of January 31. However, interest has been accruing on the loans since they were received. The interest needs to be recorded by means of adjusting entry.

Assume that interest expense amounts to $18. BDCC's adjusting entry to accrue this expense on January 31 is:

	(g)		
2017			
Jan. 31	Interest Expense	18	
	Interest Payable		18
	To record January accrued interest on the bank loan.		

This adjusting entry enables BDCC to include the interest expense on the January income statement even though interest has not yet been paid. The entry also creates a payable that will be reported as a liability on the balance sheet at January 31.

When the adjusting entry is posted, the accounts appear as:

Interest Payable			Interest Expense	
	18		18	

Interest payable (a liability) is established to record the credit.

An expense account is established to record the debit.

Accruing Salaries Expense

Transaction 9 in Chapter 2 included a $4,000 cash payment for salaries expense. ("Wages" are similar expenses, paid to hourly workers.) Let's assume that the payments were for work performed by staff only until January 28. There are three days of salary that have not been paid to January 31. Assume this amounts to $150. This additional accrued expense for work done on January 28, 29, 30, and 31 needs to be recorded to appropriately match the salaries expense to the month of January. This is the adjusting entry:

	(h)		
2017			
Jan. 31	Salaries Expense	150	
	Salaries Payable		150
	To accrue salaries for January 29-31.		

This entry enables the company to include in expense all salaries earned by employees, even though these amounts will not be paid in cash until the next pay period in February. The entry creates an accrued liability for an expense incurred during one accounting period (January) but paid in another accounting period (February).

When the adjusting entry is posted, the accounts appear as follows:

Salaries Payable			Salaries Expense	
			4,000	
	150		150	
			Bal. 4,150	

A liability, Salaries Payable, is created at January 31.

An additional $150 expense is recorded for the period ended January 31.

Accruing Income Taxes Expense

Corporate income taxes expense also needs to be accrued for BDCC. In most jurisdictions, a corporation is taxed as an entity separate from its stockholders. For simplicity, assume BDCC's income tax expense for January 2017 is $500 and that this amount will be paid after the company's year-end, December 31. The adjusting entry for January is:

(i)

2017			
Jan. 31	Income Tax Expense	500	
	Income Tax Payable		500
	To adjust for January accrued income taxes.		

When the adjusting entry is posted, the accounts appear as follows:

Income Tax Payable		Income Tax Expense	
	500	500	

A liability, Income Tax Payable, is created at January 31.

Income Taxes Expense, an income statement account, is increased.

This adjusting entry enables the company to match the income tax expense accrued in January to the income earned during the same month.

C. The Adjusted Trial Balance

LO3 – Prepare an adjusted trial balance and use it to prepare financial statements.

In the last section, adjusting entries were recorded and posted. As a result, some account balances reported on the January 31, 2017 unadjusted trial balance in Figure 3-4 have changed. Recall that an unadjusted trial balance reports account balances *before* adjusting entries have been recorded and posted. An **adjusted trial balance** reports account balances *after* adjusting entries have been recorded and posted. Figure 3-5 shows the unadjusted trial balance, adjustments a through i discussed above, and the adjusted trial balance for BDCC at January 31, 2017. Changes are shown in blue.

Big Dog Carworks Corp.
Adjusted Trial Balance
January 31, 2017

Acct. No.	Account	*Unadjusted trial balance* Debit	Credit		*Adjustments* Debit		Credit	*Adjusted trial balance* Debit	Credit
101	Cash	$ 6,200						$6,200	
110	Accounts receivable	2,500						2,500	
116	Interest receivable			(f)	25			25	
125	Rent receivable			(e)	400			400	
161	Prepaid insurance	2,400				(a)	200	2,200	
183	Equipment	3,000						3,000	
184	Truck	8,000						8,000	
193	Acc. dep. – equipment					(c)	25		$ 25
194	Acc. dep. – truck					(d)	100		100
201	Bank loan		$9,000						9,000
210	Accounts payable		700						700
222	Interest payable					(g)	18		18
226	Salaries payable					(h)	150		150
247	Unearned repair revenue		400	(b)	300				100
260	Income taxes payable					(i)	500		500
320	Common stock		10,000						10,000
350	Dividends	200						200	
430	Interest earned					(f)	25		25
440	Rent earned					(e)	400		400
450	Repair revenue		10,000			(b)	300		10,300
623	Dep. exp. – equipment			(c)	25			25	
624	Dep. exp. – truck			(d)	100			100	
631	Insurance expense			(a)	200			200	
632	Interest expense			(g)	18			18	
654	Rent expense	1,600						1,600	
656	Salaries expense	4,000		(h)	150			4,150	
668	Supplies expense	1,500						1,500	
670	Truck operating expense	700						700	
830	Income taxes expense			(i)	500			500	
		$30,100	30,100		$1,718		$1,718	$31,318	$31,318

Figure 3–5 BDCC's January 31, 2017 Adjusted Trial Balance

Financial statements can now be prepared using the adjusted trial balance, in the same manner as shown in Chapter 2.

Big Dog Carworks Corp.
Trial Balance
At January 31, 2017

Acct. No.	*Account*	*Account Balances* Debit	Credit
101	Cash	$ 6,200	
110	Accounts receivable	2,500	
116	Interest receivable	25	
125	Rent receivable	400	
161	Prepaid insurance	2,200	
183	Equipment	3,000	
184	Truck	8,000	
193	Acc. dep. – equipment		$ 25
194	Acc. dep. – truck		100
201	Bank loan		9,000
210	Accounts payable		700
222	Interest payable		18
226	Salaries payable		150
247	Unearned repair revenue		100
260	Income taxes payable		500
320	Common stock		10,000
350	Dividends	200	
430	Interest earned		25
440	Rent earned		400
450	Repair revenue		10,300
623	Dep. expense – equipment	25	
624	Dep. expense – truck	100	
631	Insurance expense	200	
632	Interest expense	18	
654	Rent expense	1,600	
656	Salaries expense	4,150	
668	Supplies expense	1,500	
670	Truck operating expense	700	
830	Income taxes expense	500	
		$31,318	$31,318

The income statement is prepared first, followed by the statement of changes in equity.

Big Dog Carworks Corp.
Income Statement
For the Month Ended January 31, 2017

Revenue		
Interest	$ 25	
Rent	400	
Repairs	10,300	$10,725
Expenses		
Dep. – equip.	25	
Dep. – truck	100	
Insurance	200	
Interest	18	
Rent	1,600	
Salaries	4,150	
Supplies	1,500	
Truck operating	700	
Income taxes	500	8,793
Net income		$1,932

Big Dog Carworks Corp.
Statement Of Changes In Equity
For the Month Ended January 31, 2017

	Common stock	*Retained earnings*	*Total equity*
Balance at January 1, 2017	$ -0-	$ -0-	$ -0-
Stock issued	10,000		10,000
Net income		1,932	1,932
Dividends		(200)	(200)
Balance at January 31, 2017	$10,000	$ 1,732	$11,732

The balance sheet can be prepared once the statement of changes in equity is complete.

Big Dog Carworks Corp.
Trial Balance
At January 31, 2017

Acct. No.	Account	Account Balances Debit	Credit
101	Cash	$ 6,200	
110	Accounts receivable	2,500	
116	Interest receivable	25	
125	Rent receivable	400	
161	Prepaid insurance	2,200	
183	Equipment	3,000	
184	Truck	8,000	
193	Acc. dep. – equipment		$ 25
194	Acc. dep. – truck		100
201	Bank loan		9,000
210	Accounts payable		700
222	Interest payable		18
226	Salaries payable		150
247	Unearned repair revenue		100
260	Income taxes payable		500
320	Common stock		10,000
350	Dividends	200	
430	Interest earned		25
440	Rent earned		400
450	Repair revenue		10,300
623	Dep. expense – equipment	25	
624	Dep. expense – truck	100	
631	Insurance expense	200	
632	Interest expense	18	
654	Rent expense	1,600	
656	Salaries expense	4,150	
668	Supplies expense	1,500	
670	Truck operating expense	700	
830	Income taxes expense	500	
		$30,318	$30,318

Big Dog Carworks Corp.
Balance Sheet
At January 31, 2017

Assets		
Cash		$6,200
Accounts receivable		2,500
Interest receivable		25
Rent receivable		400
Prepaid insurance		2,200
Equipment	3,000	
Acc. Dep. – Equip.	(25)	2,975
Truck	8,000	
Acc. Dep. – Truck	(100)	7,900
Total assets		$22,200
Liabilities		
Bank loan	9,000	
Accounts payable	700	
Interest payable	18	
Salaries payable	150	
Unearned repair rev.	100	
Income taxes pay.	500	10,468
Stockholders' Equity		
Common stock	10,000	
Retained earnings	1,732	11,732
Total liabilities and stockholders' equity		$22,200

Equipment and truck are shown net of depreciation.

These amounts are transferred from the Statement of Changes in Equity.

D. The Accounting Cycle

LO4 – Identify and explain the steps in the accounting cycle.

Recall from Chapter 2 that the accounting cycle is the process used to convert economic data into financial statement information using the double-entry accounting model. The complete accounting cycle consists of eight steps:

Step 1: Transactions are analyzed and recorded in the general journal.

Step 2: The journal entries in the general journal are posted to accounts in the general ledger.

Step 3: An unadjusted trial balance is prepared to ensure total debits equal total credits.

Step 4: The unadjusted account balances are analyzed and adjusting entries are journalized in the general journal and posted to the general ledger.

Step 5: An adjusted trial balance is prepared to prove the equality of debits and credits.

Step 6: The adjusted trial balance is used to prepare financial statements.

Step 7: Closing entries are journalized and posted.

Step 8: A post-closing trial balance is prepared.

Steps 4 was introduced in this chapter. Steps 7 and 8 are discussed in the next section.

E. The Closing Process

LO5 – Explain the purpose of closing entries and use closing entries to prepare a post-closing trial balance

At the end of a fiscal year after steps 1-6 of the accounting cycle have been completed and financial statements have been prepared, the revenue, expense, and dividend account balances must be zeroed so that they can begin to accumulate amounts belonging to the new fiscal year. To accomplish this, *closing entries* are journalized and posted. **Closing entries** transfer each revenue and expense account balance, as well as any balance in the Dividend account, into retained earnings. Revenues, expenses, and dividends are therefore referred to as **temporary accounts** because their balances are zeroed at the end of each accounting period. Balance sheet accounts such as Cash and Retained Earnings, are **permanent accounts** because they have a continuing balance from one fiscal year to the next. The closing process transfers temporary account balances into the Retained Earnings account. An interim closing account called the **Income Summary** is used. In this text, its assigned general ledger account number is 360. The four entries in the closing process are detailed below.

Entry 1: Close the revenue accounts to the Income Summary account

A single closing entry is used to transfer all revenue account (credit) balances to the Income Summary account. All revenue accounts with a credit balance are debited to bring them to zero. Their balances are transferred to the Income Summary account as an offsetting credit.

Entry 2: Close the expense accounts to the Income Summary account

A single closing entry is used to transfer all expense account (debit) balances to the Income Summary account. All expense accounts with a debit balance are credited to bring them to zero. Their balances are transferred to the Income Summary account as an offsetting debit.

The Dividend account is *not* closed to the Income Summary account because this is not an income statement account. The Dividend account is closed in Entry 4 directly to the Retained Earnings account.

After entries 1 and 2 above are posted to the Income Summary account, a new balance is calculated for the Income Summary account. If net income is reported on the income statement, the balance in the Income Summary should be a credit; if a net loss has been reported, the balance will be a debit. *If the income summary balance does not match the net income or loss reported on the income statement, the revenues and expenses have not been closed correctly.*

Entry 3: Close the Income Summary account to the Retained Earnings account

The balance in the Income Summary account is transferred to the Retained Earnings account because the net income belongs to the stockholders. An equal and offsetting entry (a debit in the case of net income) is made to the Income Summary account to bring its balance to zero. The same amount is credited to the Retained Earnings account. Again, the amount must always equal the net income reported on the income statement.

Entry 4: Close the Dividends account to Retained Earnings

The Dividend account is closed to the Retained Earnings account. This results in transferring the balance in dividends, a temporary account, to retained earnings, a permanent account.

The closing entries for Big Dog Carworks Corp. are shown in Figure 3–6.

These are for illustrative purposes only. Closing entries are only done at the fiscal year-end.

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Date 2017		Description Closing Entries	PR	Debit	Credit
		(1)			
Jan.	31	Interest Earned	430	25	
		Rent Earned	440	400	
		Repair Revenue	450	10,300	
		Income Summary	360		10,725
		To close revenue account balances.			
		(2)			
Jan.	31	Income Summary	360	8,793	
		Depreciation Expense – Equipment	623		25
		Depreciation Expense – Truck	624		100
		Insurance Expense	631		200
		Interest Expense	632		18
		Rent Expense	654		1,600
		Salaries Expense	656		4,150
		Supplies Expense	668		1,500
		Truck Operating Expense	670		700
		Income Tax Expense	830		500
		To close expense account balances.			
		(3)			
Jan.	31	Income Summary	360	1,932	
		Retained Earnings	340		1,932
		To close Income Summary.			
		(4)			
Jan.	31	Retained Earnings	360	200	
		Dividends	350		200
		To close dividends to retained earnings.			

This amount must agree to the net income shown on the income statement.

Figure 3–6 Closing Entries for BDCC at January 31, 2017 for illustrative purposes only.

Posting the Closing Entries to the General Ledger

When entries 1 and 2 are posted to the general ledger, the balances in all revenue and expense accounts are transferred to the Income Summary account. The transfer of these balances is shown in Figure 3–7. Notice that a zero balance results for each revenue and expense account after the closing entries are posted, and there is a $1,932 credit balance in the income summary. The income summary balance agrees to the net income reported on the income statement.

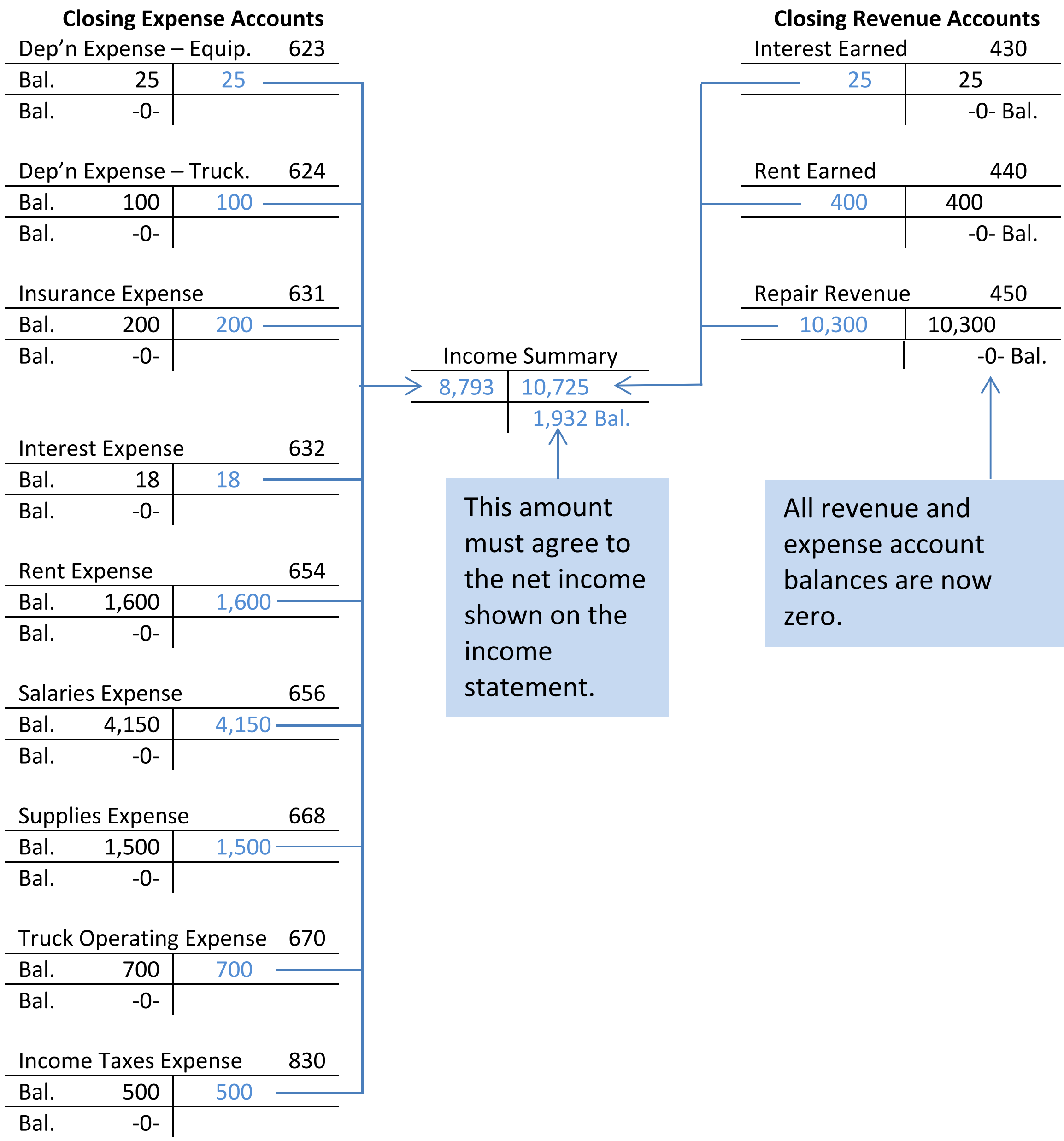

Figure 3–7 Closing Revenue and Expense Accounts

When the income summary is closed to retained earnings in the third closing entry, the $1,932 credit balance in the income summary account is transferred into retained earnings as shown in Figure 3–8. As a result, the income summary is left with a zero balance.

Income Summary		360	
	8,793	10,725	
	1,932	1,932	Bal.
Bal.	-0-		

Retained Earnings	340
	1,932

Figure 3–8 Closing the Income Summary Account

Finally, when dividends is closed to retained earnings in the fourth closing entry, the $200 debit balance in the Dividends account is transferred into retained earnings as shown in Figure 3–9. After the closing entry is posted, the Dividends account is left with a zero balance and retained earnings is left with a credit balance of $1,732.

Dividends		350
	200	200
Bal.	-0-	

Retained Earnings	340
	1,932
200	
	1,732 Bal.

This amount must agree to the retained earnings balance calculated on the statement of changes in equity.

Figure 3–9 Closing the Dividends Account

The Post–Closing Trial Balance

A **post-closing trial balance** is prepared immediately following the posting of closing entries. The purpose is to ensure that the debits and credits in the general ledger are equal and that all temporary accounts have been closed. The post-closing trial balance for Big Dog Carworks Corp. appears below.

Big Dog Carworks Corp.
Post-Closing Trial Balance
January 31, 2017

Acct. No.	*Account*	*Account Balances Debit*	*Credit*
101	Cash	$6,200	
110	Accounts receivable	2,500	
116	Interest receivable	25	
125	Rent receivable	400	
161	Prepaid insurance	2,200	
183	Equipment	3,000	
184	Truck	8,000	
193	Accumulated dep. – equip.		$ 25
194	Accumulated dep. – truck		100
201	Bank loan		9,000
210	Accounts payable		700
222	Interest payable		18
226	Salaries payable		150
247	Unearned repair revenue		100
260	Income taxes payable		500
320	Common stock		10,000
340	Retained earnings		1,732
	Total debits and credits	$22,325	$22,325

Only permanent accounts remain.

Only balance sheet accounts – the permanent accounts – have balances and are carried forward to the next accounting year. All income statement and dividend accounts – temporary accounts – begin the new fiscal year with a zero balance, so they can be used to accumulate amounts belonging to the new fiscal year.

Summary of Chapter 3 Learning Objectives

LO1 – Explain how adjusting entries match revenues and expenses to the appropriate time period.

Financial statements must be prepared in a timely manner, at minimum, once per fiscal year. For statements to reflect activities accurately, revenues and expenses must be recognized and reported in the appropriate accounting period. In order to achieve this type of matching, adjusting entries need to be prepared.

LO2 – Explain the use of and prepare the adjusting entries required for prepaid expenses, depreciation, unearned revenues, accrued revenues, and accrued expenses.

Adjusting entries are prepared at the end of an accounting period. They allocate revenues and expenses to the appropriate accounting period regardless of when cash was received or paid. The five types of adjustments are:

	(1)		
Date	Expense	XX	
	Prepaid Expense		XX
	To adjust prepaid expense for the amount of benefit used.		

	(2)		
Date	Account Recievable	XX	
	Revenue		XX
	To record revenue earned on credit.		

	(3)		
Date	Depreciation Expense	XX	
	Accumulated Depreciation		XX
	To allocate the costs of plant and equipment over their useful lives.		

	(4)		
Date	Unearned Revenue	XX	
	Revenue		XX
	To adjust unearned amounts now earned.		

	(5)		
Date	Expense	XX	
	Payable		XX
	To adjust for accrued expenses.		

LO3 – Prepare an adjusted trial balance and use it to prepare financial statements.

The adjusted trial balance is prepared using the account balances in the general ledger after adjusting entries have been posted. Debits must equal credits. The adjusted trial balance is used to prepare the financial statements. Financial statements are prepared based on adjusted account balances.

LO4 – Identify and explain the steps in the accounting cycle.

The steps in the accounting cycle are:

Steps occurring continually during the fiscal year:

1. Transactions are analyzed and recorded in the general journal.
2. The journal entries in the general journal are posted to accounts in the general ledger.

Steps occurring whenever interim or year-end financial statements are prepared at the end of an accounting period

3. An unadjusted trial balance is prepared to ensure total debits equal total credits.
4. The unadjusted account balances are analyzed, and adjusting entries are journalized in the general journal and posted to the general ledger.
5. An adjusted trial balance is prepared to prove the equality of debits and credits.
6. The adjusted trial balance is used to prepare financial statements.

Steps occurring only at the fiscal year-end

7. Closing entries are journalized and posted.
8. A post-closing trial balance is prepared.

LO5 – Explain the purpose of closing entries and use closing entries to prepare a post-closing trial balance.

After the financial statements have been prepared, the temporary account balances (revenues, expenses, and dividends) are transferred to retained earnings, a permanent account, via closing entries. The result is that the temporary accounts will have a zero balance and will be ready to accumulate transactions for the next accounting period.

The general forms of the four closing entries are:

(1)

Dec. 31	Revenue	XX	
	Income Summary		XX
	To close revenue account balances to the Income Summary account.		

(2)

Dec. 31	Income Summary	YY	
	Expense		YY
	To close expense account balances to the Income Summary account.		

(3)

Dec. 31	Income Summary	ZZ	
	Retained Earnings		ZZ
	To close the Income Summary account balance to Retained Earnings (ZZ = XX – YY; ZZ must equal net income).[1]		

(4)

Dec. 31	Retained Earnings	AA	
	Dividends		AA
	To close the Dividend account to Retained Earnings.		

The post-closing trial balance is prepared after the closing entries have been posted to the general ledger. The post-closing trial balance will contain only permanent accounts because all the temporary accounts have been closed.

[1] When there is a net loss, the Income Summary account will have a debit balance after revenues and expenses have been closed. To close the Income Summary account when there is a net loss the Income Summary must be credited. The following closing entry is required:

Dec. 31	Retained Earnings	XXX	
	Income Summary		XXX
	To close the Income Summary account balance to Retained Earnings		

A S S I G N M E N T   M A T E R I A L S

Concept Self-check

1. Explain the sequence of financial transactions that occur continuously during an accounting time period. What is this sequence of activities called?
2. Do you have to wait until the operating cycle is complete before you can measure income using the accrual basis of accounting?
3. What is the relationship between the matching concept and accrual accounting? Are revenues matched to expenses, or are expenses matched to revenues? Does it matter one way or the other?
4. What are adjusting entries and why are they required?
5. What are the five types of adjusting entries?
6. Why are asset accounts like Prepaid Insurance adjusted? How are they adjusted?
7. How are long-lived asset accounts adjusted? Is the procedure similar to the adjustment of other asset and liability accounts at the end of an accounting period?
8. What is a contra account and why is it used?
9. How are liability accounts like Unearned Repair Revenue adjusted?
10. Explain the terms *accrued revenues* and *accrued expenses*. Give examples of each.
11. Why is an adjusted trial balance prepared?
12. How is the adjusted trial balance used to prepare financial statements?
13. List the eight steps in the accounting cycle.
14. Which steps in the accounting cycle occur continuously throughout the accounting period?
15. Which steps in the accounting cycle occur at the end of the fiscal year? Explain how they differ from the other steps.
16. In general, income statement accounts accumulate amounts for a time period not exceeding one year. Why is this done?
17. Identify which types of general ledger accounts are temporary and which are permanent.
18. What is the Income Summary account and what is its purpose?
19. What are the four types of closing entries, and why are they journalized?
20. Why is the Dividends account not closed to the Income Summary account when closing entries are prepared?
21. What is a post-closing trial balance and why is it prepared?

Comprehension Problems

CP 3–1

The preparation of adjusting entries requires a debit entry to one account and a credit entry to another account.

A	*B*
a. Insurance Expense	1. Commissions Earned
b. Rent Earned	2. Supplies Expense
c. Prepaid Rent	3. Salaries Expense
d. Interest Payable	4. Unearned Fees
e. Interest Receivable	5. Accumulated Depreciation
f. Fees Earned	6. Rent Expense
g. Unused Supplies	7. Prepaid Insurance
h. Unearned Commissions Revenue	8. Interest Earned
i. Salaries Payable	9. Interest Expense
j. Depreciation Expense	10. Unearned Rent

Required: Match each account in column *A* with the appropriate account in column *B*.

CP 3–2

The following unadjusted accounts are extracted from the general ledger of A Corp. at December 31, 2019:

Truck 184		Depreciation Expense – Truck 624		Acc. Dep'n – Truck 194	
10,000		1,300			1,300

Additional Information: The truck was purchased January 1, 2019. It has an estimated useful life of 4 years.

Required: Prepare the needed adjusting entry at December 31, 2019.

CP 3–3

The following unadjusted accounts are taken from the records of B Corp. at December 31, 2019:

Bank Loan 201		Interest Expense 632		Interest Payable 222	
	12,000	1,100			100

Additional Information: Interest expense for the year should be $1,200.

Required: Prepare the adjusting entry at December 31, 2019.

CP 3–4

An extract from the trial balance of Armstrong Corp. at June 30, 2019 is reproduced below:

Account	*Amount in unadjusted trial balance*	*Amount in adjusted trial balance*
Unused office supplies	$ 190	$ 55
Accumulated depreciation – truck	0	400
Prepaid insurance	850	610
Interest payable	0	100
Unearned rent	1,000	500

Required: Prepare in general journal format the entries that were posted, including a plausible description. General ledger account numbers are not necessary.

CP 3–5

The following are account balances of Graham Corporation:

Account	*Amount in unadjusted trial balance*	*Amount in adjusted trial balance*
Rent Receivable	$ -0-	$110
Prepaid Insurance	1,800	600
Interest Payable	-0-	90

Required:

1. Enter the unadjusted balance for each account in the following T-accounts: Interest Receivable, Prepaid Insurance, Interest Payable, Salaries Payable, Unearned Rent, Interest Earned, Rent Earned, Insurance Expense, Interest Expenses, and Salaries Expense.
2. Reconstruct the adjusting entry that must have been recorded for each account. General ledger account numbers are not necessary.
3. Post these adjusting entries and agree ending balances in each T-account to the adjusted balances above.
4. List revenue and expense amounts for the period.

CP 3–6

The following data are taken from an unadjusted trial balance at December 31, 2019:

Prepaid rent	$ 600
Office supplies	700
Income taxes payable	-0-
Unearned commissions revenue	1,500
Salaries expense	5,000

Additional Information:

a. The prepaid rent consisted of a payment for three months' rent at $200 per month for December 2019, January 2020, and February 2020.
b. Office supplies on hand at December 31, 2019 amounted to $300.
c. The estimated income taxes for 2019 are $5,000.
d. All but $500 in the Unearned Commissions account has been earned in 2019.

e. Salaries for the last three days of December amounting to $300 have not yet been recorded.

Required:

1. Prepare all necessary adjusting entries in general journal format at December 31, 2019. General ledger account numbers are not necessary.
2. Calculate the cumulative financial impact on assets, liabilities, stockholders' equity, revenue and expense if these adjusting entries are not made.

CP 3–7

The following are general ledger accounts extracted from the records of Bernard Inc. at December 31, 2019, its year-end ('UB' = unadjusted balance):

Prepaid Advertising 160

UB	1,000		500

Unused Supplies 173

UB	750		400

Equipment 183

UB	21,750		

Acc. Dep'n – Equip. 193

			1,500
			250

Accounts Payable 210

		UB	15,000
			200
			100
			400
			800

Salaries Payable 226

			700

Unearned Subscription Revenue 250

	5,000	UB	10,000

Common Stock 320

		UB	8,000

Subscription Revenue 480

			5,000

Advertising Expense 610

	500		

Commissions Expense 615

UB	800		

Dep'n Expense – Equip. 623

	250		

Maintenance Expense 641

	200		

Salaries Expense 656

UB	9,500		
	700		

Supplies Expense 688

UB	2,500		
	400		

Telephone Expense 669

	100		

Utilities Expense 676

	400		

Required: Prepare in general journal format the adjusting entries that were posted. Include general ledger account and plausible descriptions.

CP 3–8

The following general ledger accounts are taken from the books of the Hynes Corporation at the end of its fiscal year, December 31, 2019:

Cash	101
750	50
950	150
90	50
	24
	20
	70

Accounts Receivable	110
228	90

Rent Receivable	125
40	

Prepaid Insurance	161
24	2

Unused Office Supplies	170
50	25

Unused Repair Supplies	171
145	80

Furniture	182
150	

Acc. Dep'n – Furniture	191
	2

Accounts Payable	210
70	145

Unearned Repair Revenue	247
	500
400	

Interest Payable	222
	12

Income Taxes Pay.	260
	400

Interest Expense	632
12	

Income Taxes Expense	830
400	

Share Capital	320
	400

Ret. Earn.	340
	350

Repair Rev.	450
	950
	228
	400

Rent Earned	440
	40

Dep'n Exp. - Furniture	621
2	

Insurance Exp.	631
2	

Office Supplies Exp.	650
25	

Rent Expense	654
50	

Repair Supplies Expense	655
80	

Telephone Expense	669
20	

Required:

1. Label the debit and credit amounts that represent each adjusting entry made at December 31 (for example: a, b, c).
2. Prepare the adjusting entries made at December 31 in general journal form. Include general ledger account numbers and plausible descriptions.

CP 3–9

The trial balance of Lauer Corporation at December 31, 2019 follows, before and after the posting of adjusting entries.

Acct. No.	*Account*	*Unadjusted trial balance*		*Adjustments*		*Adjusted trial balance*	
		Debit	*Credit*	*Debit*	*Credit*	*Debit*	*Credit*
101	Cash	$ 4,000				$ 4,000	
110	Accounts receivable	5,000				5,000	
161	Prepaid insurance	3,600				3,300	
162	Prepaid rent	1,000				500	
184	Truck	6,000				6,000	
194	Acc. dep. – truck						$1,500
210	Accounts payable		$7,000				7,000
222	Interest payable						400
226	Salaries payable						1,000
248	Unearned rent revenue		1,200				600
320	Common stock		2,700				2,700
440	Rent earned		25,000				25,600
610	Advertising expense	700				700	
615	Commissions expense	2,000				2,000	
624	Dep. expense – truck					1,500	
631	Insurance expense					300	
632	Interest expense	100				500	
654	Rent expense	5,500				6,000	
656	Salaries expense	8,000				9,000	
	Totals	$35,900	$35,900			$38,800	$38,800

Required:

1. Indicate in the "Adjustments" column the debit or credit difference between the unadjusted trial balance and the adjusted trial balance.
2. Prepare in general journal format the adjusting entries that must have been recorded. Include general ledger account numbers and plausible descriptions.

CP 3–10

The following general ledger accounts and additional information are taken from the records of Wolfe Corporation at the end of its fiscal year, December 31, 2019.

Additional information:

a. The prepaid insurance is for a one-year policy, effective July 1, 2019.
b. A physical count indicated that $500 of supplies is still on hand.
c. $50 of December rent expense has not been recorded.

Cash 101	
Bal. 2,700	

Unused Supplies 173	
Bal. 700	

Advertising Exp. 610	
Bal. 200	

Accounts Receivable 110	
Bal. 2,000	

Common Stock 320	
	Bal. 3,800

Salaries Expense 656	
Bal. 4,500	

Prepaid Insurance 161	
Bal. 1,200	

Repair Revenue 450	
	Bal. 7,750

Rent Expense 654	
Bal. 250	

Required:

1. Record all necessary adjusting entries in general journal format including general ledger account numbers. Assume the following account numbers: Insurance Expense: 631; Supplies Expense: 668.
2. Post the adjusting entries to T-accounts and calculate balances.
3. Prepare all closing entries in general journal format. Include general ledger account numbers.
4. Post the closing entries to the applicable general ledger accounts.

Problems

P 3–1

The following unrelated accounts are extracted from the trial balance of Meekins Limited at December 31, its fiscal year-end:

	Balance	
Account	*Unadjusted*	*Adjusted*
a. Prepaid rent	$ 300	$ 600
b. Wages payable	500	700
c. Income taxes payable	-0-	1,000
d. Unearned commissions revenue	2,000	3,000
e. Other unearned revenue	25,000	20,000
f. Advertising expense	5,000	3,500
g. Depreciation expense — equipment	-0-	500
h. Supplies expense	850	625
i. Truck operating expense	4,000	4,500

Required: For each of the above accounts, prepare the most likely adjusting entry, including plausible descriptions. General ledger account numbers are not necessary.

P 3–2

The unadjusted trial balance of Lukas Films Corporation includes the following account balances at December 31, 2019, its fiscal year-end. Assume all accounts have normal debit or credit balances as applicable.

Prepaid rent	$ 1,500
Equipment	2,400
Unearned advertising revenue	1,000
Insurance expense	900
Supplies expense	600
Telephone expense	825
Wages expense	15,000

The following information applies at December 31:

a. A physical count of supplies indicates that $300 of supplies have not yet been used at December 31.

b. A $75 telephone bill for December has been received but not recorded.
c. One day of wages amounting to $125 remains unpaid and unrecorded at December 31; the amount will be included with the first Friday payment in January.
d. The equipment was purchased December 1; it is expected to last 2 years. No depreciation has yet been recorded.
e. The prepaid rent is for December 2019, and January and February 2020; rent is $500 per month.
f. Half of the advertising revenue has been earned at December 31.
g. The $900 amount in Insurance Expense is for a one-year policy, effective July 1, 2019.

Required: Prepare all necessary adjusting entries at December 31, 2019. General ledger account numbers and descriptions are not needed.

P 3–3

The unadjusted trial balance of Mighty Fine Services Inc. includes the following account balances at December 31, 2019, its fiscal year-end. No adjustments have been recorded. Assume all accounts have normal debit or credit balances.

Prepaid insurance	$600
Unused supplies	500
Bank loan	5,000
Subscription revenue	9,000
Salaries payable	500
Rent expense	3,900
Truck operating expense	4,000

The following information applies to the fiscal year-end:

a. The $600 prepaid insurance is for a one-year policy, effective September 1, 2019.
b. A physical count indicates that $300 of supplies is still on hand at December 31.
c. Interest on the bank loan is paid on the fifteenth day of each month; the unrecorded interest for the last 15 days of December amounts to $25.

d. The Subscription Revenue account consists of a cash receipts for 6-month subscriptions to the corporation’s Computer Trends report; the subscription period began December 1.
e. Three days of salary amounting to $300 remain unpaid at December 31, in addition to the previous week’s salaries of $500, which have not yet been paid.
f. The monthly rent expense amounts to $300.
g. A bill for December truck operating expense has not yet been received; an amount of $400 is owed.

Required: Prepare all necessary adjusting entries at December 31, 2019. General ledger account numbers and descriptions are not necessary.

P 3–4

The following accounts are taken from the records of Bill Pitt Corp. at the end of its first 12 months of operations ended December 31, 2019, prior to any adjustments. In addition to the balances in each set of accounts, additional data are provided for adjustment purposes if applicable. Treat each set of accounts independently of the others.

a.

Truck		Depreciation Expense – Truck		Acc. Dep’n – Truck	
6,000		600			600

Additional information: The truck was purchased July 1; it has an estimated useful life of 4 years.

b.

Cash		Unearned Rent		Rent Earned	
600			-0-		600

Additional information: A part of Harrison’s office was sublet during the entire 12 months for $50 per month.

c.

Unused Supplies		Supplies Expense	
		1,250	

Additional information: A physical inventory indicated $300 of supplies still on hand at December 31.

d.

Prepaid Rent		Rent Expense	
1,200		4,400	

Additional information: The monthly rent is $400.

e.

Wages Expense		Wages Payable	
6,000			500

Additional information: Unrecorded wages at December 31 amount to $250.

f.

Bank Loan		Interest Expense		Interest Payable	
	8,000	600			100

Additional information: Total interest expense for the year should be $800.

g.

Cash		Utilities Expense		Utilities Payable	
	1,000	1,200			200

Additional information: The December bill has not yet been received or any accrual made; the amount owing at December 31 is estimated to be another $150.

h.

Cash		Prepaid Insurance		Insurance Expense	
	1,200	600		600	

Additional information: A $1,200 one-year insurance policy had been purchased effective February 1, 2019; there is no other insurance policy in effect.

i.

Unearned Rent Revenue		Rent Earned	
	900		300

Additional information: The Unearned Rent Revenue balance applies to the months of November and December 2019 and to January 2020 at $300 per month.

j.

Cash		Other Unearned Revenue		Commissions Earned	
25,200			-0-		25,200

Additional information: An amount of $2,000 commission revenue has not been earned at December 31.

Required: Prepare all necessary adjusting entries and descriptions at December 31, 2019. General ledger account numbers are not necessary.

P 3–5

Following is the unadjusted trial balance of Pape Pens Corporation at the end of its first year of operations, December 31, 2019:

Acct. No.	*Account*	*Balance Debit*	*Balance Credit*
101	Cash	3,300	
110	Accounts receivable	4,000	
161	Prepaid insurance	1,200	
173	Unused supplies	500	
184	Truck	8,000	
194	Acc. dep. – truck		-0-
210	Accounts payable		5,000
226	Salaries payable		-0-
248	Unearned rent revenue		2,400
260	Income taxes payable		-0-
320	Common stock		7,000
350	Dividends	1,000	
410	Commissions earned		16,100
440	Rent earned		-0-
610	Advertising expense	200	
615	Commissions expense	1,000	
624	Dep. expense – truck	-0-	
631	Insurance expense	-0-	
632	Interest expense	400	
654	Rent expense	3,600	
656	Salaries expense	7,000	
668	Supplies expense	-0-	
669	Telephone expense	300	
830	Income taxes expense	-0-	
		30,500	30,500

The following additional information is available:

a. Prepaid insurance at December 31 amounts to $600.
b. A physical count indicates that $300 of supplies is still on hand at December 31.
c. The truck was purchased on July 1; it has an estimated useful life of 4 years.
d. One day of salaries for December 31 is unpaid; the unpaid amount of $200 will be included in the first Friday payment in January.
e. The balance in the Unearned Rent Revenue account represents six months rental of warehouse space, effective October 1.
f. A $100 bill for December telephone charges has not yet been recorded.
g. Income taxes expense for the year is $300. This amount will be paid in the next fiscal year.

Required:
1. Prepare all necessary adjusting entries at December 31, 2019, including general ledger account numbers. Descriptions are not needed.
2. Prepare an adjusted trial balance at December 31, 2019.
3. Prepare an income statement, statement of changes in equity, and balance sheet.
4. Prepare closing entries including general ledger account numbers and descriptions.
5. Prepare a post-closing trial balance.

P 3–6

Roth Contractors Corporation was incorporated on December 1, 2019 and had the following transactions during December:

Part A

a. Issued common stock for $5,000 cash
b. Paid $1,200 cash for three months’ rent: December 2019; January and February 2020
c. Purchased a used truck for $10,000 on credit (recorded as an account payable)
d. Purchased $1,000 of supplies on credit. These are expected to be used during the month (recorded as expense)
e. Paid $1,800 for a one-year truck insurance policy, effective December 1

f. Billed a customer $4,500 for work completed to date
g. Collected $800 for work completed to date
h. Paid the following expenses in cash: advertising, $350; interest, $100; telephone, $75; truck operating, $425; wages, $2,500
i. Collected $2,000 of the amount billed in *f* above
j. Billed customers $6,500 for work completed to date
k. Signed a $9,000 contract for work to be performed in January 2020
l. Paid the following expenses in cash: advertising, $200; interest, $150; truck operating, $375; wages, $2,500
m. Collected a $2,000 advance on work to be done in January (the policy of the corporation is to record such advances as revenue at the time they are received)
n. Received a bill for $100 for electricity used during the month (recorded as utilities expense).

Required:

1. Open general ledger T-accounts for the following: Cash, Accounts Receivable, Prepaid Insurance, Prepaid Rent, Truck, Accounts Payable, Common Stock, Repair Revenue, Advertising Expense, Interest Expense, Supplies Expense, Telephone Expense, Truck Operating Expense, Utilities Expense, and Wages Expense. General ledger account numbers are not necessary.
2. Prepare journal entries to record the December transactions. General ledger account numbers and descriptions are not needed.
3. Post the entries to general ledger T-accounts.

Part B

The following information relates to December 31, 2019:

o. One month of the prepaid insurance has expired.
p. The December portion of the rent paid on December 1 has expired.
q. A physical count indicates that $350 of supplies is still on hand.
r. The amount collected in transaction *m* is unearned at December 31.
s. Three days of wages for December 29, 30, and 31 are unpaid, amounting to $1,500. These will be paid in January.
t. The truck has an estimated useful life of 4 years.
u. Income taxes expense is $500. This amount will be paid in the next fiscal year.

Required:

4. Open additional general ledger T-accounts for the following: Unused Supplies, Accumulated Depreciation, Wages Payable, Unearned Revenue, Income Taxes Payable, Depreciation Expense, Insurance Expense, Rent Expense, and Income Taxes Expense. General ledger account numbers are not necessary.
5. Prepare all necessary adjusting entries. General ledger account numbers and descriptions are not necessary.
6. Post the entries to general ledger T-accounts and calculate balances.
7. Prepare an adjusted trial balance at December 31.
8. Assume the fiscal year-end is December 31, 2019. Prepare an income statement, statement of changes in equity, and balance sheet.
9. Prepare closing entries and a post-closing trial balance at December 31, 2019.

P 3–7

Snow Services Corporation performs snow removal services and sells advertising space on its vehicle. The company started operations on January 1, 2019 with $30,000 cash and $30,000 of common stock. It sublets some empty office space.

Part A

The following transactions occurred during January 2019:

a. Purchased a truck for $15,000 cash on January 1
b. Collected snow removal revenue for January, February, and March amounting to $4,000 per month, $12,000 in total (recorded as Service Revenue)
c. Paid $600 for a one-year insurance policy, effective January 1
d. Invested $5,000 of temporarily-idle cash in a term deposit (recorded as Short-term Investments)
e. Purchased $500 of supplies on credit (recorded as Supplies Expense)
f. Received three months of advertising revenue amounting to $900 (recorded as Other Revenue)
g. Received two months of interest amounting to $150 (recorded as Interest Earned)
h. Paid $5,000 cash for equipment

i. Received $1,200 cash for January, February, and March rent of unused office space (recorded as Rent Earned)
j. Paid $3,000 of wages during the month.

Required:

1. Open general ledger T-accounts for the following: Cash, Short-term Investments, Prepaid Insurance, Equipment, Truck, Accounts Payable, Common Stock, Other Revenue, Interest Earned, Rent Earned, Service Revenue, Supplies Expense, and Wages Expense. General ledger account numbers are not necessary.
2. Prepare journal entries to record the January transactions. Descriptions are not needed.
3. Post the entries to the general ledger accounts.

Part B

At the end January, the following adjusting entries are needed:

k. The truck purchased in transaction *a* has a useful life of five years.
l. One-third of the snow removal revenue from transaction *b* has been earned.
m. The January portion of the insurance policy has expired.
n. Half of the interest revenue still has not been earned.
o. A physical count indicates $200 of supplies is still on hand.
p. The January component of the advertising revenue has been earned.
q. $50 interest for January is accrued on the term deposit; this amount will be included with the interest payment to be received at the end of February.
r. The equipment purchased in transaction *h* on January 1 is expected to have a useful life of four years.
s. January rent revenue has been earned.
t. Three days of wages amounting to $150 remain unpaid; the amount will be paid in February.

Required:

4. Open additional general ledger T-accounts for the following: Interest Receivable, Unused Supplies, Accumulated Depreciation—Equipment, Accumulated Depreciation—Truck, Wages Payable, Unearned Advertising Revenue, Unearned Fees Revenue, Unearned Interest Revenue, Unearned Rent Revenue, Insurance Expense, Depreciation Expense—Equipment, and Depreciation Expense—Truck. General ledger account numbers are not necessary.
5. Prepare all adjusting entries at January 31. Descriptions are not necessary.

6. Post the entries to the general ledger accounts and post balances.
7. Prepare an adjusted trial balance at January 31.

CHAPTER FOUR

The Classified Balance Sheet and Related Disclosures

Chapters 1 through 3 discussed and illustrated the steps in the accounting cycle. They also discussed the concepts, assumptions, and procedures that provide a framework for financial accounting as a whole. Chapter 4 expands upon the content and presentation of financial statements. It reinforces what has been learned in previous chapters and introduces the classification or grouping of accounts on the balance sheet. Chapter 4 explains notes to the financial statements, the auditor's report, and the management's responsibility report. These are all integral parts of a corporation's annual report.

Chapter 4 Learning Objectives

LO1 – Explain the importance of financial statement disclosure.

LO2 – Explain and prepare a classified balance sheet.

LO3 – Explain the purpose and content of notes to financial statements.

LO4 – Explain the purpose and content of the auditor's report.

LO5 – Explain the purpose and content of the report that describes management's responsibility for financial statements.

A. Financial Statement Disclosure Decisions

LO1 – Explain the importance of financial statement disclosure.

Financial statements communicate information, with a focus on the needs of financial statement users such as a company's investors and creditors. Accounting information should make it easier for management to allocate resources and for stockholders to evaluate management. A key objective of financial statements is to fairly present the entity's economic resources, obligations, equity, and financial performance.

Fulfilling these objectives is challenging. Accountants must make a number of subjective decisions about how to apply generally accepted accounting principles. For example, they must decide how to measure wealth and how to apply recognition criteria. They must also make practical cost-benefit decisions about how much information is useful to disclose. Some of these decisions are discussed in the following section.

Making Accounting Measurements

Economists often define wealth as an increase or decrease in the entity's ability to purchase goods and services. Accountants use a more specific measurement—they consider only increases and decreases resulting from actual transactions. If a transaction has not taken place, they do not record a change in wealth.

The accountant's measurement of wealth is shaped and limited by the assumptions underlying generally accepted accounting principles that were introduced and discussed in Chapter 1. These included the use of historical cost, matching expenses to revenues or the period in which they are incurred, and assumptions about a stable monetary unit, a separate business entity, revenue recognition, , and going concern. These assumptions mean that accountants record transactions in one currency (for example, dollars), currency retains its purchasing power, and changes in market values of assets are generally not recorded.

Economists, on the other hand, make different assumptions. They often recognize changes in market value of assets. For example, if an entity purchased land for $100,000 that subsequently increased in value to $125,000, economists would recognize a $25,000 increase in wealth. US GAAP and International Financial Reporting Standards generally do not recognize this increase until the entity actually disposes of the asset; accountants would continue to value the land at its $100,000 purchase cost. This practice is based on the application of the historical cost principle.

Economic wealth is also affected by changes in the **purchasing power** of the dollar. For example, if the entity has cash of $50,000 at the beginning of a time period and purchasing power drops by 10% because of inflation, the entity has lost wealth because the $50,000 can purchase only $45,000 of goods and services. Conversely, the entity gains wealth if purchasing power increases by 10%. In this case, the same $50,000 can purchase $55,000 worth of goods and services. However, accountants do not record any changes because the monetary unit principle assumes that the currency unit is a stable measure.

Qualities of Accounting Information

Financial statements are focused on the needs of external users, primarily creditors and stockholders. They use materiality considerations to decide how particular items of information should be recorded and disclosed. To provide information to these users, accountants also make **cost-benefit judgments**. For example, if the costs associated with financial information preparation are too high or if an amount is not sufficiently large or important, a business might implement a materiality policy for various types of asset purchases to guide how such costs are to be recorded. For example, a business might have a materiality policy for the purchase of office equipment whereby anything costing $100 or less is expensed immediately instead of recorded as an asset. In this type of situation, purchases of $100 or less are recorded as an expense instead of an asset to avoid the time and effort needed to record depreciation expense each year for small amounts. This small violation of GAAP will not impact decisions made by external users of the business's financial statements.

Accountants must also make decisions based on whether information is useful. Is it comparable to prior periods? Is it verifiable? Is it presented with clarity and conciseness to make it understandable? Readers' perception of the usefulness of accounting information is determined by how well those who prepare financial statements address these qualitative considerations.

B. Classified Balance Sheet

LO2 – Explain and prepare a classified balance sheet.

The accounting cycle and double-entry accounting have been the focus of the preceding chapters. This chapter focuses on the presentation of financial statements, including how financial information is *classified* (the way accounts are grouped) and what is disclosed.

A common order for the presentation of financial statements is:

1. Income statement
2. Statement of changes in equity
3. Balance sheet
4. Statement of cash flows
5. Notes to the financial statements

In addition, the financial statements are often accompanied by an auditor's report and a statement entitled "Management's Responsibility for Financial Statements." Each of these items will be discussed below. Financial statement information must be disclosed for the most recent year as well as the prior year for comparison purposes.

Because external users of financial statements have no access to the entity's accounting records, it is important that financial statements be organized in a manner that is easy to understand. Thus, financial data are usually grouped into useful, similar categories within **classified financial statements**, as discussed below.

The Classified Balance Sheet

A **classified balance sheet** organizes the asset and liability accounts into categories. The previous chapters used an unclassified balance sheet which included only three broad account groupings: assets, liabilities, and stockholders' equity. The classification of asset and liability accounts into meaningful categories is designed to facilitate the analysis of balance sheet information by external users. Assets and liabilities are classified as either *current* or *non-current*.

Current Assets

Current assets are those resources that the entity expects to convert to cash or consume during the next fiscal year[1]. Examples of current assets include:

- cash, comprising paper currency and coins, deposits at banks, checks, and money orders.
- short-term investments, cash that is invested in interest-bearing deposits or shares that are easily convertible back into cash.
- accounts receivable that are due to be collected within one year.
- notes receivable, account receivables with formalized, written promises to pay specified amounts with interest, and due to be collected within one year.
- merchandise inventory that is expected to be sold within one year.

The current asset category also includes accounts whose future benefits are expected to expire within one fiscal year, such as:

- prepaid expenses, usually consisting of advance payments for insurance, rent, and similar items.
- supplies on hand at the end of an accounting year that will be used during the next year.

In North America, current assets are normally reported before non-current assets on the balance sheet. They are listed by decreasing levels of **liquidity** – their ability to be converted into cash. Therefore, cash appears first under the current asset heading.

Non-current Assets

Non-current assets are assets that will be useful for more than one year; they are often referred to as *long-lived assets***.** Non-current assets include **plant assets** – items used to conduct the operations of the business. Some examples of plant assets are land, buildings, equipment, and motor vehicles.

Other types of non-current assets include long-term investments and intangible assets. **Long-term investments** include notes receivable that will be paid by customers over a period greater than one fiscal year and investments in shares and debt of other companies that will be

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[1] Or within the normal operating cycle of the entity, whichever is longer. In this text, the fiscal year will always be assumed to be longer.

held for more than one year. **Intangible assets** are resources that do not have a physical form and whose value comes from the rights held by the owner. They are used over the long term to produce or sell products and services and include copyrights, patents, trademarks, and franchises. These types of assets will be discussed in detail in a later chapter.

Current Liabilities

Current liabilities are obligations that must be paid within the next fiscal year. In North America, they are shown first in the liabilities section of the balance sheet and listed in order of their due dates. Bank loans are shown first. Examples of current liabilities include:

- bank loans (or borrowings) that are payable on demand or due within the next 12 months (or next operating cycle, whichever is longer)
- accounts payable
- accrued liabilities such as interest payable, wages payable, and income taxes payable
- unearned revenue, and
- the **current portion of non-current liabilities**; that is, the amount that will be paid in the next fiscal year. For example, assume a $30,000 bank loan is issued on December 31, 2019 and this amount is to be repaid at the rate of $1,000 at the end of each month over two years. The current portion of this loan on the December 31, 2019 balance sheet would be $12,000 (calculated as 12 months X $1,000/month). The remaining principal ($18,000) would be reported on the December 31, 2019 balance sheet as a non-current liability.

Non-Current or Long-Term Liabilities

Non-current liabilities, also referred to as **long-term liabilities**, are borrowings that do not require repayment for more than one year. Examples include a bank loan (as noted above, minus the current portion). A **mortgage** is a liability that is secured by real estate.

Stockholders' Equity

As discussed in prior chapters, the stockholders' equity section of the classified balance sheet consists of two major accounts: common stock and retained earnings.

Presentation of the Balance Sheet

The balance sheet can be presented in the **account form** where liabilities and equities are presented to the right of the assets. An alternative is the **report form** where liabilities and stockholders’ equity are presented below the assets. The following illustrates the classified balance sheet of Big Dog Carworks Corp. after several years of operation, presented in account form:

Big Dog Carworks Corp.
Balance Sheet
At December 31, 2020

The prior year's information is also presented for comparison.

Assets are classified as current or non-current.

Assets	*2020*	*2019*
Current		
Cash	$ 10,800	$ 12,000
Accounts receivable	26,000	24,000
Merchandise inventories	120,000	100,000
Prepaid expenses	1,200	570
Total current assets	158,000	136,570
Non-current		
Plant assets (Note 4)	126,645	10,430
Total assets	$284,645	$147,000

Various notes are included at the end of the financial statements. Among other purposes, they provide details about a particular category on the balance sheet or income statement.

Liabilities are classified as current or non-current.

Liabilities	*2020*	*2019*
Current		
Borrowings (Note 5)	$ 39,000	$ 82,250
Accounts payable	24,000	22,000
Income taxes payable	15,000	10,000
Total current liabilities	78,000	114,250
Non-current		
Borrowings (Note 5)	163,145	-0-
Total liabilities	241,145	114,250
Stockholders' Equity		
Common stock (Note 6)	11,000	11,000
Retained earnings	32,500	21,750
Total stockholders' equity	43,500	32,750
Total liabilities and equity	$284,645	$147,000

The statement of changes in equity is as follows:

Big Dog Carworks Corp.
Statement of Changes in Equity
For the Year Ended December 31, 2020

	Common stock	*Retained earnings*	*Total equity*
Balance at January 1, 2019	$11,000	$10,000	$21,000
2019 net income		15,000	15,000
Dividends		(3,250)	(3,250)
Balance at December 31, 2019	**11,000**	**21,750**	**32,750**
2020 net income		20,000	20,000
Dividends		(9,250)	(9,250)
Balance at December 31, 2020	**$11,000**	**$32,500**	**$43,500**

This column shows the continuity of retained earnings from one year-end to the next. Bolded amounts agree to the balance sheet. They are highlighted only for illustrative purposes.

The Classified Income Statement

Recall that the income statement summarizes a company's revenues less expenses over a period of time. An income statement for BDCC was presented in the first few pages of Chapter 1:

Big Dog Carworks Corp.
Income Statement
For the Month Ended January 31, 2017

Revenue		
Repairs		$10,000
Expenses		
Rent	$1,600	
Salaries	3,500	
Supplies	2,000	
Truck operating	700	
Total expenses		7,800
Net income		$2,200

The format used above was sufficient to disclose relevant financial information for Big Dog's simple start-up operations. When operations become more complex, an income statement can be classified like the balance sheet. The classified income statement will be discussed in detail in a later chapter.

Regardless of the type of financial statement, any items that are material must be disclosed separately so users will not otherwise be misled. A material amount is one which would affect the decision of a reader if it was omitted. Materiality is a matter for judgment. Office supplies of $1,000 per month used by BDCC in January 2017 in its first month of operations might be a material amount and therefore disclosed as a separate item on the income statement for the month ended January 31, 2017. If annual revenues grew to $1 million several years later, $1,000 per month for supplies might be considered immaterial. These expenditures would then be grouped with other similar items and disclosed as a single amount on the income statement.

C. Notes to Financial Statements

LO3 – Explain the purpose and content of notes to financial statements.

As an integral part of its financial statements, a company provides *notes to the financial statements*. In accordance with the disclosure principle, these provide relevant details that are not included in the body of the financial statements. For instance, details about Big Dog's plant assets are shown in Note 4 in the following sample notes to the financial statements. The notes help external users better understand and analyze the financial statements.

Although a detailed discussion of disclosures that might be included as part of the notes is beyond the scope of an introductory financial accounting course, a simplified example of note disclosure is shown below for Big Dog Carworks Corp.

Big Dog Carworks Corp.
Notes to the Financial Statements
For the Year Ended December 31, 2020

1. **Nature of operations**

   The principal activity of Big Dog Carworks Corp. is the servicing and repair of vehicles.

2. **General information and statement of compliance with US GAAP**

   Big Dog Carworks Corp. was incorporated in California in 2016. The financial statements reflect all adjustments, which are normal and recurring in nature, necessary for fair financial statement presentation. The preparation of these financial statements is in conformity with US generally accepted accounting principles (GAAP).

3. **Summary of accounting policies**

   The financial statements have been prepared using the significant accounting policies and measurement bases summarized below.

   a. Revenue

   Revenue arises from the rendering of service. It is measured by reference to the fair value of consideration received or receivable.

   b. Operating expenses

   Operating expenses are recognized in the income statement upon utilization of the service or at the date of their origin.

   c. Borrowing costs

   Borrowing costs directly attributable to the acquisition, construction, or production of plant assets are capitalized during the period of time that is necessary to complete and prepare the asset for its intended use or sale. Other borrowing costs are expensed in the period in which they are incurred and reported as interest expense.

d. Plant assets

Land held for use in production or administration is stated at cost. It is not depreciated. Other plant assets are initially recognized at acquisition cost plus any costs directly attributable to bringing the assets to the locations and conditions necessary to be employed in operations. They are subsequently measured using the cost model: cost less subsequent depreciation.

Depreciation is recognized on a straight-line basis to write down the cost, net of estimated residual value. The following useful lives are applied:

Buildings: 25 years
Equipment: 10 years
Truck: 5 years

Residual value estimates and estimates of useful life are updated at least annually.

e. Income taxes

Current income tax liabilities comprise those obligations to fiscal authorities relating to the current or prior reporting periods that are unpaid at the reporting date. Calculation of current taxes is based on tax rates and tax laws that have been enacted or substantively enacted by the end of the reporting period.

f. Common stock

Common stock represents the nominal value of shares that have been issued.

g. Estimation uncertainty

When preparing the financial statements, management undertakes a number of judgments, estimates, and assumptions about the recognition and measurement of assets, liabilities, income, and expenses. Information about estimates and assumptions that have the most significant effect on recognition and measurement of assets, liabilities, income, and expenses is provided below. Actual results may be substantially different.

4. **Plant assets**

Details of the company's plant assets and their carrying amounts at December 31 are as follows:

	2020					*2019*
	Land	*Building*	*Equip.*	*Truck*	*Total*	*Total*
Gross Carrying Amount						
Balance, January 1	$ -0-	$ -0-	$ 3,000	$8,000	$ 11,000	$11,000
Additions	30,000	90,000			120,000	
Balance, Dec. 31	30,000	90,000	3,000	8,000	131,000	11,000
Depreciation						
Balance, January 1		-0-	90	480	570	285
Deprecation for year		3,500	45	240	3,785	285
Balance, Dec. 31		3,500	135	720	4,355	570
Carrying Amount						
December 31	$30,000	$86,500	$ 2,865	$7,280	$126,645	$10,430

These amounts agree with the plant asset balances shown in the assets section of BDCC's balance sheet.

5. **Borrowings**

Borrowings include the following financial liabilities measured at cost:

	Current		*Non-current*	
	2020	*2019*	*2020*	*2019*
Demand bank loan	$ 20,000	$ 52,250	$ -0-	$ -0-
Subordinated stockholder loan	13,762	30,000	-0-	-0-
Mortgage	5,238	-0-	163,145	-0-
Total carrying amount	$39,000	$82,250	$163,145	$ -0-

These amounts agree with the Borrowings balances shown in the current and non-current liability sections of BDCC's balance sheet.

The bank loan is due on demand and bears interest at 6% per year. It is secured by accounts receivable and inventories of the company.

The stockholder loan is due on demand, non-interest bearing, and unsecured.

The mortgage is payable to First Bank of California. It bears interest at 5% per year and is amortized over 25 years. Monthly payments including interest are $960. It is secured by land and buildings owned by the company. The terms of the mortgage will be re-negotiated in 2023.

6. **Common stock**

   The common stock of Big Dog Carworks Corp. consists of fully-paid common shares with a stated value of $1 each. All shares are eligible to receive dividends, have their capital repaid, and represent one vote at the annual stockholders' meeting. There were no shares issued during 2019 or 2020.

D. The Auditor's Report

LO4 – Explain the purpose and content of the auditor's report.

Financial statements are often accompanied by an auditor's report. An **audit** is an external examination of a company's financial statement information and its system of *internal controls*.

Internal controls are the processes instituted by management of a company to direct, monitor, and measure the accomplishment of its objectives. This includes the prevention and detection of fraud and error. An audit seeks not certainty, but reasonable assurance that the financial statement information is not materially misstated.

The auditor's report is a structured statement issued by an independent examiner, usually a professional accountant, who is contracted by the company to report the audit's findings to the company's stockholders. An audit report provides some assurance to present and potential investors and creditors that the company's financial statements are trustworthy. Therefore, it is a useful means to reduce the risk of their financial decisions. Put in simple terms, a **standard unqualified independent auditor's report** indicates that the financial statements are considered reliable and fairly stated. A **qualified auditor's report** is one that indicates the financial statements may not be reliable. Audit reports are covered in more advanced accounting classes. For now, a simplified example of an unqualified auditor's report for BDCC is shown below, along with a brief description of each component.

The auditor's independence from the company is made explicit.	REPORT OF WALKER & RANGER CPAs, LLP, INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM
The audit report is addressed to the stockholders.	To the Stockholders of Big Dog Carworks Corp.
The audited information is described.	We have audited the accompanying balance sheet of Big Dog Carworks Corp. at December 31, 2020, and the related statements of income, retained earnings, and cash flows for the year then ended.
Management responsibility for preparation of the statements is made explicit.	These financial statements are the responsibility of the Company's management.
The auditor's responsibilities and the audit standards used are described.	Our responsibility is to express an opinion on these financial statements based on our audit. We conducted our audit in accordance with auditing standards generally accepted in the United States of America.
The audit procedures are described in general terms.	Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation.
A conclusion about the adequacy of audit evidence is stated.	We believe that our audit provides a reasonable basis for our opinion.
An opinion is expressed about the financial statement information.	In our opinion, the financial statements referred to above present fairly, in all material respects, the financial position of Big Dog Carworks Corp. as at December 31, 2020, and the results of its operations and its cash flows for the year then ended in conformity with accounting principles generally accepted in the United States of America.
The report is signed by the auditor and dated.	March 15, 2021 San Jose, CA (signed) Walker & Ranger CPAs, LLP

E. Management's Responsibility for Financial Statements

LO5 – Explain the purpose and content of the report that describes management's responsibility for financial statements.

The final piece of information often included with the annual financial statements is a report describing management's responsibility for the accurate preparation and presentation of financial statements (no example is included here).

The report describes management's responsibility for the preparation and presentation of financial statements, the adequacy of internal controls, legal and ethical oversight of all aspects of the corporation, and estimates that underlie the accounting numbers. An example of an estimate is the useful life of plant assets used to calculate depreciation as shown in the preceding note 3(d).

The report also explains the responsibilities of the board of directors and the audit committee, and underscores the division of duties involved with the publication of financial statements. Management is responsible for preparing the financial statements. The independent auditor is responsible for examining the financial statement information as prepared by management, including the reasonableness of estimates, and then expressing an opinion on their accuracy.

In some cases, the auditor may assist management with aspects of financial statement preparation. For instance, the auditor may provide guidance on how a new accounting standard will affect financial statement presentation or other information disclosure. Ultimately, however, the preparation of financial statements is management's responsibility. Senior executives of the company assume legal responsibility of their responsibilities by signing the report.

Summary of Chapter 4 Learning Objectives

LO1 – Explain the importance of financial statement disclosure.

The objective of financial statements is to communicate information to meet the needs of external users. In addition to recording and reporting verifiable financial information, accountants make decisions regarding how to measure transactions. Applying GAAP can present challenges when judgment must be applied as in the case of cost-benefit decisions and materiality considerations.

LO2 – Explain and prepare a classified balance sheet.

A classified balance sheet groups assets and liabilities as follows:

Assets	*Liabilities*
Current assets	Current liabilities
Non-current assets:	Non-current or long-term liabilities
Plant assets	
Long-term investments	
Intangible assets	

Current assets are those that are used within one year or one operating cycle, whichever is longer, and include cash, accounts receivables, and unused supplies. Non-current assets have benefits beyond one fiscal year, or are not expected to be converted to cash within one fiscal year or one operating cycle, whichever is longer. There are three types of non-current assets: plant assets, long-term investments, and intangible assets. Long-term investments include holdings of shares and debt of other companies. Intangible assets are rights held by the owner and do not have a physical substance; they include copyrights, patents, franchises, and trademarks. Current liabilities must be paid within one year or one operating cycle, whichever is longer. Non-current liabilities are due beyond one year or one operating cycle, whichever is longer.

LO3 – Explain the purpose and content of notes to financial statements.

In accordance with the GAAP principle of full disclosure, relevant details not contained in the body of financial statements are included in the accompanying notes to financial statements. Notes generally include a summary of significant accounting policies, details regarding plant assets assets, and specifics about liabilities such as the interest rates and repayment terms.

LO4 – Explain the purpose and content of the auditor’s report.

An audit as it relates to the auditor’s report is an external examination of a company’s financial statement information and its system of internal controls. Internal controls are the processes instituted by management of a company to direct, monitor, and measure the accomplishment of its objectives including the prevention and detection of fraud and error. The auditor’s report provides some assurance that the financial statements are trustworthy. In simple terms, an unqualified auditor’s report indicates that the financial statements are reliable.

LO5 – Explain the purpose and content of the report that describes management’s responsibility for financial statements.

This report describes management’s responsibility for the preparation and presentation of financial statements, the accuracy of estimates used therein, the adequacy of internal controls, and legal and ethical oversight of all aspects of the corporation. It also explains the responsibilities of the board of directors and the audit committee.

A S S I G N M E N T M A T E R I A L S

Concept Self-check

1. What shapes and limits an accountant's measurement of wealth?
2. Are financial statements primarily intended for internal or external users?
3. What are the common classifications within a classified balance sheet?
4. What are current assets?
5. What are non-current assets?
6. What are current liabilities?
7. What are non-current liabilities?
8. What is the purpose and content of the notes to the financial statements?
9. What is the purpose and content of the auditor's report?
10. What is the purpose and content of the report that describes management's responsibility for financial statements?

To answer the following, refer to the Big Dog Carworks Corp. financial statements for the year ended December 31, 2020 and other information included in this chapter.

11. Identify the economic resources of Big Dog Carworks Corp. shown in its financial statements.
12. What comprise the financial statements of BDCC?
13. Why does BDCC prepare financial statements?
14. From the balance sheet at December 31, 2020 extract the appropriate amounts to complete the following accounting equation:

    ASSETS = LIABILITIES + STOCKHOLDERS' EQUITY
15. If ASSETS – LIABILITIES = NET ASSETS, how much is net assets at December 31, 2020? Is net assets synonymous with stockholders' equity?
16. What types of assets are reported by Big Dog Carworks Corp.? What types of liabilities?
17. Accounting for financial transactions makes it possible to measure the progress of the entity. How do generally accepted accounting principles positively affect this measurement process?

18. From reading the financial statements including the notes to the financial statements, can you tell whether BDCC has made any cost-benefit judgements about certain disclosures? How do these take materiality into account?
19. Does Big Dog Carworks Corp. use the cash basis of accounting or the accrual basis? How can you tell?
20. What kind of assumptions is made by Big Dog Carworks Corp. about asset capitalization? Over what periods of time are assets being amortized?
21. Should the salary of BDCC's president be recorded as an asset since his salary brings benefits to the company in future accounting periods?
22. What adjustments might management make to the financial information when preparing the annual financial statements? Consider the following categories:
    a. Current asset accounts
    b. Non-current asset accounts
    c. Current liability accounts
    d. Non-current liability accounts.

    Indicate several examples in each category. Use the BDCC balance sheet and notes 3 and 5 for ideas.

23. What sequence of steps is likely followed in preparing BDCC's annual financial statements?
24. What are the advantages of using a classified balance sheet? Why are current accounts shown before non-current ones on BDCC's balance sheet?
25. How does Big Dog Carworks Corp. make it easier to compare information from one time period to another?
26. Who is the auditor of BDCC? What does the auditor's report tell you about BDCC's financial statements? Does it raise any concerns?
27. What does the auditor's report indicate about the application of generally accepted accounting principles in BDCC's financial statements?
28. What is BDCC management's responsibility with respect to the company's financial statements? Do the financial statements belong to management? the auditor? the board of directors? stockholders?

Comprehension Problems

CP 4–1

The following list of accounts is taken from the records of the Viking Company Ltd. at December 31, 2019:

Account	*Balance*
Accounts payable	$200
Accounts receivable	100
Bank loan, due within 90 days	500
Building	1,000
Cash	20
Equipment	500
Land	2,000
Mortgage payable (due 2021)	1,500
Notes receivable, due within 90 days	40
Prepaid insurance	30
Retained earnings	?
Salaries payable	60
Common stock	1,200
Unused supplies	10

Required: Prepare a classified balance sheet. Assume all accounts have normal balances.

CP 4-2

The Oregon Corporation has been operating for a number of years. On October 31, 2019 the accountant of the company disappeared, taking the records with him. You have been hired to reconstruct the accounting records, and with this in mind you assemble a list of all company assets. By checking with banks, counting the materials on hand, and investigating the ownership of buildings and equipment, you developed the following information as of October 31.

Account	*Balance*
Accounts Receivable	$ 5
Buildings	10
Cash	2
Equipment	5
Land	200
Inventories	3
Investments*	4

*These are shares in another corporation that will be held indefinitely.

Statements and unpaid invoices found in the office indicate that $30 is owed to trade creditors. There is a $10 mortgage outstanding, $4 of which is due by October 31, 2020. Interviews with the board of directors and a check of the common stock records indicate that there are 100 shares outstanding. Stockholders paid $100 in total to the corporation for these. No record is available regarding past retained earnings.

Required: Prepare a classified balance sheet at October 31, 2019.

Problems

P 4-1

The following balance sheet was prepared for Abbey Limited:

Abbey Limited
Balance Sheet
As at November 30, 2019

Assets			*Liabilities*		
Current			*Current*		
Bank loan	$ 1,000		Accounts payable	$ 5,600	
Notes receivable	6,000		Notes payable	2,000	
Building	12,000		Cash	1,000	
Merch. inventory	3,000				$ 8,600
		$22,000			
Non-current			*Non-current*		
Short-term investments	2,500		Mortgage payable	6,000	
Retained earnings	2,000		Equipment	2,000	
Unused supplies	100		Salaries payable	250	
Truck	1,350				8,250
		5,950	Total liabilities		16,850
			Stockholders' Equity		
			Common stock		11,100
Total assets		$27,950	Total liabilities and assets		$27,950

Other information you have gathered:

a. Amounts due on borrowings by November 30, 2020 are as follows:

Bank loan	$400
Mortgage payable	2,000
Notes payable	500

b. Notes receivable that will be collected by November 30, 2020 amount to $5,000.
c. The building was sold on December 15, 2019 for $20,000.

Required:

1. Identify the errors that exist in the balance sheet of Abbey Limited and why you consider this information incorrect.
2. Prepare a corrected, classified balance sheet.
3. Based on the balance sheet categories, what additional information should be disclosed in the notes to the financial statements?

P 4-2

The following accounts and account balances are taken from the records of Joyes Enterprises Ltd. at December 31, 2020.

Account	*2020*	*2019*
Accounts payable	$ 7,000	$ 4,000
Accounts receivable	5,000	3,000
Notes receivable	3,000	2,000
Bank loan	5,000	5,000
Building	24,000	20,000
Cash	2,000	1,000
Dividends	1,000	-0-
Equipment	16,000	12,000
Income taxes payable	3,000	2,500
Land	5,000	5,000
Merchandise inventory	19,000	24,500
Mortgage payable	5,000	7,000
Prepaid insurance	1,000	1,000
Common stock	48,000	48,000
Retained earnings, start of year	?	1,000
Net income	?	?

Other information:

a. One-half of the notes receivable at December 31, 2020 will be received in cash during 2021. All of the notes receivable at December 31, 2019 were received in cash during 2020.
b. $1,000 of the bank loan and $2,000 of the mortgage payable must be repaid by December 31, 2021.

Required:

1. Calculate
   a. 2019 net income
   b. retained earnings at the start of 2020, and
   c. 2020 net income.
2. Prepare a classified balance sheet. Assume all accounts have normal balances. Disclose all amounts separately on the balance sheet.
3. Does Joyes Enterprises Ltd. have sufficient resources to meet its current obligations in 2021?
4. Refer to BDCC's note 4 shown in this chapter. Assume now that Joyes' plant assets are combined into one amount on the balance sheet. Prepare a suitable note to the financial statements. Assume there are no additions to plant assets in 2019, and that there is no depreciation calculated for either year.

P 4-3

Required: Identify whether each of the following sentences would likely be found in (a) the auditor's report; (b) the statement of management's responsibility for the financial statements; or (c) the notes to the financial statements. The answer to the first sentence is provided.

_b_ 1. The significant accounting policies, which management believes are appropriate for the company, are described in Note X to the financial statements.

___ 2. Revenue arises from the rendering of service. It is measured by reference to the fair value of consideration received or receivable.

___ 3. These financial statements are the responsibility of the Company's management.

___ 4. Management has established systems of internal control that are designed to provide reasonable assurance that assets are safeguarded from loss or unauthorized use [. . .]

___ 5. The board of directors is responsible for ensuring that management fulfils its responsibilities for financial reporting and internal control.

___ 6. The mortgage is payable to Last Chance Bank. It bears interest at 5% per year and is amortized over 20 years. It is secured by real estate of the company.

___ 7. […] includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements.

___ 8. The audit committee reviews the annual financial statements and reporting to the board, and makes recommendations with respect to their acceptance.

___ 9. The estimated useful lives of the company's depreciable assets are as follows:

___ 10. […] standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement.

___ 11. Land held for use in production or administration is stated at cost. Other plant assets are initially recognized at acquisition cost plus any costs directly attributable to bringing the assets to the locations and conditions necessary to be employed in operations. They are subsequently measured using the cost model: cost less subsequent depreciation.

___ 12. Management recognizes its responsibility for conducting the company's affairs in compliance with established financial standards and applicable laws, and maintains proper standards of conduct for its activities.

___ 13. The common stock of Acme Supplies Ltd. consists of fully-paid common shares with a stated value of $1 each.

___ 14. The principal activity of Acme Supplies Ltd. is the retail sale of merchandise.

CHAPTER FIVE

Accounting for the Sale of Goods

To this point, examples of business operations have involved the sale of services. This chapter introduces business operations based on the purchase and resale of goods. For example, Target and Home Depot each purchase and resell goods—such businesses are known as merchandisers. The accounting transactions for merchandising companies differ from those of service-based businesses. Chapter 5 covers accounting for transactions of sales of goods on credit and related cash collections by merchandising firms, and transactions involving purchases and payments for goods sold in the normal course of business activities.

Chapter 5 Learning Objectives

LO1 – Describe merchandising and explain the financial statement components of sales, cost of goods sold, merchandise inventory, and gross profit; differentiate between the perpetual and periodic inventory systems.

LO2 – Analyze and record purchase transactions for a merchandiser.

LO3 – Analyze and record sales transactions for a merchandiser.

LO4 – Record adjustments to merchandise inventory.

LO5 – Explain and prepare a classified multiple-step income statement for a merchandiser.

LO6 – Explain the closing process for a merchandiser.

LO7 – (Appendix) Explain and identify the entries to record purchase and sales transactions in a periodic inventory system.

A. The Basics of Merchandising

LO1 - Describe merchandising and explain the financial statement components of sales, cost of goods sold, merchandise inventory, and gross profit; differentiate between the perpetual and periodic inventory systems.

A merchandising company, or **merchandiser**, differs in several basic ways from a company that provides services. First, a merchandiser purchases and then sells goods whereas a service company sells services. For example, a car dealership is a merchandiser that sells cars while an airline is a service company that sells air travel. Because merchandising involves the purchase and then the resale of goods, an expense called **cost of goods sold** results. Cost of goods sold is the purchase price of items that are then re-sold to customers. For example, the cost of goods sold for a car dealership would be the cost of the cars purchased from the manufacturer. A service company does not have an expense called cost of goods sold since it does not sell physical items. As a result, the income statement for a merchandiser includes different details. A merchandising income statement highlights cost of goods sold by showing the difference between sales revenue and cost of goods sold, which is called **gross profit** or *gross margin*. The basic income statement differences between a service business and a merchandiser are illustrated in Figure 5-1.

Service Company	*Merchandising Company*
Revenues	Sales
	Less: Cost of Goods Sold
	Equals: Gross Profit
Less: Expenses	*Less*: Other Expenses
Equals: Net Income	*Equals*: Net Income

Figure 5-1 Differences Between the Income Statements of Service and Merchandising Companies

Assume that Excel Cars Corporation decides to go into the business of buying used vehicles from a supplier and reselling these to customers. If Excel purchases a vehicle for $2,000 and then sells it for $3,000, the gross profit would be $1,000, as follows:

Sales	$ 3,000
Cost of goods sold	2,000
Gross profit	$ 1,000

The word "gross" is used by accountants to indicate that other expenses incurred in running the business must still be deducted from this amount before net income is calculated. In other words, gross profit represents the amount of sales revenue that remains to pay expenses after the cost of the goods sold is deducted.

A **gross profit percentage** can be calculated to express the relationship of gross profit to sales. The sale of the vehicle that cost $3,000 results in a 33.3% gross profit percentage ($1,000/3,000). That is, for every $1 of sales, the company has $.33 left to cover other expenses after deducting cost of goods sold. Readers of financial statements use this percentage as a means to evaluate the performance of one company against other companies in the same industry, or in the same company from year to year. Small fluctuations in the gross profit percentage can have significant effects on the financial performance of a company because the amount of sales and cost of goods sold are often very large in comparison to other income statement items.

Another difference between a service company and a merchandiser relates to the balance sheet. Since a merchandiser purchases goods for resale, goods held for resale by a merchandiser are called *merchandise inventory* and are reported as an asset on the balance sheet. A service company would not normally have merchandise inventory.

Inventory Systems

There are two ways that inventory is managed: the perpetual inventory system or periodic inventory system. This chapter focuses on the perpetual system. In a **perpetual inventory system**, the Merchandise Inventory and Cost Of Goods Sold accounts in the general ledger are updated immediately when a purchase or sale of goods occurs. When merchandise inventory is purchased, the cost is debited to the Merchandise Inventory account. As inventory is sold to customers, the cost of the inventory sold is removed from the Merchandise Inventory account and debited to the Cost Of Goods Sold account. Under a perpetual system, the detailed composition of merchandise inventory – item description, number of items, cost per item, and total cost – is known at any time. However, a physical count is still performed at the end of the accounting period to determine and adjust for differences between the actual inventory on hand and the Merchandise Inventory account balance in the general ledger.

Some businesses will use a **periodic inventory system** instead**.** The purchase of merchandise inventory is debited to a temporary account called Purchases in the general ledger. At the end of the accounting period, inventory is counted, the Merchandise Inventory account is updated, and cost of goods sold is calculated. In a periodic inventory system, the real-time balances in Merchandise Inventory and Cost Of Goods Sold accounts are not known. The entry to record this difference is discussed later in this chapter. The periodic system is discussed in greater detail in the appendix to this chapter.

B. The Purchase and Payment of Merchandise Using the Perpetual Inventory Method

LO2 – Analyze and record purchase transactions for a merchandiser.

As introduced in Chapter 3, a company's operating cycle includes purchases *on account* or *on credit* and is highlighted in Figure 5–2.

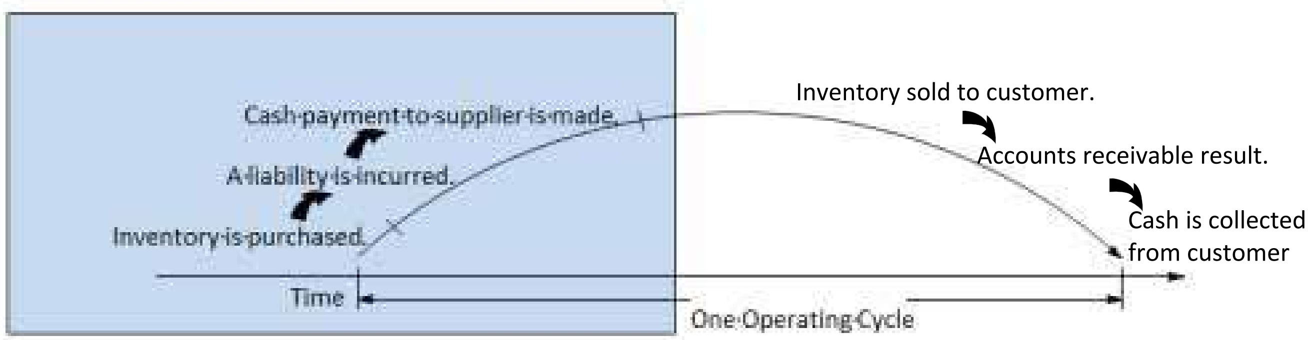

Figure 5–2 Purchase and Payment Portion of the Operating Cycle

Recording the Purchase of Merchandise Inventory

When merchandise inventory is purchased, the cost is recorded in a Merchandise Inventory general ledger account. An account payable results when the merchandise inventory is acquired but will not be paid in cash until a later date. For example, recall the vehicle purchased on account by Excel Cars Corporation for $2,000. Assume this was purchased on May 2, 2019. The journal entry and general ledger T-account effects would be as follows:

General Journal Entry					*General Ledger Effect*
Date	Description	PR	Debit	Credit	
May 2	Merchandise Inventory	150	2,000		Merch. Inventory: 2,000 (debit)
	Accounts Payable	210		2,000	Accounts Payable: 2,000 (credit)
	To record purchase of vehicle.				

In addition to the purchase of merchandise inventory, there are other activities that affect the Merchandise Inventory account. For instance, merchandise may occasionally be returned to a supplier or damaged in transit, or discounts may be earned for prompt cash payment. These transactions result in the reduction of amounts due to the supplier and thus the costs of inventory. The purchase of merchandise inventory may also involve the payment of transportation and handling costs. These are all costs necessary to prepare inventory for sale, and all such costs are included in the Merchandise Inventory account. These costs are discussed in the following sections.

Purchase Returns and Allowances

Assume that the vehicle purchased by Excel turned out to be the wrong color. The supplier was contacted on May 3 and agreed to reduce the price by $300 to $1,700. This is an example of a **purchase returns and allowances** adjustment. The amount of the allowance, or reduction, is recorded as via journal entry as a credit to the Merchandise Inventory account. The entry and related T-account effects are:

Date	Description	PR	Debit	Credit
May 3	Accounts Payable	210	300	
	Merchandise Inventory	150		300
	To record reduction in account payable: vehicle wrong color.			

Accounts Payable

Debit	Credit
	2,000
300	
	1,700

Merch. Inventory

Debit	Credit
2,000	
	300
1,700	

Note that the cost of the vehicle has been reduced to $1,700 ($2,000 – 300) as has the amount owing to the supplier.

Purchase Discounts

Purchase discounts affect the purchase price of merchandise if payment is made within a time period specified in the supplier's invoice. For example, if the terms on the $2,000 invoice for one vehicle received by Excel indicates "1/15, n45", this means that the $2,000 must be paid within 45 days ('n' = net). However, if cash payment is made by Excel within 15 days, the purchase price will be reduced by 1%.

Assuming the amount is paid within 15 days, the supplier's terms entitle Excel to deduct $17 [($2,000 - $300) = $1,700 x 1% = $17]. The payment to the supplier if payment was made on May 9 would be recorded as:

Date	Description	PR	Debit	Credit
May 9	Accounts Payable	210	1,700	
	Merchandise Inventory	150		17
	Cash	101		1,683
	To record payment on account in full and purchases discount applied.			

Accounts Payable

Debit	Credit
	1,700
1,700	

Merch. Inventory

Debit	Credit
2,000	
	300
	17
1,683	

Cash

Debit	Credit
	1,683

The cost of the vehicle in Excel's inventory records is now $1,683 ($2,000 – 300 – 17). If payment is made after the discount period, $2,700 of cash is paid and the entry would be:

Accounts Payable	1,700	
Cash		1,700
To record payment on account; no purchase discount applied.		

In this case, the Merchandise Inventory account is not affected. The cost of the vehicle in the general ledger remains at $1,700.

Trade discounts are similar to purchase discounts. A supplier advertises a **list price** which is the normal selling price of its goods to merchandisers. Trade discounts are given by suppliers to merchandisers that buy a large quantity of goods. For instance, assume a supplier offers a 10% trade discount on purchases of 1,000 units or more where the list price is \$1/unit. If Beta Merchandiser Corp. buys 1,000 units on account, the entry in Beta's records would be:

Merchandise Inventory	900	
Accounts Payable		900
To record purchase of cups; 5% trade discount applied (1,000 x \$1 x 95% = \$900)		

Note that just the net amount (list price less trade discount) is recorded.

Transportation

Costs to transport goods from the supplier to the seller must also be considered when recording the cost of merchandise inventory. The shipping terms on the invoice identify the point at which ownership of the inventory transfers from the supplier to the purchaser. When the terms are **FOB shipping point**, ownership transfers at the 'shipping point' so the purchaser is responsible for transportation costs. **FOB destination** indicates that ownership transfers at the 'destination point' so the seller is responsible for transportation costs. FOB is the abbreviation for "free on board."

Assume that Excel's supplier sells with terms of FOB shipping point indicating that transportation costs are Excel's responsibility. If the cost of shipping is \$125 and this amount was paid in cash to the truck driver at time of delivery on May 9, the entry would be:

Date	Description	PR	Debit	Credit
May 9	Merchandise Inventory	150	125	
	Cash	101		125
	To record freight on vehicle purchased.			

Merch. Inventory	
2,000	
	300
	17
125	
1,808	

Cash	
	125

The cost of the vehicle in the Excel Merchandise Inventory account is now \$1,808. It is important to note that Excel's transportation costs to deliver goods to customers are recorded as *delivery expenses* that do not affect the Merchandise Inventory account.

The next section describes how the sale of merchandise is recorded as well as the related costs of items sold.

C. Merchandise Inventory: Sales and Collection Using the Perpetual Inventory System

LO3 – Analyze and record sales transactions for a merchandiser.

In addition to purchases on account, a merchandising company's operating cycle includes the sale of merchandise inventory *on account* or *on credit* as highlighted in Figure 5–3.

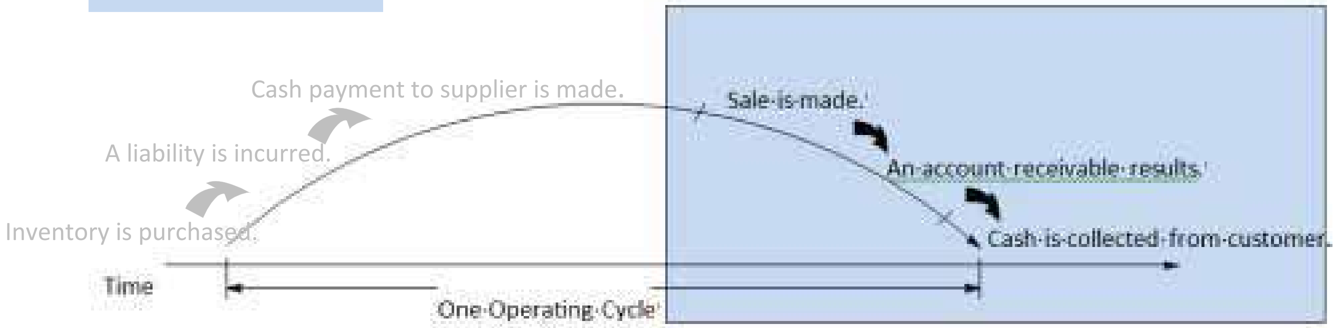

Figure 5–3 Sales and Collection Portion of the Operating Cycle

There are some slight recording differences when revenue is earned in a merchandising company. These are discussed below.

Recording the Sale of Merchandise Inventory

The sale of merchandise inventory is recorded with two entries:

1. recording the sale by debiting Cash or Accounts Receivable and crediting Sales, and
2. recording the cost of the sale by debiting Cost of Goods Sold and crediting Merchandise Inventory.

Assume the vehicle purchased by Excel is sold on May 15 for $3,000 on account. Recall that the cost of this vehicle in the Excel Merchandise Inventory account is $1,808, as shown below.

The entries to record the sale of the merchandise inventory are:

Date	Description	PR	Debit	Credit
May 15	Accounts Receivable	110	3,000	
	Sales	500		3,000
	Cost of Goods Sold	570	1,808	
	Merchandise Inventory	150		1,808
	To record sale of a vehicle and related cost of goods sold.			

Accounts Receivable	
3,000	

Sales	
	3,000

Cost of Goods Sold	
1,808	

Merch. Inventory	
1,808	
	1,808
-0-	

Costs are transferred to the income statement from the balance sheet at the same time the sale is recorded.

The first part of the entry records the sales revenue. The second part is required to reduce the Merchandise Inventory account and transfer the cost of the merchandise sold to the Cost of Goods Sold account, and then to the income statement. The part of the entry ensures that both the Merchandise Inventory and Cost of Goods Sold accounts in the general ledger are up to date.

Sales Returns and Allowances

When merchandise inventory that has been sold is returned to the merchandiser by the customer, a **sales return and allowance** is recorded. For example, assume some damage occurs to the car sold by Excel while it is being delivered to the customer on May 17. Excel would give the customer a **sales allowance** by agreeing to reduce the amount owing by, say, $100. The entry is:

Date	Description	PR	Debit	Credit
May 17	Sales Returns and Allowances	508	100	
	Accounts Receivable	110		100
	To record customer allowance for damage to vehicle during delivery.			

Sales Ret. & Allow.	
100	

Accounts Receivable	
3,000	
	100
2,900	

Accounts receivable is credited because the original sale was made on account and has not yet been paid. The amount owing from the customer is reduced to $2,900. If the $2,900 had already been paid, a credit would be made to Cash and $100 refunded to the customer. The Sales Returns and Allowances account is a *contra* revenue account, meaning it is *deducted* from Sales when preparing the income statement.

If goods are returned by a customer, a **sales return** occurs. The related sales and cost of goods sold recorded on the income statement are reversed and the goods are returned to inventory. For example, assume Max Corporation sells a plastic container for $3 that it purchased for $1. The dual entry at the time of sale would be:

Accounts Receivable	3	
Sales		3
Cost of Goods Sold	1	
Merchandise Inventory		1
To record sale of plastic container and related cost of goods sold.		

If the container is returned, the journal entry would reverse the original entry, except that Sales Returns and Allowances would be debited instead of the Sales account:

Sales Returns and Allowances	**3**	
Accounts Receivable		3
Merchandise Inventory	1	
Cost of Goods Sold		1
To record return of plastic container.		

Use of a Sales Returns and Allowances contra account allows management to track the amount of returned and damaged items for their information purposes.

Sales Discounts

Another contra revenue account, **Sales Discounts**, records reductions in sales amounts when a customer pays within a certain time period. For example, assume Excel Cars Corporation offers sales terms of "2/10, n30." This means that the amount owed must be paid by the customer within 30 days ('n' = net); however, if the customer chooses to pay within 10 days, a 2% discount may be deducted from the amount owing.

Consider the sale of the vehicle for $2,900 ($3,000 less the $100 allowance for damage). Payment within 10 days entitles the customer to a $58 discount ($2,900 x 2% = $58). If payment is made on May 21 and therefore within the discount period, Excel receives $2,842 cash ($2,900 - 58) and prepares the following entry:

Date	Description	PR	Debit	Credit
May 21	Cash	101	2,842	
	Sales Discounts	509	58	
	Accounts Receivable	110		2,900

Cash	
2,842	

Sales Discounts	
58	

Accounts Receivable	
2,900	
	2,900
-0-	

To record customer payment of account during the sales discount period.

This entry reduces the accounts receivable amount to zero which is the desired result. If payment is not made within the discount period, the customer pays the full amount owing of $2,900.

The Sales Allowances and Sales Discounts contra accounts are deducted from sales on the income statement to arrive at net sales. Cost of goods sold is deducted from net sales. If Excel purchased and sold only this one vehicle, the partial income statement for the period from January 1 to May 31 would show:

Excel Cars Corporation
Partial Income Statement
For the Five Month Period Ended May 31, 2019

Sales		$3,000
Less: Sales returns and allowances	$100	
Sales discounts	58	158
Net sales		2,842
Cost of goods sold		1,808
Gross profit		1,034

As was the case for Sales Returns and Allowances, the balance in the Sales Discounts account is deducted from Sales on the income statement to arrive at Net Sales. Merchandisers often report only the net sales amount on the income statement. Details from sales returns and allowances, and sales discounts, are often omitted because they are immaterial in amount relative to total sales. However, separate general ledger accounts for each of sales returns and allowances, and sales discounts, are useful in helping management identify potential problems that require investigation.

D. Adjustments to Merchandise Inventory Using the Perpetual Inventory System

LO4 – Record adjustments to merchandise inventory.

In the simple example above, Excel did not have any merchandise inventory on hand at either the start of the year or at the end of May. It purchased and sold one vehicle during the month.

Now assume that Excel Cars Corporation purchased five vehicles from its supplier for $2,000 each on June 2, 2019. The company sold three of these for $3,000 each on June 16. On June 30, ending inventory would consist of two vehicles valued at $2,000 each, or $4,000 in total. (Note that inventory is valued at cost, not estimated selling price.) Assume there are no applicable transportation, purchase allowances or discounts expenditures.

The journal entry to record the purchase of the vehicles on June 2 would be:

Date	Description	PR	Debit	Credit
June 2	Merchandise Inventory	150	10,000	
	Accounts Payable	210		10,000
	To record purchase of five vehicles.			

Merch. Inventory	
-0-	
10,000	
10,000	

Accounts Payable	
	-0-
	10,000
10,000	

The summary journal entry to record the sale of the vehicles on June 16 would be:

Date	Description	PR	Debit	Credit
June 16	Accounts Receivable	110	9,000	
	Sales	500		9,000
	Cost of Goods Sold	570	6,000	
	Merchandise Inventory	550		6,000
	To record sale of three vehicles and related cost of goods sold.			

Accounts Receivable	
-0-	
9,000	
9,000	

Sales	
	3,000
	9,000
	12,000

Cost of Goods Sold	
1,808	
6,000	
7,808	

Merch. Inventory	
10,000	
	6,000
4,000	

Assume the purchases and sales of vehicles in May and June were the only activity of the company during its fiscal year ended December 31, 2019, and the only opening general ledger account balances were Cash - $5,000 and Common Stock - $5,000. After the May and June transactions are recorded, the general ledger T-accounts would appear as follows:

Cash

5,000	1,683[3]
[7]2,842	125[4]
6,034	

Accounts Payable

[2]300	2,000[1]
[3]1,700	10,000[8]
	10,000

Share Capital

	5,000

Sales

	3,000[5]
	9,000[9]
	12,000

Accounts Rec.

[5]3,000	100[6]
[9]9,000	2,900[7]
9,000	

Sales Ret. & Allow.

[6]100	

Sales Discounts

[7]58	

Merchandise Inv.

[1]2,000	300[2]
[4]125	17[3]
1,808	
	1,808[5]
-0-	
[8]10,000	6,000[9]
4,000	

Cost of Goods Sold

[5]1,808	
[9]6,000	
7,808	

Summary of transactions

[1] Purchased one vehicle on credit, May 2
[2] Adjustment by supplier for wrong color
[3] Paid supplier May 9; purchase discount taken
[4] Paid transportation costs
[5] Sold one vehicle on May 15
[6] Customer credited for delivery damage May 17
[7] Payment received from customer on May 21; sales discount applied
[8] Purchased five vehicles on credit, June 2
[9] Sold three vehicles on June 16

At the end of the fiscal year, an unadjusted trial balance would be prepared based on this information, as follows:

Excel Cars Corporation
Unadjusted Trial Balance
December 31, 2019

Account No.	*Account Title*	*Account Balance*	
		Debit	*Credit*
101	Cash	$ 6,034	
110	Accounts Receivable	9,000	
150	Merchandise Inventory	4,000	
210	Accounts Payable		$ 10,000
320	Common Stock		5,000
500	Sales		12,000
508	Sales Returns and Allowances	100	
509	Sales Discounts	58	
570	Cost of Goods Sold	7,808	
		$27,000	$27,000

Shrinkage

There is one adjusting entry that may need to be made at year-end related to merchandise inventory. Usually, a physical count of inventory is conducted at the fiscal year-end. Costs are attached to these items and all are totalled. This total is then compared to the Merchandise Inventory account balance. These should agree, unless inventory has been lost for some reason. This discrepancy is called **shrinkage**. Theft and deterioration of goods held for re-sale are the most common examples of shrinkage.

Assume that one of the two vehicles remaining on Excel's vehicle lot is stolen prior to the year-end and that this has (somehow) gone unnoticed by staff. A physical count at December 31 would reveal one vehicle on hand. This vehicle would be traced to the related purchase invoice and valued at $2,000. Comparing this amount to the balance in the Merchandise Inventory account would reveal a discrepancy of $2,000 ($4,000 – 2,000), and the theft would be revealed. This ability to compare accounting records with actual items on hand can be a valuable means for management to safeguard assets of the company, especially when there are thousands of goods purchased for resale. The system alerts managers to possible shrinkage problems.

At the year-end, the loss of one vehicle must be reflected in the accounting records. The following adjusting entry would be made:

Date	Description	PR	Debit	Credit
Dec. 31	Cost of Goods Sold	570	2,000	
	Merchandise Inv.	550		2,000
	To adjust merchandise inventory to physical count at year-end: vehicle stolen			

Cost of Goods Sold

Debit	Credit
1,808	
6,000	
2,000	
9,808	

Merch. Inventory

Debit	Credit
10,000	
	6,000
4,000	
	2,000
2,000	

Generally, shrinkage is recorded as part of cost of goods sold. If the amounts are abnormally large, however, a separate general ledger account can be maintained called, say, Inventory Shrinkage. The amount is still combined with cost of goods sold and not disclosed separately on the income statement, as it is considered information to be used only internally. However, it does provide information to management about the cost of shrinkage and may alert them to the need to provide better physical protection for inventory assets.

As there are no more adjustments at year-end in this example, an adjusted trial balance is prepared, as follows:

Excel Cars Corporation
Adjusted Trial Balance
December 31, 2019

Acct. No.	*Account*	*Account Balance*	
		Debit	*Credit*
101	Cash	$ 6,034	
110	Accounts Receivable	9,000	
150	Merchandise Inventory	2,000	
210	Accounts Payable		$ 10,000
320	Common Stock		5,000
500	Sales		12,000
508	Sales Returns and Allowances	100	
509	Sales Discounts	58	
570	Cost of Goods Sold	9,808	
		$27,000	$27,000

The financial statements for the year ended December 31 would be prepared from this information, as follows:

Excel Cars Corporation
Income Statement
For the Year Ended December 31, 2019

Sales		$12,000
Less: Sales returns and allowances	$100	
Sales discounts	58	158
Net sales		11,842
Cost of goods sold		9,808
Gross profit and net income		$ 2,034

In this case, sales consists of four vehicles sold for $3,000 each, or $12,000 in total. Cost of goods sold of $9,808 consists of four vehicles that were originally purchased for $2,000 each, or $8,000 in total, plus transportation costs of $125 and the loss of one vehicle ($2,000), less a purchase allowance of $300 and a purchase discount of $17 related to the May sale ($8,000 + 125 + 2,000 – 300 – 17 = $9,808). Gross profit therefore equals $2,034. Since there are no other expenses, net income is also $2,034.

The statement of changes in equity would show:

Excel Cars Corporation
Statement of Changes in Equity
For the Year Ended December 31, 2019

	Common stock	*Retained earnings*	*Total equity*
Balance at January 1, 2019	$5,000	$ -0-	$5,000
Net income		2,034	2,034
Balance at December 31, 2019	$5,000	$2,034	$7,034

The balance sheet at year-end would show:

Excel Cars Corporation
Balance Sheet
At December 31, 2019

Assets		
Current assets		
Cash		$ 6,034
Accounts receivable		9,000
Merchandise inventory		**2,000**
Total assets		$17,034
Liabilities		
Accounts payable		$10,000
Stockholders' Equity		
Common stock	$5,000	
Retained earnings	2,034	7,034
Total liabilities and stockholders' equity		$17,034

The one vehicle remaining in inventory at December 31 is valued at $2,000. This is the amount that remains in the Merchandise Inventory general ledger account, verified by physical count at year-end. It is appropriately shown as an asset on the balance sheet at December 31.

E. Merchandising Income Statement

LO5 – Explain and prepare a classified multiple-step income statement for a merchandiser.

Businesses are required to show expenses on the income statement based on either the *nature* or the *function* of the expense. The **nature of an expense** is determined by its basic characteristics (what it is). For example, when expenses are listed on the income statement as interest, depreciation, income taxes, or salaries, this identifies the nature of each expense. In contrast, the **function of an expense** describes the grouping of expenses based on their purpose (what they relate to). For example, an income statement that shows cost of goods sold, selling expenses, and general and administrative expenses has grouped expenses by their function. When expenses are grouped by function, additional information must be disclosed to show the nature of expenses within each group. *Full disclosure* is the generally accepted accounting principle that requires financial statements to report all relevant information about the operations and financial position of the entity. Information that is relevant but not included in the body of the statements is provided in the notes to the financial statements.

A merchandising income statement can be prepared in different formats. For this course, only one format will be used—the *classified multiple-step format.* This format is generally used only for internal reporting because of its detail. Most external financial statement users would find this detail excessive and distracting.

An example of a classified multiple-step income statement is shown below using assumed data for XYZ Inc. for its month ended December 31, 2019.

XYZ Inc.
Income Statement
Month Ended December 31, 2019

Sales		$100,000
Less: Sales discounts	$1,000	
Sales returns and allowances	500	1,500
Net sales		98,500
Cost of goods sold		50,000
Gross profit		48,500
Operating expenses		
Selling		
Sales salaries	$11,000	
Rent, store	12,000	
Advertising	5,000	
Total selling	28,000	
General and administrative		
Office salaries	9,000	
Rent, office	3,000	
Supplies	2,500	
Insurance	1,000	
Total general and administrative	15,500	
Total operating expenses		43,500
Income from operations		5,000
Other revenues (expenses)		
Rent revenue	12,000	
Interest expense	(1,500)	10,500
Income before income taxes		15,500
Income taxes		2,000
Net income		$13,500

These are *function* categories.

These are *nature* categories.

These are not part of ordinary operations.

Notice that the classified multiple-step income statement shows expenses by both function and nature. The broad categories that show expenses by function include operating expenses, selling expenses, general and administrative expenses, and income taxes. Within each category, the nature of expenses is disclosed including sales salaries, advertising, depreciation, supplies, and insurance. Notice that Rent Expense has been divided between two groupings because it applies to both selling (store) and general (office) expenses.

The normal operating activity for XYZ Inc. is merchandising. Revenues and expenses that are not part of normal operating activities are listed under Other Revenues and Expenses. XYZ Inc. shows Rent Revenue under Other Revenues and Expenses because this type of revenue is not part of its merchandising operations. Interest earned, dividends earned, and gains on the sale of plant assets are more examples of other revenues not related to merchandising operations. XYZ Inc. deducts interest expense under Other Revenues and Expenses. Interest expense does not result from operating activities; it is a financing activity because it is associated with the borrowing of money. Other examples of non-operating expenses include losses on the sale of plant assets. Finally, income taxes expense is deducted. Income tax is a government levy, and considered unrelated to normal business operations.

F. Closing Entries for a Merchandiser Using the Perpetual Inventory System

LO6 – Explain the closing process for a merchandiser.

The process of recording closing entries for service companies was illustrated in Chapter 3. The closing procedure for merchandising companies is the same as for service companies—all income statement accounts are transferred to the Income Summary account, the Income Summary is closed to Retained Earnings, and Dividends are closed to Retained Earnings.

When preparing closing entries for a merchandiser, the income statement accounts unique for merchandisers need to be considered—Sales, Sales Discounts, Sales Returns and Allowances, and Cost of Goods Sold. Sales is a revenue account so has a normal credit balance. To close Sales, it must be debited with a corresponding credit to the income summary. Sales Discounts and Sales Returns and Allowances are both contra revenue accounts so each has a normal debit balance. Cost of Goods Sold has a normal debit balance because it is an expense. To close these debit balance accounts, a credit is required with a corresponding debit to the income summary.

All accounts listed in the income statement columns are transferred to the income summary account, and then the income summary is closed to retained earnings. The same three-step process is used, as shown in chapter 3, as applied to the financial information of Excel Cars Corporation for the year ended December 31, 2019:

Entry 1

All income statement accounts with credit balances are debited to bring them to zero. Their balances are transferred to the income summary account.

(a)

Dec. 31	Sales	150	12,000	
	Income Summary	360		12,000
	To close all income statement accounts with credit balances to the income summary.			

Entry 2

All income statement accounts with debit balances are credited to bring them to zero. Their balances are transferred to the income summary account.

(b)

Dec. 31	Income Summary	360	9,966	
	Cost of Goods Sold	570		9,808
	Sales Returns and Allow.	508		100
	Sales Discounts	509		58
	To close all income statement accounts with credit balances to income summary.			

Entry 3

The Income Summary account is closed to the Retained Earnings account. The effect is to transfer temporary (income statement) account balances in the income summary totaling $4,034 to the permanent (balance sheet) account, Retained Earnings.

(c)

Dec. 31	Income Summary	360	2,034	
	Retained Earnings	340		2,034
	To close income summary account to retained earnings.			

After these closing entries are posted, the general ledger T-accounts would appear as follows:

Cash	
5,000	1,683[3]
[7]2,842	125[4]
6,034	

Accounts Payable	
[2]300	2,000[1]
[3]1,700	10,000[8]
	10,000

Common Stock	
	5,000

Sales	
	3,000[5]
	9,000[9]
	12,000
[a]12,000	
-0-	

Retained Earnings	
	2,034[c]

Accounts Rec.	
[5]3,000	100[6]
[9]9,000	2,900[7]
9,000	

The balance in the Income Summary is transferred to Retained Earnings.

Income Summary	
[b]9,966	12,000[a]
[c]2,034	
-0-	

Sales Ret. & Allow.	
[6]100	
	100[b]
-0-	

Sales Discounts	
[7]58	
	58[b]
-0-	

Merchandise Inventory	
[1]2,000	300[2]
[4]125	17[3]
1,808	
	1,808[5]
-0-	
[8]10,000	6,000[9]
4,000	
	2,000
2,000	

Adjusting entry for inventory shrinkage

Cost of Goods Sold	
[5]1,808	
[9]6,000	
7,808	
2,000	
9,808	
	9,808[b]
-0-	

All income statement accounts and the income summary account are reduced to zero and net income for the year of $2,034 is transferred to retained earnings.

Appendix: The Periodic Inventory System

LO7 – Explain and identify the entries to record purchase and sales transactions in a periodic inventory system.

The perpetual inventory system maintains a continuous, real-time balance in both Merchandise Inventory, a balance sheet account, and Cost of Goods Sold, an income statement account. As a result, the Merchandise inventory general ledger account balance should always equal the value of physical inventory on hand at any point in time. Additionally, the Cost of goods sold general ledger account balance should always equal the total cost of merchandise inventory sold for the accounting period. The accounts should perpetually agree; hence the name. An alternate system is considered below, called the *periodic* inventory system.

Description of the Periodic Inventory System

The periodic inventory system does not maintain a constantly-updated merchandise inventory balance. Instead, ending inventory is determined by a physical count and valued at the end of an accounting period. The change in inventory is recorded only periodically. Additionally, a Cost of goods sold account is not maintained in a periodic system. Instead, cost of goods sold is calculated at the end of the accounting period.

When goods are purchased using the periodic inventory system, the cost of merchandise is recorded in a **Purchases** account in the general ledger, rather than in the Merchandise Inventory account as is done under the perpetual inventory system. The Purchases account is an income statement account that accumulates the cost of merchandise acquired for resale.

Recall that Excel purchased a vehicle on account from its supplier on May 2 for $2,000. The journal entry and general ledger T-account effects using the periodic inventory system would be as follows:

May 2	Purchases	550	2,000	
	Accounts Payable	210		2,000
	To record purchase of vehicle.			

Purchases	
2,000	

Accounts Payable	
	2,000

Other types of activities related to the purchase of merchandise, like allowances for damaged items, purchase discounts, and transportation and handling charges, are not recorded in the Merchandise Inventory account either. Rather, they are recorded in special income statement accounts. Accounting for each type of transaction is explained below.

Purchase returns and Allowances

Recall that the price of the vehicle purchased on May 2 was reduced from $2,000 to $1,700 because it was the wrong color. Under the periodic inventory system, the amount of the reduction is accumulated in a separate **Purchase returns and Allowances**, an income statement account. Excel would record the transaction as follows:

May 3	Accounts Payable	210	300	
	Purch. Ret. and Allow.	558		300
	To record reduction in account payable: vehicle damaged.			

Accounts Payable	
	2,000
300	

Purch. Ret. & Allows.	
	300

The Purchase returns and Allowances amount of $300 is deducted from Purchases when calculating cost of goods sold on the income statement. It is a contra account.

Purchase discounts

Another contra account, **Purchase discounts**, accumulates reductions in the purchase price of merchandise if payment is made within a time period specified in the supplier's invoice. Recall that if amount owing on the vehicle is paid within 15 days, the supplier's terms entitle Excel to deduct $17 [($2,000 - 300) = $1,700 x 1% = $17].

Under the periodic inventory system, the $1,683 cash payment to the supplier on May 9 is recorded as follows:

May 9	Accounts Payable	210	1,700	
	Purchase discounts	559		17
	Cash	101		
	To record payment on account in full and purchases discount applied.			

Accounts Payable	
	1,700
1,700	

Purchase discounts	
	17

Cash	
1,683	1,683

The discount of $17 is deducted when calculating cost of goods sold on the income statement.

Transportation

Under the perpetual inventory system, the cost of transporting the vehicle to Excel's premises was added to the Merchandise Inventory account on the balance sheet. Under the periodic inventory system, a **Transportation-in** account is used to accumulate freight charges on merchandise purchased for re-sale. Like the Purchases and Purchase discounts accounts, this is also an income statement account which is used to calculate cost of goods sold directly on the income statement.

Recall the cost of shipping the vehicle is $125 and it is paid in cash to the truck driver. Payment would be recorded as follows:

May 9	Transportation-In	560	125	
	Cash	101		125
	To record transportation costs on vehicle.			

Transportation-In	
125	

Cash	
	125

The vehicle is then sold for $3,000 on May 15. A $100 allowance is granted for damage to the vehicle during delivery. A $58 sales discount is granted because the customer paid the balance owing to Excel within the discount period. The sales transactions are recorded in the same manner under both the perpetual and periodic inventory systems.

The summary of these transactions is:

May 15	Accounts Receivable	110	3,000	
	Sales	500		3,000
May 17	Sales Ret. and Allowances	508	100	
	Accounts Receivable	110		100
May 21	Cash	101	2,842	
	Sales Discounts	509	58	
	Accounts Receivable	110		2,900

Note, however, that there is no entry made to adjust Merchandise Inventory and cost of goods sold when recording the May 15 sales. This is different from the perpetual inventory system. There have been no entries made to the Merchandise Inventory account to date using the periodic inventory system.

The same transactions also occur in June as described earlier. Five vehicles are purchased for $2,000 each, or $10,000 in total. The entry to record the purchase of the vehicles is:

June 2	Purchases	550	10,000	
	Accounts Payable	210		10,000

Purchases

2,000	
10,000	
12,000	

Accounts Payable

	-0-
	10,000
	10,000

Three vehicles are sold during June for $3,000 each, or $9,000 in total. The entry to record the sale of the vehicles is:

June 16	Accounts Receivable	110	9,000	
	Sales	500		9,000

Accounts Receivable

-0-	
9,000	
9,000	

Sales

	3,000
	9,000
	12,000

Again, note that there are no adjustments to the Merchandise Inventory or Cost of Goods Sold accounts in the general ledger at this point, unlike the perpetual inventory system. After the June transactions are recorded, the general ledger T-accounts would appear as follows:

Cash	
5,000	1,683[3]
[7]2,842	125[4]
6,034	

Accounts Payable	
[2]300	2,000[1]
[3]1,700	10,000[8]
	10,000

Common Stock	
	5,000

Sales	
	3,000[5]
	9,000[9]
	12,000

Accounts Rec.	
[5]3,000	100[6]
[9]9,000	2,900[7]
9,000	

Sales Ret. & Allow.	
[6]100	

Sales Discounts	
[7]58	

Merchandise Inventory	
-0-	

Using the periodic inventory system, no transactions are recorded during the year in the Merchandise Inventory account. Purchases are recorded in a separate general ledger account.

Purchases	
[1]2,000	
[8]10,000	
12,000	

Purch. Ret. & Allows.	
	300[2]

Purchase Discounts	
	17[3]

Transportation-In	
[4]125	

Summary of transactions

[1] Purchased one vehicle on credit, May 2
[2] Adjustment by supplier for wrong color
[3] Paid supplier May 9; purchase discount taken
[4] Paid transportation costs
[5] Sold one vehicle on May 15
[6] Customer credited for delivery damage May 17
[7] Payment received from customer on May 21; sales discount applied
[8] Purchased five vehicles on credit, June 2
[9] Sold three vehicles on June 16

Assume again that no other transactions occur during the year. When financial statements are prepared at December 31, a physical count of inventory is taken. Purchase invoices are referenced to determine the value of the items counted. The resulting amount is inserted into the income statement to determine the cost of goods sold for the year.

In the case of Excel, a physical count should show that there is one vehicle left on the lot. Referring to the purchase documents, this vehicle would be valued at its purchase price - $2,000. The value of ending inventory would thus be calculated as $2,000. This information is inserted directly into the income statement of Excel for the year ended December 31, 2019. Combined with the information in the general ledger T-accounts, the income statement would show:

Excel Cars Corporation
Income Statement
For the Year Ended December 31, 2019

Sales		$12,000
Less: Sales returns and allowances	$100	
Sales discounts	58	158
Net sales		11,842
Cost of goods sold:		
Opening inventory	-0-	
Purchases	12,000	
Transportation-in	125	
Less: Purchase returns and allow.	(300)	
Purchase discounts	(17)	
Cost of goods available for sale	11,808	
Less: Ending inventory	(2,000)	
Cost of goods sold		9,808
Gross profit and net income		$ 2,034

Ending inventory is counted and valued. The total amount is inserted into the income statement to determine cost of goods sold.

Net income remains the same under either the perpetual or periodic inventory system ($2,034). The periodic method is simpler to use than the perpetual inventory system, and is often used by small businesses because the costs of inventory recordkeeping are reduced. However, a perpetual inventory system enables management to compare inventory records to actual goods on hand at a period end to determine if any shrinkage has occurred. This security feature is not present with the periodic inventory system. The extra costs of recordkeeping using a perpetual inventory system are offset by the added control over a high-value asset like inventory, especially when there are thousands of items that a business may buy for re-sale each year and where shrinkage can be a significant issue.

Closing Entries – Periodic Inventory System

The process of closing the general ledger temporary accounts to retained earnings at the end of an accounting year is the same under the perpetual or periodic system, with one exception. Under the periodic system, an entry must be made in the Merchandise Inventory account to adjust this balance to the amount of inventory counted and valued at year-end. Otherwise, the steps are the same:

Entry 1

All income statement accounts with credit balances are debited to bring them to zero. Their balances are transferred to the income summary account. *At the same time, the ending inventory balance ($2,000 in this case) is debited to the Merchandise Inventory account.*

	(a)			
Dec. 31	Merchandise Inv. (ending)	150	2,000	
	Sales	500	12,000	
	Purchase Ret. and Allow.	558	300	
	Purchase Discounts	559	17	
	Income Summary	360		14,317
	To close all income statement accounts with credit balances to income summary and record ending inventory balance in Merchandise Inventory account.			

Entry 2

All income statement accounts with debit balances are credited to bring them to zero. Their balances are transferred to the Income Summary account. *At the same time, the opening inventory balance (zero in this case) is credited to the Merchandise Inventory account:*

(b)

Dec. 31	Income Summary	360	12,283	
	Merch. Inv. (opening)	150		-0-
	Sales Return and Allows.	508		100
	Sales Discounts	509		58
	Purchases	550		12,000
	Transportation-In	560		125
	To close all income statement accounts with credit balances to income summary and remove opening inventory from the Merchandise Inventory account.			

The combined effect of entries 1 and 2 on the Merchandise Inventory account is to adjust it to the actual ending balance at December 31 of $2,000. At the end of this process, the account will show:

		Merchandise Inventory	
Jan. 1	Opening balance	-0-	
	Add: Ending inventory (closing entry posted)	2,000	
	Less: Opening inventory (closing entry posted)		-0-
Dec. 31	Ending balance	2,000	

Entry 3

The income summary account is closed to the Retained Earnings account. The effect is to transfer temporary account balances in the income summary totaling $2,034 to the permanent general ledger account, Retained Earnings.

(c)

Dec. 31	Income Summary	360	2,034	
	Retained Earnings	340		2,034
	To close the Income Summary account to the Retained Earnings account.			

After these closing entries are posted, the general ledger T-accounts would appear as follows:

Cash

5,000	1,683[3]
[7]2,842	125[4]
6,034	

Accounts Payable

[2]300	2,000[1]
[3]1,700	10,000[8]
	10,000

Common Stock

	5,000

Sales

	3,000[5]
	9,000[9]
	12,000
[a]12,000	
-0-	

Retained Earnings

	2,034[c]

Accounts Rec.

[5]3,000	100[6]
[9]9,000	2,900[7]
9,000	

Income Summary

[b]12,283	14,317[a]
[c]2,034	
-0-	

Sales Ret. & Allow.

[6]100	
	100[b]
-0-	

Merchandise Inventory

-0-	
[a]2,000	
	-0-[b]
2,000	

Sales Discounts

[7]58	
	58[b]
-0-	

Purchases

[1]2,000	
[9]10,000	
12,000	
	12,000[b]
-0-	

Purch. Ret. & Allows.

	300[2]
[a]300	
-0-	

Purchase Discounts

	17[3]
[a]17	
-0-	

Transportation-In

[4]125	
	125[b]
-0-	

Opening Inventory

Under the periodic inventory system, the ending inventory of one accounting time period becomes the opening inventory of the next accounting time period. Opening inventory is added to purchases each period and ending inventory is deducted to calculate cost of goods sold.

Assume that Excel Cars Corporation had the following transactions in 2020, its next accounting year:

Opening inventory	1 vehicle at $2,000
Plus: Purchases	6 vehicles at $2,000 each
Less: Sales	(5) vehicles at $3,000 each
Equals ending inventory	2 vehicles at $2,000 each

Journal entries are omitted in this example. The gross profit and net income calculations disclosed on the income statement for 2019 and 2020 are shown below. Note that the ending inventory at December 31, 2019 becomes the opening inventory at January 1, 2020.

Excel Cars Corporation
Income Statement
For the Year Ended December 31, 2020

	2019	*2020*
Sales	$12,000	$15,000
Less: Sales returns and allowances	(100)	-0-
Sales discounts	(58)	-0-
Net sales	11,842	15,000
Cost of goods sold		
Opening inventory	-0-	2,000
Purchases	12,000	12,000
Transportation-in	125	-0-
Less: Purchase returns and allow.	(300)	-0-
Purchase discounts	(17)	-0-
Cost of goods available for sale	11,808	14,000
Less: ending inventory	(2,000)	(4,000)
Cost of goods sold	9,808	10,000
Gross profit and net income	$ 2,034	$ 5,000

Ending inventory for 2019 becomes the opening inventory for 2020.

In 2020, seven vehicles are available for sale – one remaining from 2019 and now included as opening inventory at January 1, 2020 plus six purchased in 2020. Cost of goods available for sale therefore equals $14,000 for the 2020 fiscal year (7 x $2,000). Two vehicles are not sold so are shown as ending inventory at December 31, 2020. Their total cost of $4,000 is deducted from cost of goods available for sale to arrive at cost of goods sold for 2020 of $10,000. As was done on 2019, ending inventory amounts would be determined by counting the vehicles on the lot at December 31, 2020 and determining from purchase invoices how much was paid for these.

The interrelationship of inventory disclosed in the income statement and balance sheet using the periodic inventory system can be illustrated as follows:

Excel Car Corporation
Income Statement
For the Year Ended December 31, 2020

Sales		$15,000
Cost of goods sold		
Opening inventory (Jan. 1, 2020)	$2,000	
Cost of goods purchased	12,000	
Cost of goods available	14,000	
Less: Ending inventory (Dec. 31)	(4,000)	
Cost of goods sold		10,000
Gross profit and net income		$ 5,000

Excel Car Corporation
Balance Sheet
At December 31

	2019	*2020*
Assets		
Cash	$A,000	$C,000
Accounts receivable	B,000	D,000
Merchandise inventory	2,000	4,000

Closing entries for 2020 would be prepared using the same process as previously described.

Entry 1

		(a)		
Dec. 31	Merchandise Inv. (ending)	150	4,000	
	Sales	500	15,000	
	Income Summary	360		19,000
	To close all income statement accounts with credit balances to the income summary and record ending inventory balance.			

Entry 2

		(b)		
Dec. 31	Income Summary	360	14,000	
	Merch. Inv. (opening)	150		2,000
	Purchases	550		12,000
	To close all income statement accounts with credit balances to the income summary and remove opening inventory from the Merchandise Inventory account.			

The combined effect of entries 1 and 2 on the Merchandise Inventory account is to adjust it to the actual ending balance at December 31, 2020 of $4,000. At the end of this process, the Merchandise Inventory account in the general ledger will show:

		Merchandise Inventory	
Jan. 1	Opening balance	2,000	
	Add: Ending Inventory (closing entry posted)	4,000	
	Less: Opening Inventory (closing entry posted)		2,000
Dec. 31	Ending balance	4,000	

The usual entry is made to close the Income Summary account to the Retained Earnings account.

Entry 3

		(c)		
Dec. 31	Income Summary	360	5,000	
	Retained Earnings	340		5,000
	To close the Income Summary account to the Retained Earnings account.			

Summary of Chapter 5 Learning Objectives

LO1 – Describe merchandising and explain the financial statement components of sales, cost of goods sold, merchandise inventory, and gross profit; differentiate between the perpetual and periodic inventory systems.

Merchandisers buy and resell products. Merchandise inventory, an asset, is purchased from suppliers and resold to customers to generate sales revenue. The cost of the merchandise inventory sold is an expense called cost of goods sold. The profit realized on the sale of merchandise inventory before considering any other expenses is called gross profit. Gross profit may be expressed as a dollar amount or as a percentage. To track merchandise inventory and cost of goods sold in real time, a perpetual inventory system is used; the balance in each of Merchandise Inventory and Cost of Goods Sold is always up-to-date. In a periodic inventory system, a physical count of the inventory must be performed in order to determine the balance in Merchandise Inventory and Cost of Goods Sold.

LO2 – Analyze and record purchase transactions for a merchandiser.

In a perpetual inventory system, a merchandiser debits Merchandise Inventory regarding the purchase of merchandise for resale from a supplier. Any purchase returns and allowances or purchase discounts are credited to Merchandise Inventory as they occur to keep the accounts up-to-date.

LO3 – Analyze and record sales transactions for a merchandiser.

In a perpetual inventory system, a merchandiser records two entries at the time of sale: one to record the sale and a second to record the cost of the sale. Sales returns that are returned to inventory also require to entries: one to reverse the sale by debiting a sales returns and allowances account and a second to restore the merchandise to inventory by debiting Merchandise Inventory and crediting Cost of Goods Sold. Sales returns not restored to inventory as well as sales allowances are recorded with one entry: debit sales returns and allowances and credit cash or accounts receivable. Sales discounts are recorded when a credit customer submits their payment within the discount period specified.

LO4 – Record adjustments to merchandise inventory.

A physical count of merchandise inventory is performed and the total compared to the general ledger balance of Merchandise Inventory. Discrepancies are recorded as an adjusting entry that debits cost of goods sold and credits Merchandise Inventory.

LO5 – Explain and prepare a classified multiple-step income statement for a merchandiser.

A classified multiple-step income statement for a merchandiser is for internal use because of the detail provided. Sales, less sales returns and allowances and sales discounts, results in net sales. Net sales less cost of goods sold equals gross profit. Expenses are shown based on both their function and nature. The functional or group headings are: operating expenses, selling expenses, and general and administrative expenses. Within each grouping, the nature of expenses is detailed including: depreciation, salaries, advertising, wages, and insurance. A specific expense can be divided between groupings.

LO6 – Explain the closing process for a merchandiser.

The steps in preparing closing entries for a merchandiser are the same as for a service company. The difference is that a merchandiser will need to close income statement accounts unique to merchandising such as: Sales, Sales Returns and Allowances, Sales Discounts, and Cost of Goods Sold.

LO7 – (Appendix) Explain and identify the entries to record purchase and sales transactions in a periodic inventory system.

A periodic inventory system maintains a Merchandise Inventory account but does not have a Cost of Goods Sold account. The Merchandise Inventory account is updated at the end of the accounting period as a result of a physical inventory count. Because a merchandiser using a period system does not use a Merchandise Inventory account to record purchase or sales transactions during the accounting period, it maintains accounts that are different than under a perpetual system, namely, Purchases, Purchase Returns and Allowances, Purchase Discounts, and Transportation-in.

A S S I G N M E N T   M A T E R I A L S

Concept Self-check

1. How does the income statement prepared for a company that sells goods differ from that prepared for a service business?
2. How is gross profit calculated? What relationships do the gross profit and gross profit percentage calculations express? Explain, using an example.
3. What is a perpetual inventory system?
4. How is the purchase of merchandise inventory on credit recorded in a perpetual system?
5. How is a purchase return recorded in a perpetual system?
6. What does the credit term of “1/15, n30” mean?
7. How is a purchase discount recorded in a perpetual system?
8. How is the sale of merchandise inventory on credit recorded in a perpetual system?
9. How is a sales return recorded in a perpetual system?
10. What is a sales discount and how is it recorded in a perpetual inventory system?
11. Why does merchandise inventory need to be adjusted at the end of the accounting period and how is this done in a perpetual inventory system?
12. What types of transactions affect merchandise inventory in a perpetual inventory system?
13. How are the closing entries for a merchandiser using a perpetual inventory system different than for a service company?
14. When reporting expenses on multi-step income statement, how is the function of an expense reported? The nature of an expense?
15. On a classified multiple-step income statement, what is reported under the heading ‘Other revenues and expenses’ and why?
16. (Appendix) Compare the perpetual and periodic inventory systems. What are some advantages of each?
17. (Appendix) What contra accounts are used in conjunction with purchases using the periodic inventory system?
18. (Appendix) How is cost of goods available for sale calculated using the periodic inventory system?
19. (Appendix) How is cost of goods sold calculated using the periodic inventory system?
20. (Appendix) Explain how ending inventory is recorded in the accounts of a business that sells goods using a periodic inventory system.

Comprehension Problems

CP 5–1

Consider the following information of Jones Corporation over four years:

	2022	*2021*	*2020*	*2019*
Sales	$10,000	$9,000	$?	$7,000
Cost of goods sold	?	6,840	6,160	?
Gross profit	2,500	?	1,840	?
Gross profit percentage	?	?	?	22%

Required:
1. Calculate the missing amounts for each year.
2. What does this information indicate about the company?

CP 5–2

Reber Corp. uses the perpetual inventory system. Its transactions during July 2019 are as follows:

July	6	Purchased $600 of merchandise on account (for credit) from Hobson Corporation for terms 1/10, net 30
	9	Returned $200 of defective merchandise
	15	Paid the amount owing to Hobson.

Required: Prepare journal entries to record the above transactions. Include general ledger account numbers and brief descriptions.

CP 5–3

Boucher Corporation uses the perpetual inventory system. Its transactions during June 2019 are as follows:

June 1	Boucher purchased $1,200 of merchandise inventory from a supplier for terms 1/10, n 60.
3	Boucher sold all of the inventory purchased on June 1 for $1,500 on credit to Wright Inc. for terms 2/10, net 30.
8	Wright returned $800 of defective merchandise purchased June 3 (cost to Boucher: $600).
13	Boucher received payment from Wright Inc. for the balance owed.

Required: Prepare journal entries to record the above transactions. Include general ledger account numbers and brief descriptions.

CP 5–4

Horne Inc. and Sperling Renovations Ltd. both sell goods and use the perpetual inventory system. The company had $3,000 of merchandise inventory at the start of its fiscal year, January 1, 2019. During the year, the company had only the following transactions:

May 5	Horne sold $4,000 of merchandise on account to Sperling Renovations Ltd. for terms 2/10, net 30. Cost of merchandise to Horne from its supplier was $2,500.
7	Sperling returned $500 of merchandise; Horne issued a credit memo. (Cost of merchandise to Horne was $300)
15	Horne received the amount due from Sperling Renovations Ltd.

A physical count and valuation of merchandise inventory at May 31, the fiscal year-end, showed $700 of goods on hand.

Required: Prepare journal entries to record the above transactions and adjustment (include general ledger account numbers and brief descriptions):

1. In the records of Horne Inc.
2. In the records of Sperling Renovations Ltd.

CP 5–5

The following information is taken from the records of Smith Corp. at June 30, 2019, the fiscal year-end:

Advertising expense	$ 1,500
Commissions expense	4,000
Cost of goods sold	50,000
Delivery expense	1,000
Insurance expense	1,000
Rent expense	2,500
Salaries expense	5,000
Sales (gross)	72,000
Sales returns and allowances	2,000

Required:

1. Prepare a classified income statement. Assume all expenses not related to cost of goods sold are selling expenses.
2. Compute gross profit percentage.

CP 5–6

Refer to the information in CP 5-5.

Required: Prepare all closing entries. Include general ledger account numbers as shown in the chapter – for example, Cost of Goods Sold: 570. Include a brief description for each entry.

CP 5–7 (Appendix)

Consider the information for each of the following four companies.

	A	*B*	*C*	*D*
Opening inventory	$?	$ 184	$ 112	$ 750
Purchases	1,415	?	840	5,860
Transportation-in	25	6	15	?
Cost of goods available	1,940	534	?	6,620
Ending inventory	340	200	135	?
Cost of goods sold	?	?	?	5,740

Required: Calculate the missing amounts.

CP 5–8 (Appendix)

Consider the following information:

Opening inventory	$ 375
Purchases	2,930
Purchase discounts	5
Purchase returns and allowances	20
Transportation-in	105

Ending inventory amounts to $440.

Required: Calculate cost of goods sold.

CP 5–9 (Appendix)

The following information is taken from the records of four different companies in the same industry:

	A	*B*	*C*	*D*
Sales	$ 300	$ 150	$?	$ 90
Opening inventory	?	40	40	12
Purchases	240	?	?	63
Cost of goods available	320	?	260	?
Less: Ending inventory	?	(60)	(60)	(15)
Cost of goods sold	?	100	200	60
Gross profit	$ 100	$?	$ 100	$?
Gross profit percentage	?	?	?	?

Required:
1. Calculate the missing amounts.
2. Which company seems to be performing best? Why?

CP 5–10 (Appendix)

The following balances are taken from the records of Mohan Corp. at December 31, 2019, its first year–end:

Transportation-in	$ 500
Delivery expense	1,200
Sales	25,000
Purchases	20,000
Sales returns and allowances	2,000
Purchase returns and allowances	1,000
Sales Discounts	400
Purchase discounts	300
Interest expense	4,000

The inventory at December 31, 2019 amounted to $7,900.

Required:

1. Calculate the gross profit.
2. What is the gross profit percentage?

CP 5–11 (Appendix)

The following information is taken from the records of O'Donnell Corp. at June 30, 2019, its fiscal year-end:

Advertising expense	$ 1,500
Commissions expense	4,000
Delivery expense	1,000
Insurance expense	1,000
Opening inventory	6,000
Purchases	35,000
Purchase returns and allowances	2,000
Rent expense	2,500
Salaries expense	5,000
Sales (gross)	72,000
Sales returns and allowances	2,000
Transportation-in	1,000

The merchandise inventory at June 30, 2019 amounted to $10,000.

Required:

1. Prepare a classified income statement. Assume all expenses not related to cost of goods sold are selling expenses.
2. Compute gross profit percentage.

CP 5–12 (Appendix)

Refer to the information in CP 5-11.

Required: Prepare all closing entries. Include general ledger account numbers as shown in the chapter – for example, Purchases: 550. Include brief descriptions for each entry.

CP 5–13 (Appendix)

Sherman Stores Ltd. had the following transactions:

Oct.	8	Purchased $2,800 of merchandise on account from Morris Wholesalers Corp. for terms 1/10, net 30
	12	Received a credit memo from Morris Wholesalers Corp. for $800 of defective merchandise included in the October 8 purchase and subsequently returned to Morris.

Additional Information: Morris Wholesalers Corp. uses the periodic inventory system.

Required:

1. Prepare journal entries in the records of Sherman, assuming that it paid the amount due on
   a. October 8
   b. October 25.
2. Prepare journal entries in the records of Morris Wholesalers Corp., assuming that it received payment on
   a. October 18
   b. October 25.

Omit general ledger account numbers and descriptions from the journal entries.

Problems

P 5–1

Salem Corp. was incorporated on July 2, 2019 to operate a merchandising business. Salem uses the perpetual inventory system. All its sales on account are made according to the following terms: 2/10, n30. Its transactions during July 2019 are as follows:

July	2	Issued common stock for $5,000 cash to George Salem, the incorporator and sole stockholder of the corporation
	2	Purchased $3,500 merchandise on account from Blic Pens Ltd. for terms 2/10, n30
	2	Sold $2,000 of merchandise on account to Spellman Chair Rentals Inc. (Cost to Salem: $1,200)
	3	Paid Sayer Holdings Corp. $500 for July rent
	5	Paid Easton Furniture Ltd. $1,000 for equipment
	8	Collected $200 for a cash sale made today to Ethan Matthews Furniture Ltd. (Cost: $120)
	8	Purchased $2,000 merchandise on account from Shaw Distributors Inc. for terms 2/15, n30
	9	Received the amount due from Spellman Chair Rentals Inc. for the July 2 sale (less discount)
	10	Paid Blic Pens Ltd. for the July 2 purchase (less discount)
	10	Purchased $200 of merchandise on account from Peel Products Inc. for terms n30
	15	Sold $2,000 of merchandise on account to Eagle Products Corp. (Cost: $1,300)
	15	Purchased $1,500 of merchandise on account from Bevan Door Inc. for terms 2/10, n30
	15	Received a memo from Shaw Distributors Inc. to reduce its account payable by $100 for defective merchandise included in the July 8 purchase.
	16	Eagle Products Corp. returned $200 of merchandise: reduced related Account Payable. (Cost to Salem: $150)
	20	Sold $3,500 of merchandise on account to Aspen Promotions Ltd. (Cost: $2,700)
	20	Paid Shaw Distributors Inc. for half the purchase made July 8 (less memo amount, less discount on payment)

24	Received half the amount due from Eagle Products Corp. in partial payment for the July 15 sale (less discount on payment)
24	Paid Bevan Doors Ltd. for the purchase made July 15 (less discount)
26	Sold $600 merchandise on account to Longbeach Sales Ltd. (Cost: $400)
26	Purchased $800 of merchandise on account from Silverman Co. for terms 2/10, n30
31	Paid Speedy Transport Co. $350 for transportation to Salem's warehouse during the month (all purchases are fob shipping point).

Required:

1. Prepare journal entries to record the July transactions. Include general ledger account numbers and a brief description.
2. Calculate the ending balance in merchandise inventory.
3. Assume the merchandise inventory is counted at July 31 and assigned a total cost of $2,400. Prepare the July 31 adjusting entry. Show calculations.

P 5–2

Randall Sales Corp. was incorporated on May 1, 2019 to operate a merchandising business. All its sales on account are made according to the following terms: 2/10, n30. Its transactions during May 2019 are as follows:

May	1	Issued common stock for $2,000 cash to Harry Randall, the incorporator and sole stockholder of the corporation
	1	Received $10,000 from the First Chance Bank as a demand bank loan
	1	Paid Viva Corp. $1,500 for 3 months' rent in advance—$500 for each of May, June, and July (recorded as an asset)
	1	Paid Avanti Equipment Ltd. $5,000 for equipment
	1	Purchased $5,000 of merchandise on account from Renaud Wholesalers Ltd. for terms 2/10, n30
	1	Sold $2,500 of merchandise on account to North Vancouver Distributors. (Cost to Randall: $1,700)
	2	Purchased $1,800 of merchandise on account from Lilydale Products Ltd. for terms n30
	2	Sold $2,000 of merchandise on account to Tarrabain Sales Inc. (Cost: $1,400)
	3	Collected $500 for a cash sale made today to Smith Weston Ltd.

5	Paid All West Insurance Inc. $1,200 for a 1-year insurance policy, effective May l (recorded as an asset)
5	Sold $1,000 of merchandise on account to Trent Stores Corporation. (Cost: $700)
6	Tarrabain Sales Inc. returned $500 of merchandise: reduced the related Account Payable. (Cost: $300)
8	Received a memo from Renaud Wholesalers Ltd. to reduce its account payable by $300 for defective merchandise included in the May 1 purchase and returned subsequently to Renaud
8	Purchased $2,800 of merchandise on account from Pinegrove Novelties Ltd. for terms 2/15, n30
9	Received the amount due from North Vancouver Distributors from the May 1 sale (less discount)
9	Paid Renaud Wholesalers Corp. for the May 1 purchase (less discount)
10	Sold $400 of merchandise on account to Eastern Warehouse. (Cost: $250)
11	Received the amount due from Tarrabain Sales Inc. (less the May 6 memo and discount)
13	Paid Fast Delivery Corporation $100 for Transportation-In
15	Purchased $1,500 of merchandise on account from James Bay Distributors Inc. for terms 2/10, n30
15	Sold $1,500 of merchandise on account to Ransom Outlets Inc. (Cost: $1,100)
15	Paid $500 in commissions to Yvonne Smith, *re:* sales invoices nos. 1, 2, and 3
19	Paid Lilydale Products Inc. for the May 2 purchase
19	Purchased $1,200 of merchandise on account from Midlife Stores Corp. for terms 1/10, n30
22	Purchased $600 of merchandise on account from Speedy Sales Co. for terms n30
22	Paid to Pinegrove Novelties Inc. for the May 8 purchase (less discount)
24	Paid to In Transit Corporation $150 for Transportation-In (fob shipping point)
25	Sold $900 of merchandise on account to Timmins Centres Ltd. (Cost: $650)
26	Received the amount due from Trent Stores Corporation
27	Paid $200 to Intown Deliveries Ltd. for deliveries made to customers

28	Collected $300 for a cash sale made today to Betty Regal. (Cost: $250)
28	Made a $200 cash purchase from Joe Balla Sales Inc.
28	Sold $900 of merchandise on account to Sault Rapids Corp. (Cost: $700)
29	Purchased $100 of merchandise on account from Amigos Inc.
29	Paid Intown Deliveries Ltd. $300 for deliveries to customers (debited account 620)
29	Paid Main Force Advertising Agency $400 for advertising materials used during May
29	Paid State Hydro $100 for electricity
29	Paid Yvonne Smith $350 commission, *re:* sales invoices nos. 4, 5, 6, and 7
30	Collected $l,000 on account from Ransom Outlets Inc.
31	Paid Midlife Stores Corp. $700 on account

Inventory on hand at May 31 was counted and valued at $6,500.

Required: Prepare journal entries to record the May transactions and any month-end adjusting entries needed. Show calculations for shrinkage. Include general ledger account numbers and a brief description for each entry.

P 5–3

The following closing entries were prepared for Whirlybird Products Inc. at December 31, 2019, the end of its fiscal year.

Dec. 31	Sales	510	37,800	
	Income Summary	360		37,800
31	Income Summary	360	32,800	
	Cost of Goods Sold	570		26,800
	Sales Returns and Allowances	508		690
	Sales Discounts	509		310
	Salaries Expenses	656		5,000
31	Income Summary	360	5,000	
	Retained Earnings	340		5,000

Required:

1. Post the closing entries to general ledger T-accounts and calculate balances.
2. Calculate gross profit.

P 5–4

Southern Cross Corporation supplies you with the following information applicable to the current year, December 31, 2019. The company uses the perpetual inventory system.

Delivery expense	$ 2,000
Sales	100,000
Merchandise inventory (Dec. 31)	15,000
Cost of goods sold	70,000
Office supplies expense	7,000
Sales returns and allowances	10,000
Salaries expense	4,000
Unused supplies	5,000

Required:

1. Prepare an income statement. List expenses other than cost of goods sold as other expenses. Assume all accounts have normal balances.
2. Prepare all required closing entries. Include general ledger account numbers and a brief description for each entry.

P 5–5

The following trial balance has been extracted from the records of Acme Automotive Inc. at December 31, 2019, its fiscal year-end. The company uses the perpetual inventory system.

	Account Balances	
Account	*Dr.*	*Cr.*
Cash	750	
Accounts receivable	12,000	
Merchandise inventory	56,000	
Unused supplies	-0-	
Equipment	4,400	
Bank loan (due May, 2020)		5,000
Accounts payable		12,540
Income taxes payable		2,400
Common stock		2,000
Retained earnings		600
Sales		100,000
Sales returns and allowances	1,500	
Sales discounts	500	
Cost of goods sold	34,000	
Advertising expense	1,700	
Commissions expense	4,800	
Delivery expense	650	
Insurance expense	450	
Interest expense	600	
Office supplies expense	250	
Rent expense	1,950	
Telephone expense	300	
Utilities expense	290	
Income taxes expense	2,400	
	$122,540	$122,540

Required:

1. Prepare adjusting entries, including general ledger account numbers and brief descriptions, for the following:
   a. $1,000 of sales on account has not been recorded. (Cost to Acme: $700)
   b. A physical count indicates that $100 of office supplies is still on hand at year-end.
   c. A telephone bill for $60 owing at December 31 has not yet been recorded.
   d. A physical count indicates that $53,000 of merchandise inventory is on hand at December 31, 2019.

2. Prepare a multi-step income statement and statement of changes in equity for the year ended December 31, 2019, and a classified balance sheet at December 31.
3. Prepare closing entries.

P 5–6 (Appendix)

Providence Corp. was incorporated on July 2, 2019 to operate a merchandising business. All its sales on account are made according to the following terms: 2/10, n30. Its transactions during July 2019 are as follows:

July	2	Issued common stock for $5,000 cash to Pam Providence, the incorporator and sole stockholder of the corporation
	2	Purchased $3,500 merchandise on account from Blic Pens Ltd. for terms 2/10, n30
	2	Sold merchandise on account to Spellman Chair Rentals Inc. for $2,000
	3	Paid Sayer Holdings Corp. $500 for July rent
	5	Paid Easton Furniture Ltd. $1,000 for equipment
	8	Collected $200 for a cash sale made today to Ethan Matthews Furniture Ltd.
	8	Purchased $2,000 merchandise on account from Shaw Distributors Inc. for terms 2/15, n30
	9	Received the amount due from Spellman Chair Rentals Inc. for the July 2 sale (less discount)
	10	Paid Blic Pens Ltd. for the July 2 purchase (less discount)
	10	Purchased $200 of merchandise on account from Peel Products Inc. for terms n30
	15	Sold merchandise on account to Eagle Products Corp. for $2,000
	15	Purchased $1,500 of merchandise on account from Bevan Door Inc. for terms 2/10, n30
	15	Received a memo from Shaw Distributors Inc. to reduce its account payable by $100 for defective merchandise included in the July 8 purchase.
	16	Eagle Products Corp. returned $200 of merchandise: reduced related Account Payable.
	20	Sold merchandise on account to Aspen Promotions Ltd. for $3,500
	20	Paid Shaw Distributors Inc. for half the purchase made July 8 (less memo amount, less discount on payment)
	24	Received half the amount due from Eagle Products Corp. in partial payment for the July 15 sale (less discount on payment)

24	Paid Bevan Doors Inc. for the purchase made July 15 (less discount)
26	Sold merchandise on account to Longbeach Sales Ltd. for $600
26	Purchased $800 of merchandise on account from Silverman Co. for terms 2/10, n30
31	Paid Speedy Transport Co. $350 for transportation to Salem's warehouse during the month (all purchases are fob shipping point).
31	Inventory on hand was counted and valued at $2,000

Assume Providence uses the periodic inventory system.

Required: Prepare journal entries to record the July transactions.

P 5–7 (Appendix)

Robert Sales Corp. was incorporated on May 1, 2019 to operate a merchandising business. All its sales on account are made according to the following terms: 2/10, n30. Its transactions during May 2019 are as follows:

May	1	Issued common stock for $2,000 cash to Rob Robert, the incorporator and sole stockholder of the corporation
	1	Received $10,000 from the First Chance Bank as a demand bank loan
	1	Paid Viva Corp. $1,500 for 3 months' rent in advance—$500 for each of May, June, and July (recorded as an asset)
	1	Paid Avanti Equipment Ltd. $5,000 for equipment
	1	Purchased $5,000 of merchandise on account from Renaud Wholesalers Ltd. for terms 2/10, n30
	1	Sold merchandise on account to North Vancouver Distributors for $2,500
	2	Purchased $1,800 of merchandise on account from Lilydale Products Ltd. for terms n30
	2	Sold merchandise on account to Tarrabain Sales Inc. for $2,000
	3	Collected $500 for a cash sale made today to Smith Weston Ltd.
	5	Paid All West Insurance Inc. $1,200 for a 1-year insurance policy, effective May l (recorded as an asset)
	5	Sold merchandise on account to Trent Stores Corporation for $1,000
	6	Tarrabain Sales Inc. returned $500 of merchandise: reduced the related Account Receivable

8 Received a memo from Renaud Wholesalers Ltd. to reduce its account payable by $300 for defective merchandise included in the May 1 purchase and returned subsequently to Renaud

8 Purchased $2,800 of merchandise on account from Pinegrove Novelties Ltd. for terms 2/15, n30

9 Received the amount due from North Vancouver Distributors from the May 1 sale (less discount)

9 Paid Renaud Wholesalers Corp. for the May 1 purchase (less discount)

10 Sold merchandise on account to Eastern Warehouse for $400

11 Received the amount due from Tarrabain Sales Inc. (less the May 6 memo and discount)

13 Paid Fast Delivery Corporation $100 for Transportation-In

15 Purchased $1,500 of merchandise on account from James Bay Distributors Inc. for terms 2/10, n30

15 Sold merchandise on account to Ransom Outlets Inc. for $1,500

15 Paid $500 in commissions to Yvonne Smith, *re:* sales invoices nos. 1, 2, and 3

19 Paid Lilydale Products Inc. for the May 2 purchase

19 Purchased $1,200 of merchandise on account from Midlife Stores Corp. for terms 1/10, n30

22 Purchased $600 of merchandise on account from Speedy Sales Co. for terms n30

22 Paid to Pinegrove Novelties Inc. for the May 8 purchase (less discount)

24 Paid to In Transit Corporation $150 for Transportation-In (fob shipping point)

25 Sold merchandise on account to Timmins Centres Ltd. for $900

26 Received the amount due from Trent Stores Corporation

27 Paid $200 to Intown Deliveries Ltd. for deliveries made to customers

28 Collected $300 for a cash sale made today to Betty Regal

28 Made a $200 cash purchase from Joe Balla Sales Inc. today; issued cheque #11 (debited purchases)

28 Sold merchandise on account to Sault Rapids Corp. for $900

29 Purchased $100 of merchandise on account from Amigos Inc.

29 Paid Intown Deliveries Ltd. $300 for deliveries to customers (debited account 620)

29 Paid Main Force Advertising Agency $400 for advertising materials used during May

29 Paid State Hydro $100 for electricity

29 Paid Yvonne Smith $350 commission, *re:* sales invoices nos. 4, 5, 6, and 7

30 Collected $l,000 on account from Ransom Outlets Inc.

31 Paid Midlife Stores Corp. $700 on account
31 Inventory on hand was counted and valued at $5,000

Assume Robert uses the periodic inventory system.

Required: Prepare journal entries to record the May transactions and any month-end adjusting entries needed. Include general ledger account numbers and a brief description for each entry.

P 5–8 (Appendix)

The following closing entries were prepared for Zenith Products Inc. at December 31, 2019, the end of its fiscal year.

Dec. 31	Merchandise Inventory	6,000	
	Sales	31,000	
	Purchase returns and Allowances	575	
	Purchase discounts	225	
	Income Summary		37,800
31	Income Summary	32,800	
	Merchandise Inventory		4,000
	Sales Returns and Allowances		690
	Sales Discounts		310
	Purchases		22,500
	Transportation-In		300
	Salaries Expenses		5,000
31	Income Summary	5,000	
	Retained Earnings		5,000

Required:
1. Post the closing entries to general ledger T-accounts and calculate balances.
2. Prepare a classified, partial income statement, showing sales, cost of goods sold calculations, and gross profit.

P 5–9 (Appendix)

Northern Lights Corporation supplies you with the following information applicable to the current year, December 31, 2019.

Transportation-in	$ 3,000
Delivery expense	2,000
Sales	100,000
Merchandise inventory (Jan. 1)	12,000
Merchandise inventory (Dec. 31)	15,000
Purchases	70,000
Office supplies expense	7,000
Purchase discounts	4,000
Purchase returns and allowances	6,000
Sales returns and allowances	10,000
Unused supplies	5,000

Required:

1. Prepare in proper form a classified, partial income statement including sales, cost of goods sold, and gross profit.
2. Prepare closing entries.
3. What is net income for the year?

P 5–10 (Appendix)

The following trial balance has been extracted from the records of Tom's Trucks Inc. at December 31, 2019, its fiscal year-end.

Account	*Account Balances*	
	Debit	*Credit*
Cash	750	
Accounts receivable	12,000	
Merchandise inventory (Jan. 1, 2019)	56,000	
Prepaid rent	-0-	
Unused supplies	-0-	
Equipment	4,400	
Bank loan (due Dec. 31, 2022)		5,000
Accounts payable		12,540
Income taxes payable		2,400
Common stock		2,000
Retained earnings		600
Sales		100,000
Sales returns and allowances	1,500	
Sales discounts	500	
Purchases	35,000	
Purchase returns and allowances		1,700
Purchase discounts		300
Transportation-in	1,000	
Advertising expense	1,700	
Commissions expense	4,800	
Delivery expense	650	
Insurance expense*	450	
Interest expense	600	
Supplies expense	250	
Rent expense*	1,950	
Telephone expense	300	
Utilities expense	290	
Income taxes expense	2,400	
	$124,540	$124,540

*selling expenses

Required:

1. Prepare adjusting entries, including general ledger account numbers and a brief description for each entry, for the following:
   a. A telephone bill for $60 owing at December 31 has not yet been recorded.
   b. $600 of sales on account has not been recorded.

c. A physical count indicates that $100 of office supplies is still on hand at year-end.
d. A physical count indicates that $58,000 of merchandise inventory is on hand at December 31, 2019.

2. Prepare a classified income statement and statement of changes in equity for the year ended December 31, 2019, and a classified balance sheet at December 31.
3. Prepare all required closing entries. Include general ledger account numbers and a brief description for each entry.

CHAPTER SIX

Assigning Costs to Merchandise

Recording transactions related to the purchase and sale of merchandise inventory was introduced and discussed in Chapter 5. This chapter reviews how the cost of goods sold is calculated using various inventory cost flow assumptions. Additionally, issues related to merchandise inventory that remains on hand at the end of an accounting period are also explored.

Chapter 6 Learning Objectives

LO1 – Calculate cost of goods sold and merchandise inventory under specific identification, first-in first-out (FIFO), last-in first-out (LIFO), and weighted average cost flow assumptions, using the perpetual inventory system.

LO2 – Explain the impact on financial statements of inventory cost flow assumptions and errors.

LO3 – Explain and calculate lower of cost and net realizable value inventory adjustments.

LO4 – Estimate merchandise inventory using the gross profit method and the retail inventory method.

LO5 – (Appendix) Calculate cost of goods sold and merchandise inventory under specific identification, first-in first-out (FIFO), and weighted average cost flow assumptions, using the periodic inventory system.

A. Inventory Cost Flow Assumptions

LO1 – Calculate cost of goods sold and merchandise inventory under specific identification, first-in first-out (FIFO), last-in first-out (LIFO), and weighted average cost flow assumptions using the perpetual inventory system.

Determining the cost of each unit of inventory, and thus the total cost of ending inventory on the balance sheet, can be challenging. Why? We know from Chapter 5 that the cost of inventory can be affected by discounts, returns, transportation costs, and shrinkage. Additionally, the purchase cost of an inventory item can be different from one purchase date to the next. For example, the cost of raw coffee beans purchased by a manufacturer could be $5.00 a kilogram in October and $7.00 a kilogram in November because of changes in weather conditions in South America. Therefore, each kilo of coffee inventory may have a different cost depending on which kilo is assumed to be unsold. Also, some types of inventory physically flow into and out of a warehouse in a specific sequence, while others do not. For instance, a retail grocer needs to manage vegetable sales so that the oldest produce is sold first. On the other hand, a car dealership has no control over which vehicles are sold because customers make specific choices based on their preferences. Finally, a company that sells many low-value, similar items like pencils may want to merely choose the easiest method to calculate ending inventory. So how is the cost of a unit in merchandise inventory determined? There are several methods that can be used, as described in the following sections.

Assume a company sells only one product and uses the perpetual inventory system. It has no beginning inventory at June 1, 2019. The company purchased five units during June as shown in Figure 6-1.

	Purchase Transaction	
Date	*Number of units*	*Price per unit*
June 1	1	$ 1
5	1	2
7	1	3
21	1	4
28	1	5
	5	$15

Figure 6-1 June Purchases and Purchase Price per Unit

At June 28, there are 5 units in inventory with a total cost of $15 ($1 + $2 + $3 + $4 + $5). Assume four units are sold on June 30 for $10 each. The cost of the four units sold could be determined based on identifying the cost associated with the specific units sold, like a car dealership, especially if the value of one unit of inventory is large.

Alternatively, a company might assume that the oldest purchases are sold first or that the most recent inventory purchases are sold first. Finally, if a company sells large quantities of similar low dollar value items such as pencils, an average cost might be used to calculate ending inventory because it is simpler. These methods are called respectively, *specific identification*; *first-in, first-out (FIFO); last-in first-out (LIFO)*; and *weighted average*.

Specific Identification

Under **specific identification**, each inventory item that is sold is matched with its purchase cost. This method is most practical when inventory consists of relatively few, expensive items, particularly when individual units can be identified with serial numbers—for example, motor vehicles sold by a dealership.

Assume the four units sold on June 30 are those purchased on June 1, 5, 7, and 28. The fourth unit purchased on June 21 remains in ending inventory. Cost of goods sold would total $11 ($1 + $2 + $3 + $5). Sales would total $40 (4 @ $10). As a result, gross profit would be $29 ($40 – 11). Ending inventory would be $4, the cost of the unit purchased on June 21.

The general ledger T-accounts for Merchandise Inventory and Cost of Goods Sold would show:

Merchandise Inventory

Jun. 1	$1		
5	2		
7	3		
21	4		
28	5		
		11	Jun. 30
End. Bal.	4		

Cost of Goods Sold

11	

Figure 6-2 Cost of Goods Sold using Specific Identification

The entry to record the June 30 sale on account would be:

Accounts Receivable	110	40	
Sales	500		40
To record the sale of merchandise on account.			
Cost of Goods Sold	570	11	
Merchandise Inventory	150		11
To record the cost of the sale.			

It is not possible to use specific identification when inventory consists of a large number of similar, inexpensive items that cannot be easily differentiated. Consequently, a method of assigning costs to inventory items based on an assumed flow of goods can be adopted. *However, there is no requirement that the physical flow of goods coincides with the cost flow assumption used.* It is up the company's management to decide the appropriate cost flow method.

Three generally accepted methods, known as **cost flow assumptions**, are discussed next.

The First-in, First-out (FIFO) Cost Flow Assumption

First-in, first-out (FIFO) assumes that the first goods purchased are the first ones sold. A FIFO cost flow assumption makes sense when inventory consists of perishable items such as groceries and other time-sensitive goods.

Using the information from the previous example, the first four units purchased are assumed to be the first four units sold under FIFO. The cost of the four units sold is $10 ($1 + $2 + $3 + $4). Sales still equal $40, so gross profit under FIFO is $30 ($40 – $10). The cost of the one remaining unit in ending inventory would be the cost of the fifth unit purchased ($5).

The general ledger T-accounts for Merchandise Inventory and Cost of Goods Sold as illustrated in Figure 6-3 would show:

Merchandise Inventory

Jun. 1	$1		
5	2		
7	3		
21	4		
28	5		
		10	Jun. 30
End. Bal.	5		

Cost of Goods Sold

10	

Figure 6-3 Cost of Goods Sold using FIFO

The entry to record the sale would be:

Accounts Receivable	110	40	
Sales	500		40
To record the sale of merchandise on account.			
Cost of Goods Sold	570	10	
Merchandise Inventory	150		10
To record the cost of the sale.			

The Last-in, First-out (LIFO) Cost Flow Assumption

Last-in, first-out (LIFO) assumes that the most recent goods purchased are the first ones sold. A LIFO cost flow assumption may make sense when inventory consists of items stored in stacks or piles so that the last items (on top of the stack or pile) is sold first such as hay or lumber.

Using the information from Figure 6-1, the last four units purchased are assumed to be the first four units sold under LIFO. The cost of the four units sold is \$14 (\$5 + \$4 + \$3 + \$2). Sales still equal \$40, so gross profit under LIFO is \$26 (\$40 – \$14). The cost of the one remaining unit in ending inventory would be the cost of the first unit purchased (\$1).

The general ledger T-accounts for Merchandise Inventory and Cost of Goods Sold as illustrated in Figure 6-4 would show:

Merchandise Inventory			
Jun. 1	\$1		
5	2		
7	3		
21	4		
28	5		
		14	Jun. 30
End. Bal.	1		

Cost of Goods Sold	
14	

Figure 6-4 Cost of Goods Sold using LIFO

The entry to record the sale would be:

Accounts Receivable	110	40	
Sales	500		40
To record the sale of merchandise on account.			
Cost of Goods Sold	570	14	
Merchandise Inventory	150		14

To record the cost of the sale.

While the use of the LIFO method for inventory costing is permitted under US GAAP, it is prohibited under International Financial Reporting Standards (IFRS). In the US, the LIFO conformity rule states that a company using the LIFO method for tax reporting must also use this method for financial reporting.

The Weighted Average Cost Flow Assumption

A **weighted average** cost flow is used when low-value, similar items are sold, or when inventory is in the form of a gas or liquid – for example, when several crude oil shipments are stored in one large holding tank. The weighted average cost assumption is popular in practice because it is easy to calculate.

To calculate a weighted average, the total cost of all purchases of a particular inventory type is divided by the number of units purchased. In our example, the purchase prices for all five units are totalled ($1 + $2 + $3 + $4 + $5 = $15) and divided by the total number of units purchased (5). The weighted average cost for each unit is $3 ($15/5). The weighted average cost of goods sold would be $12 (4 units @ $3). Sales still equal $40 resulting in a gross profit under weighted average of $28 ($40 – $12). The cost of the one unit remaining in ending inventory is $3.

The general ledger T-accounts for Merchandise Inventory and Cost of Goods Sold are:

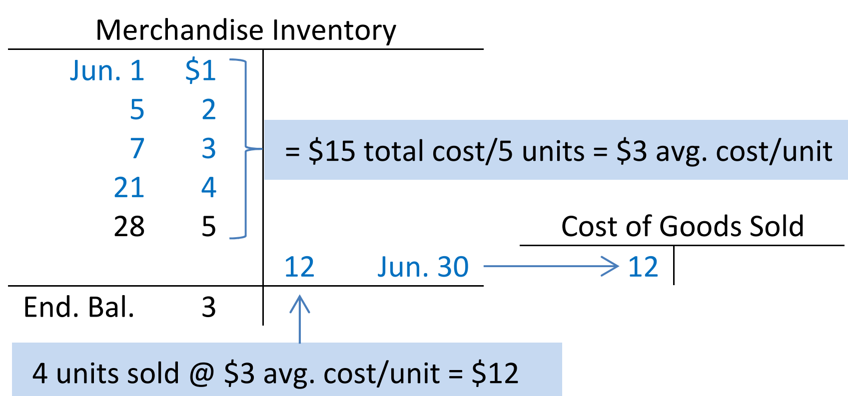

Figure 6-5 Cost of Goods Sold using Weighted Average

The entry to record the sale would be:

Accounts Receivable	110	40	
Sales	500		40
To record the sale of merchandise on account.			
Cost of Goods Sold	570	12	
Merchandise Inventory	150		12
To record the cost of the sale.			

Cost Flow Assumptions: A Comprehensive Example

Recall that under the perpetual inventory system, cost of goods sold is calculated and recorded in the accounting system at the time when sales are recorded. In our simplified example, all sales occurred on June 30 after all inventory had been purchased. In reality, the purchase and sale of merchandise is continous. To demonstrate the calculations when purchases and sales occur continuously throughout the accounting period, let's review a more comprehensive example.

Assume the same example as above, except that sales of units occur as follows during June:

Date	*Number of units sold*
June 3	1
8	1
23	1
29	1

To help with the calculation of cost of goods sold, an **inventory record card** will be used to track the individual transactions. This card records information about purchases such as the date, number of units purchased, and purchase cost per unit. It also records cost of goods sold information: the date of sale, number of units sold, and the cost of each unit sold. Finally, the card records the balance of units on hand, the cost of each unit held, and the total cost of the units on hand.

A partially-completed inventory record card is shown in Figure 6-6 below:

The card tracks the flow of *each type* of inventory.

	Purchased			*Sold*			*Balance in Inventory*		
Date	*Units*	*Unit Cost*	*Total $*	*Units*	*Unit Cost*	*Total $*	*Units*	*Unit Cost*	*Total $*
June 1	1						1		
3				1			0		
5	1						1		
7	1						2		
8				1			1		
21	1						2		
23				1			1		
28	1						2		
29				1			**1**		

Ending Inventory is 1 unit.

Figure 6-6 Inventory Record Card

In Figure 6-6, the inventory at the end of the accounting period is one unit. This is the number of units on hand according to the accounting records. A **physical inventory count** must still be done, generally at the end of the fiscal year, to verify the quantities actually on hand. As discussed in Chapter 5, any discrepancies identified by the physical inventory count are adjusted for as shrinkage.

As purchases and sales are made, costs are assigned to the goods using the chosen cost flow assumption. This information is used to calculate the cost of goods sold amount for each sales transaction at the time of sale. These costs will vary depending on the inventory cost flow assumption used. As we will see in the next sections, the cost of sales may also vary depending on *when* sales occur.

Comprehensive Example—Specific Identification

To apply specific identification, we need information about which units were sold on each date. Assume that specific units were sold as detailed below.

Date of Sale	*Specific Unit Sold*
June 3	The unit purchased on June 1 was sold on June 3
8	The unit purchased on June 7 was sold on June 8
23	The unit purchased on June 5 was sold on June 23
29	The unit purchased on June 28 was sold on June 29

Using the information above to apply specific identification, the resulting inventory record card appears in Figure 6-7.

	Purchased			*Sold*			*Balance in Inventory*		
Date	*Units*	*Unit Cost*	*Total $*	*Units*	*Unit Cost*	*Total $*	*Units*	*Unit Cost*	*Total $*
June 1	1	$1	$1				1	$1	$1
3				1	$1	$1	0	$0	$0
5	1	$2	$2				1	$2	$2
7	1	$3	$3				2	1@$2 1@$3	$5
8				1	$3	$3	1	$2	$2
21	1	$4	$4				2	1@$2 1@$4	$6
23				1	$2	$2	1	$4	$4
28	1	$5	$5				2	1@$4 1@$5	$9
29				1	$5	$5	**1**	**$4**	**$4**

Figure 6-7 Inventory Record Card using Specific Identification

Notice in Figure 6-8 below that the number of units sold plus the units in ending inventory equals the total units that were available for sale (4 + 1 = 5 units). As well, the cost of goods sold plus the cost of items in ending inventory equals the cost of goods available for sale ($11 + $4 = $15). This relationship will always be true for each of specific identification, FIFO, and weighted average.

	Purchased			*Sold*			*Balance in Inventory*		
Date	*Units*	*Unit Cost*	*Total $*	*Units*	*Unit Cost*	*Total $*	*Units*	*Unit Cost*	*Total $*
June 1	1	$1	$1				1	$1	$1
3				1	$1	$1	0	$0	$0
5	1	$2	$2				1	$2	$2
7	1	$3	$3				2	1@$2 1@$3	$5
8				1	$3	$3	1	$2	$2
21	1	$4	$4				2	1@$2 1@$4	$6
23				1	$2	$2	1	$4	$4
28	1	$5	$5				2	1@$4 1@$5	$9
29				1	$5	$5	**1**	**$4**	**$4**

Total number of units available for sale: **5 units** = Total number of units sold: **4 units** + Total number of units in ending inventory: **1 unit**

Total cost of goods available for sale: **$15** = Total cost of goods sold: **$11** + Total cost of ending inventory: **$4**

Figure 6-8 Total Number (or Cost) of Units Sold plus Total Number (or Cost) of Units in Ending Inventory equals Total Number (or Cost) of Units Available for Sale

Comprehensive Example—FIFO (Perpetual)

Using the same information, we now apply the FIFO cost flow assumption as shown in Figure 6-9.

	Purchased			*Sold*			*Balance in Inventory*		
Date	*Units*	*Unit Cost*	*Total $*	*Units*	*Unit Cost*	*Total $*	*Units*	*Unit Cost*	*Total $*
June 1	1	$1	$1				1	$1	$1
3				1	$1	$1	0	$0	$0
5	1	$2	$2				1	$2	$2
7	1	$3	$3				2	1@$2 1@$3	$5
8				1	$2	$2	1	$3	$3
21	1	$4	$4				2	1@$3 1@$4	$7
23				1	$3	$3	1	$4	$4
28	1	$5	$5				2	1@$4 1@$5	$9
29				1	$4	$4	**1**	**$5**	**$5**

Total number of units available for sale: **5 units** = Total number of units sold: **4 units** + Total number of units in ending inventory: **1 unit**

Total cost of goods available for sale: **$15** = Total cost of goods sold: **$10** + Total cost of ending inventory: **$5**

Figure 6-9 Inventory Record Card using FIFO (Perpetual)

When calculating the cost of the units sold in FIFO, the oldest unit in inventory will always be the first unit removed. For example, in Figure 6-9, on June 8, one unit is sold when the previous balance in inventory consisted of 2 units: 1 unit purchased on June 5 that cost $2 and 1 unit purchased on June 7 that cost $3. Because the unit costing $2 was in inventory first (before the June 8 unit costing $3), the cost assigned to the unit sold on June 8 is $2. Under FIFO, the first units into inventory are assumed to be the first units removed from inventory when calculating cost of goods sold. Therefore, under FIFO, ending inventory will always be the most recent units purchased. In Figure 6-9, there is one unit in ending inventory and it is assigned the $5 cost of the most recent purchase which was made on June 28.

Comprehensive Example—LIFO (Perpetual)

Using the same information, we now apply the LIFO cost flow assumption as shown in Figure 6-10.

	Purchased			*Sold*			*Balance in Inventory*		
Date	*Units*	*Unit Cost*	*Total $*	*Units*	*Unit Cost*	*Total $*	*Units*	*Unit Cost*	*Total $*
June 1	1	$1	$1				1	$1	$1
3				1	$1	$1	0	$0	$0
5	1	$2	$2				1	$2	$2
7	1	$3	$3				2	1@$2 1@$3	$5
8				1	$3	$3	1	$2	$2
21	1	$4	$4				2	1@$2 1@$4	$6
23				1	$4	$4	1	$2	$2
28	1	$5	$5				2	1@$2 1@$5	$7
29				1	$5	$5	**1**	**$2**	**$2**

Total number of units available for sale: **5 units** = Total number of units sold: **4 units** + Total number of units in ending inventory: **1 unit**

Total cost of goods available for sale: **$15** = Total cost of goods sold: **$13** + Total cost of ending inventory: **$2**

Figure 6-10 Inventory Record Card using LIFO (Perpetual)

When calculating the cost of the units sold in LIFO, the most recent unit purchased into inventory will always be the first unit removed. For example, in Figure 6-10, on June 8, one unit is sold when the previous balance in inventory consisted of 2 units: 1 unit purchased on June 5 that cost $2 and 1 unit purchased on June 7 that cost $3. Because the unit costing $3 was the most recent purchase to inventory, the cost assigned to the unit sold on June 8 is $3. Under LIFO, the most recent inventory added is assumed to be the first units removed from inventory when calculating cost of goods sold. Therefore, under LIFO, ending inventory will always be the earliest units purchased. In Figure 6-10, there is one unit in ending inventory and it is assigned the $2 cost from the earliest, unsold inventory purchase on June 5.

Comprehensive Example—Weighted Average (Perpetual)

The inventory record card transactions using weighted average costing are detailed in Figure 6-11. *For consistency, all weighted average calculations will be rounded to two decimal places.* When a perpetual inventory system is used, the weighted average is calculated each time a purchase is made. For example, after the June 7 purchase, the balance in inventory is 2 units with a total cost of $5.00 (1 unit at $2.00 + 1 unit at $3.00) resulting in an average cost per unit of $2.50 ($5.00 ÷ 2 units = $2.50). When a sale occurs, the cost of the sale is based on the most recent average cost per unit. For example, the cost of the sale on June 3 uses the $1.00 average cost per unit from June 1 while the cost of the sale on June 8 uses the $2.50 average cost per unit from June 7.

	Purchased			*Sold*			*Balance in Inventory*				*Average Cost Calc.*	
Date	*Units*	*Unit cost*	*Total $*	*Units*	*Unit cost*	*Total $*	*Units*	*Unit cost*	*Total $*		*Tot. $ /Tot. units*	*Avg. cost /unit*
June 1	1	$1	$1				1	$1.00	$1.00		$1.00/1	$1.00
3				1	$1.00	$1.00	0	$0.00	$0.00		$0.00/0	$0.00
5	1	$2	$2				1	$2.00	$2.00		$2.00/1	$2.00
7	1	$3	$3				2	$2.50	$5.00		$5.00/2	$2.50
8				1	$2.50	$2.50	1	$2.50	$2.50		$2.50/1	$2.50
21	1	$4	$4				2	$3.25	$6.50		$6.50/2	$3.25
23				1	$3.25	$3.25	1	$3.25	$3.25		$3.25/1	$3.25
28	1	$5	$5				2	$4.13*	$8.25		$8.25/2	$4.13*
29				1	$4.13	$4.13	1	$4.12	$4.12		$2.12/1	$4.12

*rounded

Figure 6-11 Inventory Record Card using Weighted Average Costing (Perpetual)

A common error made by students when applying weighted average occurs when the unit costs are rounded. For example, on June 28, the average cost per unit is rounded to $4.13 ($8.25 ÷ 2 units = $4.125/unit rounded to $4.13). On June 29, the cost of the unit sold is $4.13, the June 28 average cost per unit. Care must be taken to recognize that the total remaining balance in inventory after the June 29 sale is $4.12, calculated as the June 28 ending inventory total dollar amount of $8.25 less the June 29 total cost of goods sold of $4.13. Students will often incorrectly use the average cost per unit, in this case $4.13, to calculate the ending inventory balance. This produces an incorrect result. The cost of goods sold plus the balance in inventory must equal the goods available for sale ($4.12 + $4.13 = $8.25).

Figure 6-12 compares the results of the four cost flow methods. Goods available for sale, units sold, and units in ending inventory are the same regardless of which method is used. Because each cost flow method allocates the cost of goods available for sale in a particular way, the cost of goods sold and ending inventory values are different for each method.

Cost flow assumption	*Total cost of goods available for sale*	*Total units available for sale*	*Total cost of goods sold*	*Total units sold*	*Total cost of ending inventory*	*Total units in ending inventory*
Specific identification	$15.00	5	$11.00	4	$4.00	1
FIFO	15.00	5	10.00	4	5.00	1
LIFO	15.00	5	13.00	4	2.00	1
Weighted average	15.00	5	10.88	4	4.12	1

Figure 6-12 Comparing Specific Identification, FIFO, LIFO, and Weighted Average

Journal Entries

In Chapter 5 the journal entries to record the sale of merchandise were introduced. Chapter 5 showed how the dollar value included in these journal entries is determined. We now know that the information in the inventory record is used to prepare the journal entries in the general journal. For example, the credit sale on June 23 using weighted average costing would be recorded as follows (refer to Figure 6-11).

Accounts Receivable	110	10.00	
Sales	500		10.00
To record the sale of merchandise on account at $10 per unit.			
Cost of Goods Sold	570	3.25	
Merchandise Inventory	150		3.25
To record the cost of the sale.			

Perpetual inventory incorporates an internal control feature that is lost under the periodic inventory system. Losses resulting from theft and error can easily be determined when the actual quantity of goods on hand is counted and compared with the quantities shown in the inventory records as being on hand. It may seem that this advantage is offset by the time and expense required to continuously update inventory records, particularly where there are thousands of different items of various sizes on hand. However, computerization makes this record keeping easier and less expensive because the inventory accounting system can be tied in to the sales system so that inventory is updated whenever a sale is recorded.

Inventory Record Card

In a company such as a large drugstore or hardware chain, inventory consists of thousands of different products. For businesses that carry large volumes of many inventory types, the general ledger merchandise inventory account contains only summarized transactions of the purchases and sales. The detailed transactions for each type of inventory would be recorded in the underlying inventory record cards. The inventory record card is an example of a **subsidiary ledger***,* more commonly called a **subledger**. The *merchandise inventory subledger* provides a detailed listing of type, amount, and total cost of all types of inventory held at a particular point in time. The sum of the balances on each inventory record card in the subledger would always equal the ending amount recorded in the Mechandize Inventory general ledger account. So a subledger contains the detail for each product in inventory while the general ledger account shows only a summary. In this way, the general ledger information is streamlined while allowing for detail to be available through the subledger.

B. Financial Statement Impact of Different Inventory Cost Flows

LO2 – Explain the impact on financial statements of inventory cost flow assumptions and errors.

Purchase prices may change as a result of larger economic or political phenomenon. For example, the cost of a barrel of oil can be affected by a decision made by a large producer like the government of Saudi Arabia. Changes in the purchasing power of a national currency over time can also affect the costs of purchased inventory. When costs of purchases are increasing, as in a period of *inflation* (or decreasing, as in a period of *deflation*), each cost flow assumption results in a different value for cost of goods sold and the resulting ending inventory, gross profit, and net income.

Using information from the preceding comprehensive example, the effects of each cost flow assumption on net income and ending inventory for the month are shown in Figure 6-13.

	Spec. ident.	*FIFO*	*LIFO*	*Wtd. avg.*
Sales (4 units @ $10)	$40.00	$40.00	$40.00	$40.00
Cost of goods sold	11.00	10.00	13.00	10.88
Gross profit and net income	$29.00	$30.00	$27.00	$29.12
Ending inventory (on the balance sheet)	$ 4.00	$ 5.00	$ 2.00	$ 4.12

Figure 6-13 Effects of Different Cost Flow Assumptions

FIFO *maximizes* net income and ending inventory amounts when costs are rising. FIFO *minimizes* net income and ending inventory amounts when purchase costs are decreasing. LIFO creates the opposite effect. LIFO *minimizes* net income and ending inventory amounts when costs are rising. LIFO *maximizes* net income and ending inventory amounts when purchase costs are decreasing.

Because different cost flow assumptions can affect the financial statements, GAAP requires that each company disclose the inventory cost flow method it uses in a note to the financial statements. Additionally, GAAP requires that once a method is adopted, it must be used every accounting period consistently thereafter unless there is a justifiable reason to change. However, if a company carries a variety of inventory items, it may choose a different cost flow assumption for each type of item, as long as these are applied consistently and disclosed. For example, Wal-Mart might use weighted average to account for its sporting goods items and specific identification for each of its various major appliances.

Effect of Inventory Errors on the Financial Statements

There are two components necessary to determine the inventory value disclosed on a corporation's balance sheet. The first component involves calculating the quantity of inventory on hand at the end of an accounting period by performing a physical inventory count. The second requirement involves assigning the most appropriate cost to this quantity of inventory.

An error in calculating either the quantity or the cost of ending inventory will misstate reported income for two time periods. Assume merchandise inventory at December 31, 2018, 2019, and 2020 was reported as $2,000 and that merchandise purchases during each of 2019 and 2020 were $20,000. There were no other expenditures. Assume further that sales each year amounted to $30,000 with cost of goods sold of $20,000 resulting in gross profit of $10,000. These transactions are summarized below.

Merchandise Inventory

Beg. Bal.	2,000		
2019 Purch.	20,000	20,000	2019 COGS
2019 Bal.	2,000		
2020 Purch.	20,000	20,000	2020 COGS
2020 Bal.	2,000		

	2019	*2020*
Sales	$30,000	$30,000
COGS	20,000	20,000
Gross profit	$10,000	$10,000

Figure 6-14 Income Statement Effects, No Errors in Ending Inventory

Assume now that ending inventory was misstated at December 31, 2019. Instead of the $2,000 that was reported, the correct value should have been $1,000. The effect of this error was to understate cost of goods sold on the income statement—cost of goods sold should have been $21,000 in 2019 as shown below instead of $20,000 as originally reported above. Because of the 2019 error, the 2020 beginning inventory was incorrectly reported above as $2,000 and should have been $1,000 as shown below. This caused the 2020 gross profit to be understated by $1,000—cost of goods sold in 2020 should have been $19,000 as illustrated below but was originally reported above as $20,000.

Merchandise Inventory

Op. Bal.	2,000		
2019 Purch.	20,000	20,000	2019 COGS
		1,000	Inv. Adj.
2019 Bal.	**1,000**		
2020 Purch.	20,000		
Inv. Adj.	1,000	20,000	2020 COGS
2020 Bal.	2,000		

Ending inventory is incorrectly stated.

	2019	*2020*
Sales	$30,000	$30,000
COGS	21,000	19,000
Gross profit	$ 9,000	$11,000

Figure 6-15 Income Statement Effects, Error in 2019 Ending Inventory

As can be seen, income is misstated in both 2019 and 2020 because cost of goods sold in both years is affected by the adjustment to ending inventory needed at the end of 2019 and 2020. The opposite effects occur when inventory is understated at the end of an accounting period.

An error in ending inventory is offset in the next year because one year's ending inventory becomes the next year's opening inventory. This process can be illustrated by comparing gross profits for 2019 and 2020 in the above example. The sum of both years' gross profits is the same.

	Overstated inventory	*Correct inventory*
Gross profit for 2019	$10,000	$ 9,000
Gross profit for 2020	10,000	11,000
Total	$20,000	$20,000

Figure 6-16 Gross Profit Effects Balance Out Over Two Years

C. Lower of Cost and Net Realizable Value (LCNRV)

LO3 – Explain and calculate lower of cost and net realizable value inventory adjustments.

In addition to the adjusting entry to record the shrinkage of merchandise inventory (discussed in Chapter 5), there is an additional adjusting entry to be considered at the end of the accounting period when calculating cost of goods sold and ending inventory values for the financial statements. Generally accepted accounting principles require that inventory be valued at the lesser amount of its **laid-down cost** and the amount for which it can likely be sold—its **net realizable value (NRV)**. This concept is known as the **lower of cost and net realizable** value, or **LCNRV**. Laid-down cost includes the invoice price of the goods (less any purchase discounts) plus transportation in, insurance while in transit, and any other expenditure made by the purchaser to get the merchandise to the place of business and ready for sale.

As an example of LCNRV, a change in consumer demand may mean that inventories become obsolete and need to be reduced in value below the purchase cost. This often occurs in the electronics industry as new and more popular products are introduced.

The lower of cost and net realizable value can be applied to individual inventory items or groups of similar items. Assume two types of inventory for a paper supply company, as shown in Figure 6-17 below.

			LCNRV	
	Total cost	*Total NRV*	*Unit basis*	*Group basis*
White paper	$1,250	$1,200	$1,200	
Colored paper	1,400	1,500	1,400	
Total	$2,650	$2,700	$2,600	$2,650
Ending inventory (LCNRV)			$2,600	$2,650

Figure 6-17 LCNRV Calculations

Depending on the calculation used, the valuation of ending inventory will be either $2,600 or $2,650. Under the unit basis, the lower of cost and net realizable value is selected for each item: $1,200 for white paper and $1,400 for colored paper, for a total LCNRV of $2,600. Because the LCNRV is lower than cost, an adjusting entry must be recorded as follows.

Cost of Goods Sold	570	50	
Merchandise Inventory	150		50
To adjust inventory to LCNRV.			

The purpose of the adjusting entry is to ensure that inventory is not overstated on the balance sheet and that net income is not overstated on the income statement.

If white paper and colored paper are considered a similar group, the calculations in Figure 6-17 above show they have a combined cost of $2,650 and a combined net realizable value of $2,700. LCNRV would therefore be $2,650. In this case, the cost is equal to the LCNRV so no adjusting entry would be required if applying LCNRV on a group basis.

D. Estimating the Balance in Merchandise Inventory

LO4 – Estimate merchandise inventory using the gross profit method and the retail inventory method.

A physical inventory count determines the quantity of items on hand. When costs are assigned to these items and these individual costs are added, a total inventory amount is calculated. Is this dollar amount correct? Should it be larger? How can one tell if the physical count is accurate? Being able to estimate this amount provides a check on the reasonableness of the physical count and valuation.

The two methods used to estimate the inventory dollar amount are the *gross profit method* and the *retail inventory method*. Both methods are based on a calculation of the gross profit percentage in the income statement. Assume the following information:

Sales		$15,000	100%
Cost of goods sold:			
Opening inventory	$ 4,000		
Purchases	12,000		
Cost of goods available for sale	16,000		
Less: Ending inventory	(6,000)		
Cost of goods sold		10,000	67%
Gross profit		$ 5,000	33%

The gross profit percentage, rounded to the nearest whole percent, is 33% ($5,000/15,000). This means that for each dollar of sales, an average of $.33 is left to cover other expenses after deducting cost of goods sold.

Estimating ending inventory requires an understanding of the relationship of ending inventory with cost of goods sold.

Review the following cost of goods sold calculations.

Cost of goods sold	
Opening inventory	$ 4,000
Purchases	12,000
Cost of goods available for sale	16,000
Less: Estimated ending inventory	?
Cost of goods sold	$10,000

How much of the $16,000 of goods that the company had available to sell is still not sold at December 31 (in other words, what is ending inventory)? You can calculate this as:

Available for sale	$16,000
Less inventory that was sold	10,000
Equals what must still be on hand	$ 6,000

Cost of goods sold	
Opening inventory	$ 4,000
Purchases	12,000
Cost of goods available for sale	16,000
Less: Estimated ending inventory	6,000
Cost of goods sold	?

How much of the $16,000 of goods that were available to be sold have been sold? Use the dollar amount of ending inventory to calculate this:

Available for sale	$16,000
Less inventory on hand	6,000
Equals what must have been sold	$10,000

The sum of cost of goods sold and ending inventory is always equal to cost of goods available for sale. Knowing any two of these amounts enables the third amount to be calculated. Understanding this relationship is the key to estimating inventory using either the gross profit or retail inventory methods, discussed below.

Gross Profit Method

The **gross profit method** of estimating ending inventory assumes that the percentage of gross profit on sales remains approximately the same from period to period. Therefore, if the gross profit percentage is known, the dollar amount of ending inventory can be estimated. First, gross profit is estimated by applying the gross profit percentage to sales. From this, cost of goods sold can be derived, namely the difference between sales and gross profit. Cost of goods available for sale can be determined from the accounting records (opening inventory + purchases). The difference between cost of goods available for sale and cost of goods sold is the estimated value of ending inventory.

To demonstrate, assume that Pete's Products Ltd. has an average gross profit percentage of 40%. If opening inventory at January 1, 2019 was $200, sales for the six months ended June 30, 2019 were $2,000, and inventory purchased during the six months ended June 30, 2019 was $1,100, the cost of goods sold and ending inventory can be estimated as follows.

Sales (given)		$2,000
Cost of goods sold		
Opening inventory (given)	$ 200	
Purchases (given)	1,100	
Cost of goods available for sale	1,300	
Less: Estimated ending inventory	(100)	
Cost of goods sold		1,200
Gross profit		$ 800

Step 3: Ending inventory can be estimated ($1,300 – 1,200 = 100)

Step 2: Cost of goods sold can be derived ($2,000 – 800 = $1,200)

Step 1: Gross profit is estimated at $800 ($2,000 x 40%).

The estimated ending inventory at June 30 must be $100—the difference between the cost of goods available for sale and cost of goods sold.

The gross profit method of estimating inventory is useful in situations when goods have been stolen or destroyed by fire or when it is not cost-effective to make a physical inventory count.

Retail Inventory Method

The **retail inventory method** is another means to estimate cost of goods sold and ending inventory. It can be used when items are consistently valued at a known percentage of cost, known as a *mark-up*. A **mark-up** is the ratio of retail value (or selling price) to cost. For example, if an inventory item had a cost of $10 and a retail value of $12, it was marked up to 120% (12/10 x 100). Mark-ups are commonly used in clothing stores.

First, the cost of goods available for sale is converted to its retail value (the selling price). To do this, the mark-up must be known. Assume the same information as above for Pete's Products Ltd., except that now every item in the store is marked up to 160% of its purchase price. That is, if an item is purchased for $100, it is sold for $160. Based on this, opening inventory, purchases, and cost of goods available can be re-stated at retail. Cost of goods sold can then be valued at retail, meaning that it will equal sales for the period. From this, ending inventory (at retail) can be determined, then converted back to cost using the mark-up. These steps are illustrated below.

Step 1: Opening inventory and purchases (and therefore cost of goods available for sale) are restated at retail (cost x 160%).

	Six Months Ended June 30, 2019			
	At retail		*At cost*	
Sales (given)		$2,000		$2,000
Cost of goods sold				
Opening inventory (from records)	$ 320		$ 200	
Purchases (from records)	1,760		1,100	
Cost of goods available for sale	2,080		1,300	
Less: Estimated ending inventory	(80)		(50)	
Cost of goods sold		2,000		1,250
Gross profit		$ -0-		$ 750

Step 3: Ending inventory can be derived ($2,080 – 2,000 = $80).

Step 2: Cost of goods sold is restated at retail (equal to sales).

Step 4: Ending inventory is restated at cost (that is, divided by 160%). Cost of goods sold and gross profit can then be determined.

The retail inventory method of estimating ending inventory is easy to calculate and produces a relatively accurate cost of ending inventory, provided that no change in the average mark-up has occurred during the period.

Appendix: Inventory Cost Flow Assumptions Under the Periodic System

LO5 – Calculate cost of goods sold and merchandise inventory under specific identification, first-in first-out (FIFO), and weighted average cost flow assumptions, using the periodic inventory system.

Recall from Chapter 5 that the *periodic inventory system* does not maintain detailed records to calculate cost of goods sold each time a sale is made. Rather, when a sale occurs, the following entry is made:

Date	Accounts Receivable	110	XX	
	Sales	550		XX

No entry is made to record cost of goods sold and to reduce Merchandise Inventory, as is done under the perpetual inventory system. Instead, all purchases are considered expenses and recorded in the general ledger account "Purchases." A physical inventory count is conducted at year-end. An amount for ending inventory is calculated based on this count and the valuation of the items in inventory. Cost of goods sold is calculated in the income statement based on this total amount. The income statement format is:

Sales		$10,000
Cost of goods sold		
Opening inventory	$ 1,000	
Purchases	5,000	
Goods available for sale	6,000	
Less: Ending inventory	(2,000)	
Cost of goods sold		4,000
Gross profit		$6,000

Even under the periodic inventory system, however, inventory cost flow assumptions need to be made (specific identification, FIFO, weighted average) when purchase prices change over time, as in a period of inflation. Further, different inventory cost flow assumptions produce different cost of goods sold and ending inventory values, just as they did under the perpetual inventory system. These effects have been explained earlier in this chapter. *Under the periodic inventory system, cost of goods sold and ending inventory values are determined as if the sales for the period all take place at the end of the period.* These calculations were demonstrated in our earliest example in this chapter.

Our original example using units assumed there was no opening inventory at June 1, 2019 and that purchases were made as follows.

Date	*Purchase Transaction* *Number of units*	*Price per unit*
June 1	1	$ 1
5	1	2
7	1	3
21	1	4
28	1	5

When recorded in the general ledger T-account "Purchases" (an income statement account), these transactions would be recorded as follows:

Purchases		No. 570
Jun. 1	$1	
5	2	
7	3	
21	4	
28	5	

Sales of four units are all assumed to take place on June 30. Ending inventory would then be counted at the end of the day on June 30. One unit should be on hand. It would be valued as follows under the various inventory cost flow assumptions, as discussed in the first part of the chapter:

Specific identification	$4
FIFO	5
Weighted average	3

These values would be used to calculate cost of goods sold and gross profit on the income statement, as shown in Figure 6-18 below:

	Spec. ident.	*FIFO*	*Wtd. avg.*
Sales	$40	$40	$40
Cost of goods sold			
Opening inventory	-0-	-0-	-0-
Purchases	15	15	15
Goods available for sale	15	15	15
Less: Ending inventory	(4)	(5)	(3)
Cost of goods sold	11	10	12
Gross profit and net income	$29	$30	$28
Ending inventory (balance sheet)	$ 4	$ 5	$ 3

Figure 6-18 Effects of Different Cost Flow Assumptions: Periodic Inventory System

Note that these results are the same as those calculated using the perpetual inventory system and assuming all sales take place on June 30 using specific identification (Figure 6-2), FIFO (Figure 6-3), and weighted average (Figure 6-5) cost flow assumptions, respectively.

As discussed in the appendix to Chapter 5, the ending inventory amount will be recorded in the accounting records when the income statement accounts are closed to the Income Summary general ledger account at the end of the year. The amount of the closing entry for ending inventory is obtained from the income statement.

Using the example above and assuming no other revenue or expense items, the closing entries to adjust ending inventory to actual under the each inventory cost flow assumption would be as follows.

Entry 1

			Spec. Ident.		*FIFO*		*Wtd. Avg.*	
Dec. 31	Merchandise Inventory (ending)	150	4		5		3	
	Sales	500	40		40		40	
	Income Summary	360		44		45		43
	To close all income statement accounts with credit balances to the Income Summary and record the ending inventory balance.							

Summary of Chapter 6 Learning Objectives

LO1 – Calculate cost of goods sold and merchandise inventory under specific identification, first-in first-out (FIFO), last-in first-out (LIFO) and weighted average cost flow assumptions, using the perpetual inventory system.

Cost of goods available for sale must be allocated between cost of goods sold and ending inventory using a cost flow assumption. Specific identification allocates cost to units sold by using the actual cost of the specific unit sold. FIFO (first-in first-out) allocates cost to units sold by assuming the units sold were the oldest units in inventory. LIFO (last-in first-out) allocates cost to units sold by assuming the units sold were the latest units in inventory. Weighted average allocates cost to units sold by calculating a weighted average cost per unit at the time of sale.

LO2 – Explain the impact on financial statements of inventory cost flow assumptions and errors.

As costs of each unit of inventory purchased change, particular inventory methods will assign different cost of goods sold and ending inventory to the financial statements. Specific identification achieves the exact matching of revenues and costs while weighted average smooths out price changes. The use of FIFO results in a more current cost of inventory appearing on the balance sheet as ending inventory. The use of LIFO results in the more current costs appearing on the income statement as cost of goods sold. The cost flow method in use must be disclosed in the notes to the financial statements and be applied consistently from period to period. An error in ending inventory in one period impacts the balance sheet (inventory and stockholders' equity) and the income statement (COGS and net income) for that accounting period and the next. However, inventory errors in one period reverse themselves in the next.

LO3 – Explain and calculate lower of cost and net realizable value inventory adjustments.

Inventory must be evaluated, at minimum, each accounting period to determine whether the net realizable value (NRV) is lower than cost, known as the lower of cost and net realizable value (LCNRV) of inventory. An adjustment is made if the NRV is lower than cost. LCNRV can be applied to groups of similar items or by item.

LO4 – Estimate merchandise inventory using the gross profit method and the retail inventory system.

Estimating inventory using the gross profit method requires that estimated cost of goods sold be calculated by, first, multiplying net sales by the gross profit ratio. Estimated ending inventory at cost is then arrived at by taking goods available for sale at cost less the estimated cost of goods sold. To apply the retail inventory method, three calculations are required:

- retail value of goods available for sale less retail value of net sales equals retail value of ending inventory,
- goods available for sale at cost divided by retail value of goods available for sale equals cost to retail ratio, and
- retail value of ending inventory multiplied by the cost to retail ratio equals estimated cost of ending inventory.

LO5 – (Appendix) Calculate cost of goods sold and merchandise inventory under specific identification, first-in first-out (FIFO), and weighted average cost flow assumptions, using the periodic inventory system.

Periodic systems assign cost of goods available for sale to cost of goods sold and ending inventory at the end of the accounting period. Specific identification and FIFO give identical results in each of periodic and perpetual. The weighted average cost, periodic, will differ from its perpetual counterpart because in periodic, the average cost per unit is calculated at the end of the accounting period based on total goods that were available for sale.

A S S I G N M E N T   M A T E R I A L S

Concept Self-check

1. What four inventory cost flow assumptions can be used in perpetual inventory systems?
2. What impact does the use of different inventory cost flow assumptions have on financial statements?
3. How do rising costs affect ending inventory and cost of goods sold values using FIFO, LIFO, and weighted average cost flow assumptions?
4. Assume that you are the president of your company and paid a year-end bonus according to the amount of net income earned during the year. When prices are rising, would you choose a FIFO, LIFO, or weighted average cost flow assumption? Explain, using an example to support your answer. Would your choice be the same if prices were falling?
5. The ending inventory of CBCA Inc. is overstated by $5,000 at December 31, 2019. What is the effect on 2019 net income? What is the effect on 2020 net income assuming that no other inventory errors have occurred during 2020?
6. What is meant by the laid-down cost of inventory?
7. When should inventory be valued at less than cost? What does the term *net realizable value* mean?
8. What is the primary reason for using the LCNRV method of inventory valuation?
9. Why is estimating inventory useful?
10. How does the estimation of ending inventory differ between the gross profit method and the retail inventory method? Use examples to illustrate.
11. When is the gross profit method particularly useful?
12. Does the retail inventory method assume any particular inventory cost flow assumption?
13. (Appendix) Contrast the journal entries required under the periodic and perpetual inventory systems.

Comprehension Problems

CP 6-1

Laplante Inc. uses the perpetual inventory system. The following transactions took place during January 2019

Date		*Units*	*Unit Cost*
Jan. 1	Opening Inventory	100	$1
7	Purchase #1	10	2
9	Sale #1	80	
21	Purchase #2	20	3
24	Sale #2	40	

Required: Using the table below, calculate cost of goods sold for the January 9 and 24 sales, and ending inventory under the following inventory cost flow assumptions:

1. FIFO
2. LIFO
2. Weighted average.

	Purchased			*Sold*			*Balance in Inventory*		
Date	*Units*	*Unit Cost*	*Total $*	*Units*	*Unit Cost*	*Total $*	*Units*	*Unit Cost*	*Total $*
Jan. 1							100	$1	$100
7									
9									
21									
24									

CP 6-2

ABBA uses the perpetual inventory system. The following transactions took place in January 2019.

Date		*Units*	*Unit Selling Price/ Cost*
Jan. 1	Opening Inventory	2,000	$0.50
5	Sale #1	1,200	5.00
6	Purchase #1	1,000	2.00
10	Purchase #2	500	1.00
16	Sale #2	2,000	6.00
21	Purchase #3	1,000	2.50

Assume all sales are made on account.

Required:

1. Assume ABBA uses the FIFO inventory cost flow assumption
   a. Record the journal entry for the January 5 sale. Show calculations for cost of goods sold.
   b. Record the journal entry for the January 16 sale. Show calculations for cost of goods sold.
   c. Calculate ending inventory in units, cost per unit, and total cost.
2. Assume ABBA uses the LIFO inventory cost flow assumption
   a. Record the journal entry for the January 5 sale. Show calculations for cost of goods sold.
   b. Record the journal entry for the January 16 sale. Show calculations for cost of goods sold.
   c. Calculate ending inventory in units, cost per unit, and total cost.
3. Assume ABBA uses the weighted average inventory cost flow assumption
   a. Record the journal entry for the January 5 sale. Show calculations for cost of goods sold.
   b. Record the journal entry for the January 16 sale. Show calculations for cost of goods sold.
   c. Calculate ending inventory in units, cost per unit, and total cost.

CP 6-3

The following information is taken from the records of East Oak Distributors Inc. The company uses the perpetual inventory system.

Date		*Units*	*Unit Cost*
May 1	Opening Inventory	100	$1
5	Sale #1	80	
6	Purchase #1	200	2
12	Purchase #2	125	3
13	Sale #2*	300	
19	Purchase #3	350	2
29	Purchase #4	150	1
30	Sale #3**	400	

*for specific identification, sold 175 units of purchase #1 and all units of purchase #2.

**for specific identification, sold 20 units of opening inventory, 300 units of purchase #3, and 80 units of purchase #4.

Required:

1. Calculate cost of goods sold and the cost of ending inventory under each of the following inventory cost flow assumptions:
   a. FIFO
   b. LIFO
   c. Specific identification
   d. Weighted average.
2. Assume each unit was sold for $5. Complete the following partial income statements :

	FIFO	*LIFO*	*Spec. Ident.*	*Wtd. Avg.*
Sales	$	$	$	$
Cost of goods sold	________	________	________	________
Gross profit	========	========	========	========

3. Which costing method would you choose if you wished to maximize net income? Maximize ending inventory value?

CP 6-4

Required: Choose the method of inventory valuation that corresponds to each of the statements that follow:

1. FIFO
2. LIFO
3. Weighted average.
4. Specific identification

___ Matches actual flow of goods with actual flow of costs in most cases
___ Matches old costs with new sales prices
___ Results in the lowest net income in periods of falling prices
___ Matches recent costs with new sales prices
___ Does not assume any particular flow of goods
___ Best suited for situations in which inventory consists of perishable goods
___ Values ending inventory at approximate replacement cost

CP 6-5

Listed below are four common accounting errors. Using the format shown, indicate the effect, if any, of each of the errors on the company's financial statements for the items shown. Assume the company uses the perpetual inventory system and that the ending inventory balance will be adjusted to the physical count at year-end.

	2019 Statements				2020 Statements			
Errors	*Opening invent.*	*Ending invent.*	*2019 Total assets*	*2019 Net income*	*Opening invent.*	*Ending invent.*	*2020 Total assets*	*2020 Net income*
1. Goods purchased in 2019 were included in December 31 inventory, but the transaction was not recorded until early 2020.	-0-							
2. Goods purchased in 2019 were included in December 31, 2019 inventory, and the transaction was recorded in 2019.	-0-							
3. Goods were purchased in 2019 and the transaction recorded in that year; however, the goods were not included in the December 31 inventory as they should have been.	-0-							
4. Goods purchased in 2019 were excluded from December 31 inventory, and the transaction was recorded early in 2020.	-0-							

Required: Use a + (plus sign) to denote that an item is too high as a *result* of the error, a – (minus sign) to denote that it is too low, and a -0- (zero) to indicate no effect. The answer for the 2019 opening inventory is shown.

CP 6-6

Partial income statements of Lilydale Products Inc. are reproduced below:

	2019	*2020*	*2021*
Sales	$30,000	$40,000	$50,000
Cost of Goods Sold	20,000	23,000	25,000
Gross Profit	$10,000	$17,000	$25,000

Required:

1. Calculate the impact of the two errors listed below on the gross profit calculated for the three years:
   a. The 2019 ending inventory was understated by $2,000.
   b. The 2021 ending inventory was overstated by $5,000.
2. What is the impact of these errors on total assets?

CP 6-7

Erndale Products Ltd. has the following items in inventory at year-end:

Item	*Units*	*Cost (FIFO)*	*NRV*
X	2	$ 50	$60
Y	3	150	75
Z	4	25	20

Required: Calculate the cost of ending inventory using LCNRV on

1. A unit-by-unit basis
2. A group inventory basis.

CP 6-8

Windy City Insurance Ltd. has received a fire-loss claim of $45,000 from Balton Corp. A fire destroyed Balton's inventory on May 25, 2019. Balton has an average gross profit of 33 1/3 per cent. You have obtained the following information:

Inventory, May 1, 2019	$ 80,000
Purchases, May 1 - May 25	150,000
Sales, May 1 - May 25	300,000

Required:
1. Calculate the estimated amount of inventory lost in the fire.
2. How reasonable is Balton's claim?

CP 6-9

The records of Renault Corporation showed that sales during the period were $276,000, Opening inventory amounted to $26,000 at cost, Purchases were $90,000 at cost. The company paid $4,000 for transportation-in. Mark-up on all items sold is 300%.

Required:
1. Calculate:
    a. Cost of goods available for sale at retail
    b. Cost of goods sold at retail
    c. Ending inventory at retail
    d. Ending inventory at cost
    e. Cost of goods sold at cost
    f. Gross profit at cost.
2. Demonstrate that your results maintain a 300% mark-up.

CP 6-10

Midlife Corp. is in the process of preparing its financial statements as at May 31, 2019. It has a consistent mark-up of 200% on goods it sells. The following information is available for the five months ended May 31:

Opening inventory	$ 10,000
Net purchases	140,000
Sales	250,000

Required: Estimate the cost of ending inventory at May 31.

CP 6-11 (Appendix)

On March 15, 2019, Sudden Sales Co. purchased $5,000 of merchandise for cash.

Required: Assuming that Sudden Sales uses the periodic inventory system, calculate the cost of goods sold in each of the following circumstances:

1. Opening inventory, -0-; ending inventory, $2,000
2. Opening inventory, $3,000; ending inventory, $4,000
3. Opening inventory, $1,000; ending inventory, $1,500
4. Opening inventory, $2,000; ending inventory, -0-.

CP 6-12 (Appendix)

Bouchard Inc. uses a periodic inventory system. The following transactions took place during January 2019. For specific identification purposes, items sold were:

100 units of opening inventory
30 units of purchase #3
30 units of purchase #4
40 units of purchase #5

	Units	*Unit Cost*
Opening inventory	100	$1
Purchase #1	10	1
Purchase #2	20	2
Purchase #3	30	3
Purchase #4	40	4
Purchase #5	50	5

The company sold 200 units during the month at $6 per unit.

Required: Using the income statement format shown below, calculate gross profit for each of:

1. FIFO
2. LIFO
3. Specific identification
4. Weighted average.

	FIFO		*LIFO*		*Spec. ident.*		Wtd. average	
Sales		$1,200		$1,200		$1,200		$1,200
Cost of goods sold								
Opening inventory								
Purchases								
Cost of goods available								
Less: Ending inventory								
Cost of goods sold								
Gross profit								

CP 6-13 (Appendix)

The following transactions took place in ABBA Limited in 2019.

Opening Inventory	2,000 units @ $0.50
Purchase #1	1,000 units @ $2.00
Purchase #2	500 units @ $1.00
Purchase #3	1,000 units @ $2.50
Sales	2,000 units

Assume a periodic inventory system is used. For specific identification purposes, items sold were:

800 units of opening inventory
200 units of purchase #2
1,000 units of purchase #3

Required: Calculate
1. Ending inventory under specific identification.
2. Ending inventory under FIFO.
3. Ending inventory under LIFO.
4. Ending inventory under weighted average.
5. Cost of goods sold under specific identification.
6. Cost of goods sold under FIFO.
7. Cost of goods sold under LIFO.
8. Cost of goods sold under weighted average.

CP 6-14 (Appendix)

The following information is taken from the records of West End Distributors Inc. The company uses the periodic inventory system.

			Units	*Unit cost*
May	1	Opening Inventory	100	$1
	6	Purchase #1	200	1
	12	Purchase #2	125	2
	19	Purchase #3	350	2
	29	Purchase #4	150	3

725 units were sold on May 31 for $5 each.

At May 31, 200 units remain unsold. For specific identification purposes, items on hand were:

100 units of purchase #1
100 units of purchase #4

Required:

1. Calculate the cost of ending inventory under each of the following costing methods:
   a. FIFO
   b. LIFO
   b. Specific identification
   c. Weighted average.
2. Complete the following partial income statements:

	FIFO		*LIFO*		*Spec. ident.*		Wtd. average	
Sales		$3,625		$3,625		$3,625		$3,625
Cost of goods sold								
Opening inventory								
Purchases								
Cost of goods available								
Less: Ending inventory								
Cost of goods sold								
Gross profit								

Problems

P 6-1

The following sales and purchases of the same product were made during 2019 at Yang Corporation. The opening inventory consisted of 50 units at $1 each.

Purchases				*Sales*		
		Units	$ per unit		Units	Total $
Apr. 15	Purch. #1	200	$2	Apr. 25	Sale #1*	$250
Oct. 15	Purch. #2	600	$5	Oct. 25	Sale #2**	$500

*for specific identification, sold 50 units of opening inventory and 200 units of purchase #1

**for specific identification, sold 500 units of purchase #2

Required:

1. Calculate cost of goods sold and the cost of ending inventory under each of FIFO, LIFO, specific identification, and weighted average inventory cost flow assumptions. Set up a table as follows:

	Purchased			*Sold*			*Balance in inventory*		
Date	*Units*	*Unit cost*	*Total $*	*Units*	*Unit cost*	*Total $*	*Units*	*Unit cost*	*Total $*
							50	$1	$50

2. Prepare calculations comparing the effect on gross profit of the four inventory cost flow assumptions.
3. The president wants to maximize the company's net income this year. What would you suggest that is in accordance with GAAP?

P 6-2

Palermo Inc. uses the perpetual inventory system. All sales are made on account. The following data are taken from the company's records for the year ended December 31, 2019:

Purchases				*Sales*			
		Units	*Unit cost*			*Units*	*Unit sell. price*
Jan. 1	Op. Inv.	25	$1				
Feb. 15	Purchase #1	15	$2	Feb. 28	Sale #1	30	$2
Mar. 14	Purchase #2	10	$3	Apr. 9	Sale #2	15	$4
Oct. 28	Purchase #3	35	$4	Dec. 21	Sale #3	50	$6
Dec. 4	Purchase #4	40	$5				

Required:

1. Show the journal entries to record the December 21 sale under a) FIFO; b) LIFO; and c) weighted average inventory cost flow assumptions.
2. Calculate the amount of gross profit for the year under each of the inventory cost flow assumptions. Which method matches cost of goods sold more closely with revenues? Why?
3. Given your answer to (2), what inventory cost flow assumption would be picked if management wanted to minimize income taxes?

P 6-3

Southern Cross Company Limited made the following purchases and sales of Products A and B during the year ended December 31, 2019:

Product A

		Units	*Unit cost/ selling price*
Jan. 07	Purchase #1	8,000	$12.00
Mar. 30	Sale #1	9,000	16.00
May 10	Purchase #2	12,000	12.10
Jul. 04	Sale #2	14,000	17.00

Product B

		Units	Unit cost/ selling price
Jan. 13	Purchase #1	5,000	$13.81
Jul. 15	Sale #1	1,000	20.00
Oct. 23	Purchase #2	7,000	14.21
Dec. 14	Sale #2	8,000	21.00

Opening inventory at January 1 amounted to 4,000 units at $11.90 per unit for Product A and 2,000 units at $13.26 per unit for Product B.

Required:

1. Prepare inventory record cards for Products A and B for the year using the weighted average inventory cost flow assumption.
2. Calculate total cost of ending inventory at December 31, 2019.
3. Assume now that Southern Cross keeps over 1,000 types of inventory on hand. Why might staff prefer to use computerized accounting software if a perpetual inventory system is used?
4. (Appendix) What recommendations might you make to the president of Southern Cross regarding the use of the perpetual inventory system if only Products A and B are sold?

P 6-4

Northgate Products Corp. sells gadgets and uses the perpetual inventory system. During the month of January 2019, the number of gadgets purchased and sold was as follows:

	Purchased			*Sold*			*Balance in inventory*		
Date	*Units*	*Unit cost*	*Total $*	*Units*	*Unit cost*	*Total $*	*Units*	*Unit cost*	*Total $*
Jan. 1							100	$1	
3	100	$1							
8	200	$2							
10				200*					
15	300	$3							
20				400**					
27	400	$1							

Assume the January 10 units were sold on account for $3 each, and the January 20 units were sold on account for $5 each.

*for specific identification, sold 50 units of opening inventory and 150 units of purchase #2

**for specific identification, sold 100 units of purchase #1 and 300 units from purchase #3

Required:

1. Complete the inventory record card, and calculate cost of goods sold and the cost of ending inventory under each of the following inventory cost flow assumptions:
   a. FIFO
   b. LIFO
   c. Specific identification
   d. Weighted average.
2. Prepare the journal entries required to record purchases and sales using the FIFO inventory cost flow assumption.
3. Calculate the sum of cost of goods sold and ending inventory balances under each inventory method. Explain the results.

P 6-5

Partial income statements of Schneider Products Inc. are reproduced below:

	2019	*2020*
Sales	$50,000	$50,000
Cost of goods sold	20,000	23,000
Gross profit	$30,000	$27,000

The 2019 ending inventory was overstated by $2,000 during the physical count. The 2020 physical inventory count was done properly.

Required:

1. Calculate the impact of this error on the gross profit calculated for 2019 and 2020.
2. What is the impact of this error on total assets at the end of 2019 and 2020? Net assets?

P 6-6

The year-end inventory of Goodall Inc. consisted of the following similar groups of items, priced at cost and at net realizable value:

Item	*Cost*	*NRV*
A	$60	$63
B	40	40
C	80	78
D	50	42

Required: Calculate ending inventory based on:

1. Cost
2. LCNRV (unit basis)
3. LCNRV (group basis).

P 6-7

Reflex Corporation sells three products. The inventory valuation of these products is shown below for years 2019 and 2020.

	2019			*2020*		
	Cost	*Market*	*Unit basis (LCNRV)*	*Cost*	*Market*	*Unit basis (LCNRV)*
Product X	$14,000	$15,000	?	$15,000	$16,000	?
Product Y	12,500	12,000	?	12,000	11,500	?
Product Z	11,000	11,500	?	10,500	10,000	?
Total	?	?	?	?	?	?

The partial comparative income statements for the two years follow:

	2019		*2020*	
Sales		$1,500		$1,500
Cost of goods sold				
Opening inventory				
Purchases				
Cost of goods available				
Ending inventory				
Cost of goods sold				
Gross profit				

Required:

1. If Reflex values its inventory using LCNRV/unit basis, complete the 2019 and 2020 cost, net realizable value, and LCNRV calculations.
2. Complete the partial income statements for 2019 using cost, LCNRV/unit basis, and LCNRV/group basis to calculate ending inventory and cost of goods sold.
3. Complete the partial income statements for 2020 using cost, LCNRV/unit basis, and LCNRV/group basis to calculate ending inventory and cost of goods sold.
4. Which inventory valuation would yield the same gross profits for 2019 and 2020?
   a. Cost and LCNRV/unit basis
   b. Cost and LCNRV/group basis
   c. Cost basis.
5. Which methods yield the maximum combined profits for both years?

P 6-8

The gross profit of Bellevue Widget Company Ltd. has consistently averaged 39%. The company's records were recently destroyed by fire. The following data are available:

Sales	$305
Purchases	175
Opening inventory	25
Sales returns and allowances	5
Purchases returns and allowances	5
Delivery expenses	8
Transportation-in	3
Truck operating expenses	3
Selling commissions expense	6
Administrative expenses	3

Required: Calculate the estimated ending inventory.

P 6-9

The president of Luna Sea Corporation is concerned that the year-end inventory at cost of $5,000 at year-end is less than expected, even though a physical count was made and the cost was accurately calculated using FIFO. The president asks you to estimate the year-end inventory using the following information for the year:

	At retail	*At cost*
Sales	$160,000	
Sales returns and allowances	10,000	
Purchases	164,000	$80,000
Purchases returns and allowances	4,000	2,000
Transportation-in		1,000
Opening inventory	20,000	11,000

Required:

1. Calculate the estimated ending inventory at cost using the retail inventory method. Assume mark-up is 200%.
2. Calculate the amount of inventory discrepancy at cost.
3. Why might this discrepancy occur?
4. What changes to the inventory system might you suggest to the president?

P 6-10 (Appendix)

Zebra Corporation uses specific identification to cost inventory. During the first three years of operation ended December 31, 2019, the year-end inventory, computed by different methods for comparative purposes, was as follows:

	Ending inventory		
	2019	*2020*	*2021*
Spec. ident.	$360	$400	$320
FIFO	300	320	280
LIFO	380	440	320
Weighted average	340	420	300

Opening inventory on January 1, 2019 was zero. Sales and purchases for the three years were as follows:

	2019	*2020*	*2021*
Sales	$1,000	$1,200	$1,150
Purchases	$1,280	$1,100	$1,010

There were no other expenses or revenues.

Required: Using the format of the table below, determine net income under each method. Show calculations. Partial results using specific identification are shown.

	2019	*2020*	*2021*
Sales	$1,000	$1,200	$1,150
Cost of goods sold			
Opening inventory	-0-	?	?
Purchases	1,280	?	?
Less: Ending inventory	(360)	?	?
Cost of goods sold	920	?	?
Gross profit/net income	$ 80	$ 140	$ 60

P 6-11 (Appendix)

The opening inventory of Tan Corporation at January 1, 2019 consisted of 50 units at $1 each. The company uses the periodic inventory system. The following purchases were made during 2019.

		Units	*Unit Cost*
Apr.	15	200	$2
May	25	200	$3
June	7	200	$4
Oct.	15	200	$5

Required:

1. Calculate the number of units available for sale. Then calculate the dollar amount of cost of goods available for sale at December 31, 2019. Set up a column for each of FIFO, LIFO, specific identification, and weighted average inventory cost flow assumptions as follows:

	Units	*FIFO*	*LIFO*	*Spec. ident.*	*Wtd. avg.*
Opening inventory					
Purchases					
Cost of goods available					

2. If there are 200 units on hand at December 31, 2019, calculate the cost of ending inventory under each of FIFO, LIFO, specific identification, and weighted average inventory cost flow assumptions. For specific identification purposes, items sold were:
   50 units of the April 15 purchases

200 units of the May 25 purchases
200 units of the June 7 purchases
200 units of the October 15 purchases

3. Calculate the cost of goods sold under each of FIFO, LIFO, specific identification, and weighted average inventory cost flow assumptions. Set up a table as follows:

	Units	*FIFO*	*LIFO*	*Spec. ident.*	*Wtd. avg.*
Cost of goods available					
Ending inventory	______	______	______	______	______
Cost of goods sold	______	______	______	______	______

4. Based on the calculations in (3), the president of Tan Corporation has asked you to prepare some calculations comparing the effect on income of
   a. Using a weighted average cost flow method instead of specific identification;
   b. Using a FIFO cost flow method instead of LIFO.
5. What method of cost flow would you recommend in this case? Why?

P 6-12 (Appendix)

Western Produce Inc. uses the periodic inventory system. The following data are taken from the records of the company for the month of January 2019.

Goods available for sale			*Sales*		
	Units	*Unit cost*		*Units*	*Unit sell. price*
Opening Inventory	25	$5			
Purchase #1	15	$4	Sale #1	30	$6
Purchase #2	10	$3	Sale #2	20	$4
Purchase #3	35	$2	Sale #3	50	$2
Purchase #4	40	$1			

Required:

1. Calculate the amount of inventory at the end of January assuming that inventory cost is calculated using FIFO.

2. How would the ending inventory differ if the weighted average cost method is used?
3. Calculate the amount of gross profit under each of the above costing methods. Which method matches inventory costs more closely with revenues? Why?
4. Would more income tax be payable under the FIFO or weighted average method in a period of rising prices? Explain.

P 6-13 (Appendix)

Southern Cross Company Limited made the following purchases during the year:

Jan.	7	8,000 units	@ $12.00	=	$	96,000
Mar.	30	9,000 units	@ $12.40	=	$	111,600
May	10	12,000 units	@ $12.00	=	$	144,000
Jul.	4	16,000 units	@ $12.60	=	$	201,600
Sept.	2	6,000 units	@ $12.80	=	$	76,800
Dec.	14	7,000 units	@ $12.70	=	$	88,900

Opening inventory at January 1 amounted to 4,000 units at $11.90 per unit. Closing inventory at December 31 amounted to 15,000 units. For specific identification purposes, this consisted of 4,000 units of opening inventory, 8,000 units of the January 7 purchase, and 3,000 units of the March 30 purchase. Selling price during the year was stable at $16 per unit.

Required:

1. Prepare a schedule of inventory as at December 31 based on FIFO, LIFO, specific identification, and weighted average inventory cost flow assumptions. Assume a periodic inventory system is used.
2. Prepare an income statement showing sales, cost of goods sold, and gross profit based on each of the assumptions.
3. Which method of inventory valuation matches revenues more closely with costs in this company under current conditions? Why?

P 6-14 (Appendix)

The president of Exeter Services Ltd. has asked you to forecast the effect of rising and falling prices on income when FIFO and weighted average costing methods are used. Assume the following inventory data:

Opening inventory	100 units at $10 = $1,000
Purchases	500 units
Ending inventory	250 units

Partially completed income statements are as follows:

	Rising prices				*Falling prices*			
		FIFO		*Wtd. avg.*		*FIFO*		*Wtd. avg.*
Sales		$5,000		$5,000		$5,000		$5,000
Cost of goods sold								
Opening inventory	$1,000							
Purchases	6,000							
Cost of goods avail.	7,000		?		?		?	
Ending inventory*	3,000							
Cost of goods sold		4,000		?		?		?
Gross profit		$1,000		$?		$?		$?

* 250 units at $12 = $3,000.

Required:

1. Complete the income statement assuming the weighted average costing method and assuming purchases are $12 per unit. (*Hint:* you need to recalculate the ending inventory cost.)
2. Complete the income statement assuming the FIFO costing method and assuming purchases are $8 per unit.
3. Complete the income statement assuming the weighted average costing method and assuming purchases are $8 per unit. (Note that this changes cost of purchases and ending inventory cost.)
4. Assume that income tax expense is calculated at 50 per cent of income before income taxes. Which costing method would be most tax-advantageous from the company's point of view when prices are rising? When prices are falling?

CHAPTER SEVEN

Cash and Receivables

This chapter focuses on two types of current assets – cash and receivables. Internal control over cash involves processes and procedures that include the use of a petty cash fund and the preparation of a bank reconciliation. Receivables may be uncollectible. To match the cost of uncollectible accounts and the related revenue, bad debts must be estimated using either the income statement method or balance sheet method. Actual account receivables are written off when judged to be uncollectible. Write-offs can be subsequently recovered. The journalizing of short-term notes receivable and related interest revenue is also discussed in this chapter.

Chapter 7 Learning Objectives

LO1 – Define internal control and explain how it is applied to cash.

LO2 – Explain and journalize petty cash transactions.

LO3 – Explain the purpose of and prepare a bank reconciliation, and record related adjustments.

LO4 – Explain, calculate, and record estimated uncollectible accounts receivable and subsequent write-offs and recoveries.

LO5 – Explain and record short-term notes receivable and calculate related interest.

A. Internal Control

LO1 – Define internal control and explain how it is applied to cash.

Assets are the lifeblood of a company. As such, they must be protected. This duty falls to managers of a company. The policies and procedures implemented by management to protect assets are collectively referred to as *internal controls.* An effective internal control program not only protects assets, but also aids in accurate recordkeeping, produces financial statement information in a timely manner, ensures compliance with laws and regulations, and promotes efficient operations. Effective internal control procedures ensure that adequate records are maintained, transactions are authorized, duties among employees are divided between recordkeeping functions and control of assets, and employees' work is checked by others. The use of electronic recordkeeping systems does not decrease the need for good internal controls.

The effectiveness of internal controls is limited by human error and fraud. Human error can occur because of negligence or mistakes. Fraud is the intentional decision to circumvent internal control systems for personal gain. Sometimes, employees cooperate in order to avoid internal controls. This *collusion* is often difficult to detect, but fortunately, it is not a common occurrence when adequate controls are in place.

Internal controls take many forms. Some are broadly based, like mandatory employee drug testing, video surveillance, and scrutiny of company email systems. Others are specific to a particular type of asset or process. For instance, internal controls need to be applied to a company's accounting system to ensure that transactions are processed efficiently and correctly to produce reliable records in a timely manner. Procedures should be documented to promote good recordkeeping, and employees need to be trained in the application of internal control procedures.

Financial statements prepared according to generally accepted accounting principles are useful not only to external users in evaluating the financial performance and financial position of the company, but also for internal decision making. There are various internal control mechanisms that aid in the production of timely and useful financial information. For instance, using a chart of accounts is necessary to ensure transactions are consistently recorded in the appropriate account.

The design of accounting records and documents is another important means to provide financial information. Financial data is entered and summarized in records and transmitted by documents. A good system of internal control requires that these records and documents be prepared at the time a transaction takes place or as soon as possible afterward, since they become less credible and the possibility of error increases as time passes. Documents supporting financial transactions – for example, sales invoices – should also be consecutively pre-numbered, to indicate whether any are missing.

Internal control also promotes the protection of assets. Cash is particularly vulnerable to misuse. A good system of internal control for cash should provide adequate procedures for protecting cash receipts and cash disbursements. Procedures to exercize control over cash vary from company to company and depend upon such variables as company size, number of employees, and cash sources. However, effective cash control generally requires the following:

- Separation of duties: People responsible for handling cash should not be responsible for maintaining cash records. By separating the custodial and record-keeping duties, theft of cash and its concealment is less likely.
- Same-day deposits: All cash receipts should be deposited daily in the company's bank account. This prevents theft and personal use of the money before deposit.
- Payments made using non-cash means: Checks or electronic funds transfer (EFT) provide separate external records to verify cash disbursements. For example, many businesses pay their employees using electronic funds transfer because it is more secure and efficient than using cash or even checks.

Two forms of internal control over cash will be discussed in this chapter: the use of a petty cash account and the preparation of bank reconciliations.

B. Petty Cash

LO2 – Explain and journalize petty cash transactions.

The payment of small amounts by check may be inconvenient and costly. For example, using cash to pay for postage on an incoming package might be less than the total cost of processing a check. A small amount of cash kept on hand to pay for small, infrequent expenses is referred to as a **petty cash fund**.

Establishing and Reimbursing the Petty Cash Fund

To set up the petty cash fund, a check is prepared for the amount of the fund. The custodian of the fund cashes the check and places the coins and currency in a locked box. Responsibility for the petty cash fund should be delegated to only one person, who should be held accountable for its contents. Cash payments, supported by receipts, are made by this petty cash custodian out of the fund as required. When the amount of cash has been reduced to a pre-determined level, the receipts are compiled and submitted for entry into the accounting system. A check is then issued to reimburse the petty cash fund for the total amount of the receipts. At any given time, the petty cash amount should consist of cash and supporting receipts, all totaling the petty cash fund amount. To demonstrate the management of a petty cash fund, assume that a $200 check is issued for the purpose of establishing a petty cash fund.

The journal entry is:

Petty Cash	100	200	
Cash	101		200
To establish the $200 petty cash fund.			

Petty Cash is a current asset account. When reporting Cash on the financial statements, the balances in Petty Cash and Cash are usually added together and reported as one amount.

Assume the petty cash custodian has receipts totaling $190 and $10 in coin and currency remaining in the petty cash box. The receipts consist of the following: delivery charges, $100; postage, $35; and office supplies, $55. The petty cash custodian submits the receipts to the accountant who records the following entry and issues a check for $190.

Delivery Expense	620	100	
Postage Expense	652	35	
Office Supplies Expense[1]	650	55	
Cash	101		190
To reimburse the petty cash fund.			

[1] An expense is debited instead of an asset like Unused Office Supplies. The need to purchase supplies through petty cash assumes the immediate use of the items.

As an added internal control, petty cash receipts should be cancelled at the time of reimbursement in order to prevent their reuse for duplicate reimbursements. The petty cash custodian cashes the $190 check. The $190 plus the $10 of coin and currency in the locked box immediately prior to reimbursement equals the $200 total maintained in the petty cash fund.

Sometimes, the receipts plus the coin and currency in the petty cash locked box do not equal the required petty cash balance. To demonstrate, assume the same information above except that the coin and currency remaining in the petty cash locked box was $8. This amount plus the receipts for $190 equals $198 and not $200, indicating a shortage in the petty cash box. The entry at the time of reimbursement reflects the shortage and is recorded as:

Delivery Expense	620	100	
Postage Expense	652	35	
Office Supplies Expense	650	55	
Cash Over/Short Expense	614	2	
Cash	101		192

To reimburse the petty cash fund and account for the $2 shortage.

Notice that the $192 credit to Cash plus the $8 of coin and currency remaining in the petty cash box immediately prior to reimbursement equals the $200 required total in the petty cash fund.

Assume, instead, that the coin and currency in the petty cash locked box was $14. This amount plus the receipts for $190 equals $204 and not $200, indicating an overage in the petty cash box. The entry at the time of reimbursement reflects the overage and is recorded as:

Delivery Expense	650	100	
Postage Expense	652	35	
Office Supplies Expense	650	55	
Cash Over/Short Exp.	614		4
Cash	101		186

To reimburse the petty cash fund and account for the $4 overage.

Again, notice that the $186 credit to Cash plus the $14 of coin and currency remaining in the petty cash box immediately prior to reimbursement equals the $200 required total in the petty cash fund.

The size of the petty cash fund should not be large enough to become a potential theft issue. If a petty cash fund is too large, it may be an indicator that transactions that should be paid by check are not being processed in accordance with company policy.

C. Cash Collections and Payments

LO3 – Explain the purpose of and prepare a bank reconciliation, and record related adjustments.

The widespread use of banks facilitates cash transactions between entities and provides a safeguard for the cash assets being exchanged. This involvement of banks as intermediaries between entities has accounting implications. At any point in time, the cash balance in the accounting records of a particular company usually differs from the bank cash balance of that company. Differences occur because some cash transactions recorded in the accounting records have not yet been recorded by the bank and, conversely, some cash transactions recorded by the bank have not yet been recorded in the company's accounting records.

The use of a **bank reconciliation** is one method of internal control over cash. A bank reconciliation proves the accuracy of both the company's and the bank's records, and reveals any errors made by either party. The bank reconciliation is a tool that can help detect attempts at theft and manipulation of records. An example of a bank reconciliation for Big Dog Carworks Corp. is shown in Figure 7-1:

Big Dog Carworks Corp.
Bank Reconciliation
At March 31, 2019

This balance is taken from the company's general ledger Cash account.

This balance is taken from the company's bank statement at March 31.

Unreconciled general ledger Cash balance at March 31	$20,673	Unreconciled bank statement balance Mar. 31			$24,927
Adjustments	-0-	Less: Outstanding checks			
		Check No.	*Amount*		
		580	$4,051		
		599	196		
		600	7		
					(4,254)
Adjusted general ledger Cash balance at Mar. 31	$20,673	Adjusted bank balance at Mar. 31			$20,673

These checks have been issued by the company, but have not yet cleared the bank. They are called "reconciling items".

These balances must agree.

Figure 7-1 Big Dog's Bank Reconciliation at March 31, 2019

The bank reconciliation provides a simple method to show why the **bank statement** issued by the company's bank and the Cash balance in a company's general ledger differ on a given date like a month-end, and whether these differences are acceptable. In the example above, the difference ($20,673 versus $24,927) occurs because there are three checks that have been recorded in BDCC's general ledger Cash account totaling $4,254 that have not yet been presented and accepted for payment (or been *cleared*) by the bank. Checks that are recorded in the company's general ledger but are not paid out of its bank account when the bank statement is prepared are referred to as **outstanding checks**. Outstanding checks cause the bank statement balance to be overstated compared to the company's records. These checks must be subtracted from the bank balance on the bank reconciliation so that the Cash general ledger account and bank statement balances agree.

These outstanding checks will likely be cashed by the bank a few days after the month end and will appear on the next month's bank statement. As a result, these differences are reasonable, occurring only because of slight timing differences between transactions being recorded in the general ledger and on the bank statement.

The steps needed to prepare a bank reconciliation are discussed below.

The Bank Reconciliation

Discrepancies between the cash balance reported on the bank statement and the cash balance reported in a business's Cash account in the general ledger at a particular date are known as **reconciling items** and are added or subtracted to either the general ledger Cash balance or the amount of cash shown at the end of the period on the bank statement. The cash balance prior to reconciliation is called the unreconciled cash balance. The balance after adding and subtracting the reconciling items is called the reconciled, or adjusted, cash balance. The following is a list of potential reconciling items and their impact on the bank reconciliation.

General ledger reconciling items
- Collection of notes receivable (added)
- NSF checks (subtracted)
- Bank charges (subtracted)
- Book errors (added or subtracted, depending on the nature of the error)

Bank reconciling items
- Outstanding deposits (added)
- Outstanding checks (subtracted)
- Bank errors (added or subtracted, depending on the nature of the error)

General Ledger Reconciling Items

The collection of notes receivable[2] may be made by a bank on behalf of the company. These collections are often unknown to the company until they appear as an addition on the bank statement. They cause the general ledger Cash account to be understated. As a result, the collection of a notes receivable is added to the unreconciled general ledger Cash balance on the bank reconciliation.

Checks returned to the bank because there were not sufficient funds (NSF) in a customer's bank account to cover them appear on the bank statement as a reduction of cash. The company must then request that the customer pay the amount again. As a result, the general ledger Cash account is overstated by the amount of the NSF check. NSF checks must be subtracted from the unreconciled general ledger Cash balance of cash on the bank reconciliation.

Checks received by a company and deposited into its bank account may be returned by the customer's bank for a number of other reasons (for example, the check was "stale-dated" – issued too long ago; was unsigned or illegible; or shows the wrong account number). Returned checks cause the general ledger Cash account to be overstated compared to the bank statement. These returned checks must be deducted from the unreconciled general ledger Cash balance on the bank reconciliation.

Bank service charges are also deducted from the customer's bank account. Since the service charges have not yet been recorded by the company, the general ledger Cash account is overstated. Therefore, service charges are subtracted from the unreconciled general ledger Cash balance on the bank reconciliation.

A business may incorrectly record journal entries involving cash. For instance, a deposit or check may be recorded for the wrong amount in the company records. These errors are often detected when amounts recorded by the company are compared to the bank statement. Depending on the nature of the error, it will be either added to or subtracted from the unreconciled general ledger Cash balance on the bank reconciliation. For example, if the company issued a check for $250 but recorded it in the records as $520, the $270 difference would

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[2] A note receivable is a formalized document arising from an account receivable transaction. It specifies the terms of repayment of the amount owing to the company by a customer, as well as any interest that will be paid.

be added to the unreconciled general ledger Cash balance of Cash on the bank reconciliation to correct the error, because the general ledger Cash balance is too low. As another example, if the company recorded a deposit as $520 when the correct amount of the deposit was $250, the $270 difference would be subtracted from the unreconciled general ledger Cash balance on the bank reconciliation to correct the error because the general ledger Cash balance is too high. Each error must be analyzed to determine whether it will be added to or subtracted from the unreconciled general ledger Cash balance on the bank reconciliation.

Bank Reconciling Items

Cash receipts are recorded as an increase of cash in the company's accounting records when they are received. These cash receipts are deposited by the company into its bank. The bank records an increase in cash only when these amounts are actually deposited with the bank. Not all cash receipts recorded by the company may have been recorded by the bank when the bank statement is prepared. There may be outstanding deposits (also called *deposits in transit*). Outstanding deposits cause the bank statement cash balance to be understated. Therefore, outstanding deposits are a reconciling item that must be added to the unreconciled bank balance on the bank reconciliation.

On the date that a check is prepared by a company, it is recorded as a reduction of cash in a company's general ledger. A bank statement will not record a cash reduction until a check clears the bank. Outstanding checks mean that the bank statement balance is overstated. Therefore, outstanding checks are a reconciling item that must be subtracted from the unreconciled bank balance on the bank reconciliation as shown in Figure 7-1 above.

Bank errors sometimes occur and are not revealed until the transactions on the bank statement are compared to the company's accounting records. When an error is identified, the company notifies the bank to have it corrected. Depending on the nature of the error, it is either added to or subtracted from the unreconciled bank balance on the bank reconciliation. For example, if the bank cleared a check as $520 that was correctly written for $250, the $270 difference would be added to the unreconciled bank balance on the bank reconciliation. The cash balance reported on the bank statement is understated by $270 as a result of this error. As another example, if the bank recorded a deposit as $520 when the correct amount was actually $250, the $270 difference would be subtracted from the unreconciled bank balance on the bank reconciliation. The cash balance reported on the bank statement is overstated by $270 as a result of this specific error. Each error must be carefully analyzed to determine how it will be treated on the bank reconciliation.

Illustrative Problem—Bank Reconciliation

Now, a bank reconciliation will be prepared for BDCC for the next month-end, April 30. The general ledger Cash account shows an opening balance of $20,673 at April 1 (note that this is the amount that is shown in Figure 7-1 as the March 31 ending Cash balance. Assume cash receipts (debits) amount to $9,482 in April and that cash disbursements (credits) amount to $8,226. The ending balance general ledger Cash balance at April 30 is $21,929. The general ledger for April is shown in Figure 7-2.

The opening balance agrees to the March 31 general ledger balance shown on the bank reconciliation in Fig. 7-1

GENERAL LEDGER

Cash — Acct. No. 101

Date 2019		Description	PR	Debit	Credit		Balance
Mar.	31	Balance				DR	20,673
Apr.	30	April cash receipts	CRJ6	9,482		DR	30,155
	30	April cash payments	CDJ18		8,226	DR	21,929

The ending balance is used as the unreconciled general ledger balance on the April 30 bank reconciliation.

Figure 7-2 Big Dog's General Ledger 'Cash' Account for April 30, 2019

Assume further that April deposits made and checks issued are as follows:

Deposits		*Checks*	
Date	*Amount*	*No.*	*Amount*
April 5	$1,570	601	$ 24
10	390	602	1,720
23	5,000	603	230
28	1,522	604	200
30	1,000	605	2,220
		606	287
		607	1,364
		608	100
		609	40
		610	1,520
		611	124
		612	397
Total	$9,482	Total	$8,226

These totals agree to the Cash general ledger account debits and credits in Figure 7-2.

The bank statement issued by BDCC's bank is as follows:

Second Chartered Bank Big Dog Carworks Corp. Bank Statement Month Ended April 30, 2019				
Date	*Type*	*Out*	*In*	*Balance*
Apr. 1				$24,927
2	Deposit		1,570	26,497
3	Ck. 580	(4,051)		22,446
4	Deposit		390	22,836
6	Ck. 599	(196)		22,640
7	Ck. 601	(24)		22,616
9	Ck. 603	(230)		22,386
11	Ck. 604	(200)		22,186
16	Ck. 611	(124)		22,062
17	Ck. 612	(397)		21,665
18	Ck. 600	(7)		21,658
19	Deposit		5,000	26,658
21	Ck. 605	(2,220)		24,438
22	NSF	(180)		24,258
24	Deposit		1,522	25,780
26	Ck. 602	(1,720)		24,060
28	Ck. 115	(31)		24,029
30	SC	(6)		24,023
Ck. = check SC = service charge NSF = not sufficient funds				

The opening balance agrees to the March 31 bank statement balance shown in Fig. 7-1

The ending balance is used as the unreconciled bank statement balance on the April 30 bank reconciliation.

Figure 7-3 Big Dog's Bank Statement for the month of April, 2019

There are nine steps to follow in preparing a bank reconciliation:

Step 1

a. List the unreconciled April 30 general ledger cash balance ($21,929 from Figure 7-2) on the left side of the bank reconciliation, similar to that shown in Figure 7-1.
b. List the ending cash balance on the bank statement ($24,023 from Figure 7-3) on the right side of the bank reconciliation, similar to that shown in Figure 7-1.

The bank reconciliation should show:

Big Dog Carworks Corp. Bank Reconciliation At April 30, 2019			
Unreconciled general ledger Cash balance at Apr. 30	$21,929	Unreconciled bank statement balance at Apr. 30	$24,023

Step 2

Compare clearing checks shown on the bank statement with checks recorded as cash disbursements in the company's records.

a. Review the prior month's bank reconciliation and ensure that outstanding checks have cleared the bank in the subsequent month.

In the company records:
These checks were recorded in March; therefore, the cash balance per the general ledger is correctly stated.

In the bank statement:
These outstanding March checks may not have cleared the bank in April. If some of the checks have not yet been paid, the bank's balance is overstated at April 30 by the amount of these checks.

The outstanding checks on the March 31 bank reconciliation are shown in Figure 7-1 and reproduced below.

Checks clearing the bank are marked with an 'x' on the prior month's outstanding check list and on the April bank statement, as follows:

Check No.	*Amount*
580	$4,051 x
599	196 x
600	7 x

Date	*Type*	*Out*		*In*	*Balance*
Apr. 1					$24,927
2	Deposit			1,570	26,497
3	Ck. 580	(4,051)	x		22,446
4	Deposit			390	22,836
6	Ck. 599	(196)	x		22,640
7	Ck. 601	(24)			22,616
9	Ck. 603	(230)			22,386
11	Ck. 604	(200)			22,186
16	Ck. 611	(124)			22,062
17	Ck. 612	(397)			21,665
18	Ck. 600	(7)	x		21,658
19	Deposit			5,000	26,658
21	Ck. 605	(2,220)			24,438
22	NSF	(180)			24,258
24	Deposit			1,522	25,780
26	Ck. 602	(1,720)			24,060
28	115	(31)			24,029
30	SC	(6)			24,023

All the March outstanding checks (# 580, 599, and 600) were paid by the bank in April; no adjustment is required in the April 30 bank reconciliation—the cash balance per the company's general ledger and the bank statement at April 30 are correctly stated in relation to these March outstanding checks.

b. Compare the checks clearing the bank in April with the checks recorded as April cash disbursements. Cleared items are marked with an ‘x’ on the April check list and the April bank statement:

Check No.	*Amount*	
601	$ 24	x
602	1,720	x
603	230	x
604	200	x
605	2,220	x
606	287	
607	1,364	
608	100	
609	40	
610	1,520	
611	124	x
612	397	x
Total	$8,226	

These April checks are still outstanding.

Date	*Type*	*Out*		*In*	*Balance*
Apr. 1					$24,927
2	Deposit			1,570	26,497
3	Ck. 580	(4,051)	x		22,446
4	Deposit			390	22,836
6	Ck. 599	(196)	x		22,640
7	Ck. 601	(24)	x		22,616
9	Ck. 603	(230)	x		22,386
11	Ck. 604	(200)	x		22,186
16	Ck. 611	(124)	x		22,062
17	Ck. 612	(397)	x		21,665
18	Ck. 600	(7)	x		21,658
19	Deposit			5,000	26,658
21	Ck. 605	(2,220)	x		24,438
22	NSF	(180)			24,258
24	Deposit			1,522	25,780
26	Ck. 602	(1,720)	x		24,060
28	Ck. 115	(31)			24,029
30	SC	(6)			24,023

In the company records:
These checks were recorded in April; therefore, the general ledger Cash balance is correctly stated.

In the bank statement:
These outstanding checks were not paid by the bank in April. Therefore, the unreconciled bank balance on April 30 of $24,023 is overstated.

The outstanding checks must be deducted from the unreconciled bank statement balance on the bank reconciliation, as follows:

Big Dog Carworks Corp. Bank Reconciliation At April 30, 2019				
Unreconciled general ledger Cash balance at Apr. 30	$21,929	Unreconciled bank statement balance at Apr. 30		$24,023
		Less: Outstanding checks		
		Check No.	*Amount*	
		606	$ 287	
		607	1,364	
		608	100	
		609	40	
		610	1,520	(3,311)

Step 3

Other disbursements made by the bank but not recorded in the company records are identified and marked with an 'x'.

Date	*Type*	*Out*		*In*	*Balance*
Apr. 1					$24,927
2	Deposit			1,570	26,497
3	Ck. 580	(4,051)	x		22,446
4	Deposit			390	22,836
6	Ck. 599	(196)	x		22,640
7	Ck. 601	(24)	x		22,616
9	Ck. 603	(230)	x		22,386
11	Ck. 604	(200)	x		22,186
16	Ck. 611	(124)	x		22,062
17	Ck. 612	(397)	x		21,665
18	Ck. 600	(7)	x		21,658
19	Deposit			5,000	26,658
21	Ck. 605	(2,220)	x		24,438
22	NSF	(180)	x		24,258
24	Deposit			1,522	25,780
26	Ck. 602	(1,720)	x		24,060
28	Ck. 115	(31)	x		24,029
30	SC	(6)	x		24,023

a. An examination of the April bank statement shows that the bank had deducted the NSF check of John Donne for $180.

In the company records:
The check of John Donne had originally been recorded as a cash receipt (a payment on account). During April, no entry was made regarding this returned check; therefore, the cash balance in the general ledger is overstated at April 30.

In the bank statement:
The bank has already made a deduction from the cash balance shown on the bank statement for this NSF check.

In reconciling the cash balances shown in the general ledger and on the bank statement, this returned check must be deducted from the unreconciled general ledger Cash balance of $21,929 shown on the bank reconciliation. It also should be set up as an account receivable and a notice should be sent to Donne requesting payment again. The journal entry to do this will be discussed below.

b. An examination of the April 30 bank statement also shows that the bank has deducted a service charge of $6 during April.

In the company records:
This service charge was not deducted from the cash balance in the general ledger during April. Therefore, the cash balance is overstated at April 30.

In the bank statement:
The service charges have already been deducted from the cash balance shown on the bank statement.

To reconcile the cash balance in the company records with the bank statement, this service charge must be deducted from the unreconciled general ledger Cash balance shown on the bank reconciliation.

c. An examination of the April bank statement shows that the bank deducted a check issued by another company for $31 from the BDCC bank account in error. (Assume that when notified, the bank indicated it would make a correction in May's bank statement.)

In the company records:
This check does not belong to Big Dog and does not require any change in its accounting records.

In the bank statement:
The check should not have been deducted from Big Dog's bank account. Therefore, the cash balance shown on the bank statement balance on the April 30 bank reconciliation is understated.

To reconcile the cash balance in the company records with the bank statement, the checks deducted in error must be added to the unreconciled bank statement balance of $24,023 shown on the bank reconciliation.

These three reconciling items are included on the bank reconciliation as follows:

Big Dog Carworks Corp. Bank Reconciliation At April 30, 2019						
Unreconciled general ledger Cash balance at Apr. 30		$21,929	Unreconciled bank statement balance at Apr. 30			$24,023
			Add: Check deducted in error			31
Less: Bank charges	$ 6		Less: Outstanding checks			
NSF Check – J. Donne	180	(186)		*Check No.*	*Amount*	
				606	$ 287	
				607	1,364	
				608	100	
				609	40	
				610	1,520	(3,311)

Step 4

Compare clearing deposits shown on the bank statement with deposits recorded as cash receipts in the company's records.

a. Review the prior month's bank reconciliation and ensure that outstanding deposits have cleared the bank in the subsequent month.

> *In the company records:*
> The March cash receipts have been recorded correctly.
>
> *In the bank statement:*
> All of the March cash receipts have been deposited and recorded on the bank statement. There are no outstanding deposits at March 31.

b. Compare the deposits clearing the bank in April with the deposits recorded as April cash receipts. Cleared items are marked with an 'x' on the April deposits list and the April bank statement:

Date	*Amount*	
April 5	$1,570	x
10	390	x
23	5,000	x
28	1,522	x
30	1,000	
Total	$9,482	

This April deposit is still outstanding.

Date	*Type*	*Out*		*In*		*Balance*
Apr. 1						$24,927
2	Deposit			1,570	x	26,497
3	Ck. 580	(4,051)	x			22,446
4	Deposit			390	x	22,836
6	Ck. 599	(196)	x			22,640
7	Ck. 601	(24)	x			22,616
9	Ck. 603	(230)	x			22,386
11	Ck. 604	(200)	x			22,186
16	Ck. 611	(124)	x			22,062
17	Ck. 612	(397)	x			21,665
18	Ck. 600	(7)	x			21,658
19	Deposit			5,000	x	26,658
21	Ck. 605	(2,220)	x			24,438
22	NSF	(180)	x			24,258
24	Deposit			1,522	x	25,780
26	Ck. 602	(1,720)	x			24,060
28	Ck. 115	(31)				24,029
30	SC	(6)	x			24,023

This comparison indicates that the April 30 cash receipt amounting to $1,000 has not yet been included as a deposit in the bank statement.

In the company records:
The April cash receipts have been recorded correctly.

In the bank statement:
The April cash receipts have been deposited and recorded on the bank statement, except for the April 30 deposit.

To reconcile the cash balance in the company records with the bank statement, the outstanding deposit must be added to the bank statement ending cash balance of $24,023 on the bank reconciliation, as follows:

Big Dog Carworks Corp.
Bank Reconciliation
At April 30, 2019

Unreconciled general ledger Cash balance at Apr. 30		$21,929	Unreconciled bank statement balance at Apr. 30			$24,023
			Add: Check deducted in error			31
			Outstanding deposit			1,000
						25,054
Less: Bank charges	$ 6		Less: Outstanding checks			
NSF Check – J. Donne	180	(186)	*Check No.*	*Amount*		
			606	$ 287		
			607	1,364		
			608	100		
			609	40		
			610	1,520		(3,311)

Step 5

Total both sides of the bank reconciliation. The result should be that the reconciled general ledger Cash balance and the bank statement balances are equal.

The completed bank reconciliation is shown in Figure 7-4.

Big Dog Carworks Corp.
Bank Reconciliation
At April 30, 2019

Unreconciled general ledger Cash balance at Apr. 30		$21,929	Unreconciled bank statement balance at Apr. 30		$24,023
			Add: Check deducted in error		31
			Outstanding deposit		1,000
					25,054
Less: Bank charges	$ 6		Less: Outstanding checks		
NSF Check – J. Donne	180	(186)	*Check No.*	*Amount*	
			606	$ 287	
			607	1,364	
			608	100	
			609	40	
			610	1,520	(3,311)
Adjusted general ledger Cash balance at Apr. 30		$21,743	Adjusted bank balance at Apr. 30		$21,743

These balances must agree.

Reconciling items in this section require journal entries to be made in the general journal to adjust the unreconciled Cash balance of $21,929 in the general ledger to the reconciled balance of $21,743.

Reconciling items in this section do not require journal entries. The outstanding deposits and checks should clear the bank in May. The $31 check deducted in error must be reported to the bank so it can make the necessary corrections to Big Dog's account in the next month.

Figure 7-4 BDCC's April 30 Bank Reconciliation

Step 6

The adjusted balance of $21,743 calculated in the bank reconciliation must be reflected in the company's general ledger Cash account. Adjusting entries must be prepared. The adjusting entries are based on the reconciling item on the left-hand side of the bank reconciliation and are as follows:

Bank Charges Expense	632	6	
Cash	101		6
Accounts Receivable – Donne	110	180	
Cash	101		180

To record reconciling items from April 30 bank reconciliation.

Once the adjustment is posted, the Cash general ledger account balance is correct, as illustrated in Figure 7-5.

GENERAL LEDGER

Cash — Acct. No. 101

Date 2019		Description	PR	Debit	Credit		Balance
Mar.	31	Balance				DR	20,673
Apr.	30	April cash receipts	CRJ6	9,482		DR	30,155
	30	April cash payments	CDJ18		8,226	DR	21,929
	30	Bank charge expense	Adj.		6	DR	21,923
	30	NSF check	Adj.		180	DR	21,743

This adjusted Cash balance in the general ledger now agrees with the bank reconciliation.

Figure 7-5 Updated Cash Account in the General Ledger

Big Dog does not make any adjusting entries for the reconciling items on the right (bank) side of the bank reconciliation since these items should eventually clear the bank or be corrected by the bank on a later month's bank statement.

Debit and Credit Card Transactions

Debit and credit cards are commonly accepted by companies when customers make purchases. Because the cash is efficiently and safely transferred directly into a company's bank account by the debit or credit card company, such transactions enhance internal control over cash. However, the seller is typically charged a fee for accepting debit and credit cards. For example, assume BDCC makes a $1,000 sale to a customer who uses a credit card that charges BDCC a fee of 2%; the cost of the sale is $750.

BDCC would record the following entries:

Cash	101	980	
Bank Charges Expense	632	20	
Sales	500		1,000
To record sale and related credit card fee.			
Cost of Goods Sold	570	750	
Merchandise Inventory	150		750
To record cost of sales.			

The credit card fee is calculated as the $1,000 sale x 2% = $20. This means that BDCC collects net cash proceeds of $980 ($1,000 - $20). The use of debit cards also involves fees. These entries are journalized in the same manner.

D. Accounts Receivable

LO4 – Explain, calculate, and record estimated uncollectible accounts receivable and subsequent write-offs and recoveries.

Recall that the revenue portion of the operating cycle, as shown in Figure 7-6, begins with a sale on credit and is completed with the collection of cash. Unfortunately, not all receivables are collected. This section discusses issues related to accounts receivable and their collection.

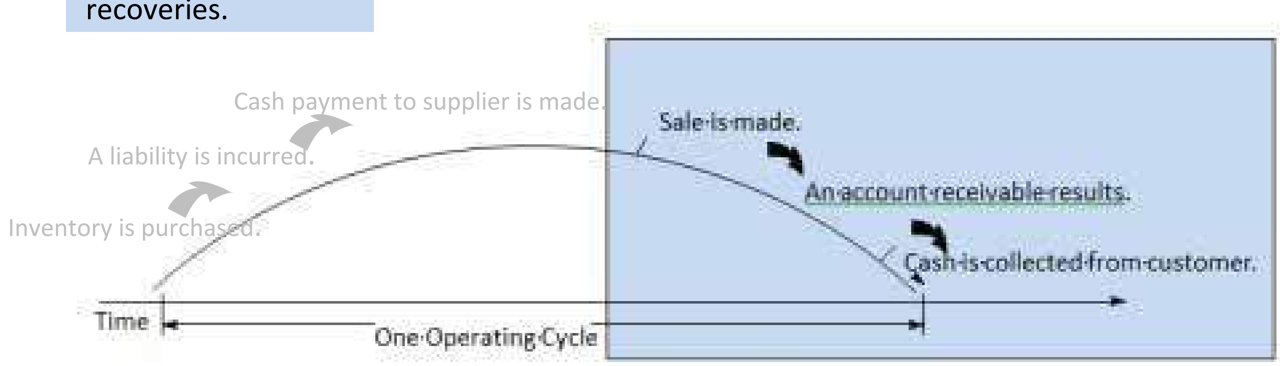

Figure 7-6 Revenue Portion of Operating Cycle

Uncollectible Accounts Receivable

Extending credit to customers results in increased sales and therefore profits. However, there is a risk that some accounts receivable will not be collected. A good internal control system is designed to minimize bad debt losses. One such control is to permit sales on account only to credit-worthy customers; this can be difficult to determine in advance. Companies with credit sales realize that some of these amounts may never be collected. These **uncollectible accounts**, commonly known as **bad debts**, are an expense associated with selling on credit.

Bad debt expenses should be matched to the credit sales of the same period. For example, assume BDCC recorded a $1,000 credit sale to XYA Company in April, 2018. Assume further that in 2019 it was determined that the $1,000 receivable from XYA Company would never be collected. The bad debt arising from the credit sale to XYA Company should be matched to the period in which the sale occurred, namely, April, 2018. But how can that be done if it is not known which receivables will become uncollectible until a future date? A means of estimating and recording the amount of sales that will not be collected in cash is needed. This is done by establishing a contra current asset account called **Allowance for Doubtful Accounts** in the general ledger to record estimated uncollectible receivables. This account is a contra account to accounts receivable and is disclosed on the balance sheet as shown below using assumed values.

Accounts receivable	$25,000	
Less: Allowance for doubtful accounts	1,400	$23,600

OR

Accounts receivable (net of $1,400 allowance for doubtful accounts)	$ 23,600

The Allowance for Doubtful Accounts contra account reduces accounts receivable to the amount that is expected to be collected—in this case, $23,600.

Estimating Uncollectible Accounts Receivable

The allowance for doubtful accounts is used to reflect how much of the total Accounts Receivable is estimated to be uncollectible. To record estimated uncollectible accounts, the following adjusting entry is made.

Bad Debts Expense	613	xxx	
Allow. For Doubt. Acct.	111		xxx

To record estimated uncollectible accounts receivable.

The bad debt expense is shown on the income statement. Allowance for doubtful accounts appears on the balance sheet and is subtracted from accounts receivable resulting in the estimated net realizable accounts receivable.

Two different methods can be used to estimate uncollectible accounts. One method focuses on estimating Bad Debt Expense on the income statement, while the other focuses on estimating the desired balance in allowance for doubtful accounts on the balance sheet.

The Income Statement Method

The objective of the **income statement method** , also called the **percent of sales method**, is to estimate bad debt expense based on credit sales. Bad debt expense is calculated by applying an estimated loss percentage to credit sales for the period. The percentage is typically based on actual losses experienced in prior years. For instance, a company may have the following history of uncollected sales on account:

Year	*Credit sales*	*Amounts not collected*
2017	$150,000	$1,000
2018	200,000	1,200
2019	250,000	800
	$600,000	$3,000

The average loss over these years is $3,000/$600,000, or ½ of 1%. If management anticipates that similar losses can be expected in 2020 and credit sales for 2020 amount to $300,000, bad debts expense would be estimated as $1,500 ($300,000 x 0.005).

Under the income statement method, the $1,500 represents estimated bad debt expense and is recorded as:

Bad Debts Expense	613	1,500	
Allow. For Doubt. Acct.	111		1,500
To record estimated bad debts expense.			

This estimated bad debt expense is calculated without considering any existing balance in the allowance for doubtful accounts.

Allowance for doubtful account *<u>before</u> posting adjustment* Assume the balance remaining in Allowance for doubtful accounts from the previous period is $250.	*Allowance for doubtful account* *<u>after</u> posting adjustment* The adjustment estimating bad debt expense of $1,500 is posted to allowance for doubtful accounts to get an adjusted balance of $1,750.

Allowance for Doubtful Accounts

	Bal. 250

Allowance for Doubtful Accounts

	Bal.	250
	Adjust.	1,500
	Adj. bal.	1,750

The Balance Sheet Method

Estimated uncollectible accounts can also be calculated by using the **balance sheet method**, also called the **percent of accounts receivable method**. A process called **aging of accounts receivable** is used. At the end of the period, the total of estimated uncollectible accounts is calculated by analyzing accounts receivable according to how long each account has been outstanding. This aging analysis approach assumes that the longer a receivable is outstanding, the less chance there is of collecting it. The process is illustrated in the following schedule.

		Number Of Days Outstanding at Dec. 31, 2019				
Customer	*Total*	*1–30*	*31–60*	*61–90*	*91–120*	*Over 120*
Bendix Inc.	$1,000					$1,000
Devco Marketing Inc.	6,000	$1,000	$3,000	$2,000		
Horngren Corp.	4,000	2,000	1,000		$1,000	
Perry Co. Ltd.	5,000	3,000	1,000		1,000	
Others	9,000	4,000			5,000	
Totals	$25,000	$10,000	$5,000	$2,000	$7,000	$1,000

In this example, accounts receivable total $25,000 at December 31. These are classified into five time periods: those receivables that 1–30 days past due; 31–60 days past due; 61–90 days past due; 91–120 days past due; and over 120 days past due.

Based on past experience, assume management estimates a bad debt percentage for each time period as follows:

Number Of Days Outstanding at Dec. 31, 2019				
1–30	*31–60*	*61–90*	*91–120*	*Over 120*
1%	3%	5%	10%	40%

The calculation of expected uncollectible accounts receivable at December 31, 2019 would be as follows:

Calculation of Uncollectible Amounts
December 31, 2019

Age (days)	*Accounts receivable*	*Estimated bad debt percentage*	*Estimated uncollectible amount*
1–30	$10,000	1%	$ 100
31–60	5,000	3%	150
61–90	2,000	5%	100
91–120	7,000	10%	700
Over 120	1,000	40%	400
Totals	$25,000		$1,450

A total of $1,450 of accounts receivable is estimated to be uncollectible at December 31, 2019.

Under the balance sheet method, the estimated bad debt expense consists of the *difference* between the opening allowance for doubtful accounts balance ($250, as in the prior example) and the estimated uncollectible receivables ($1,450) required at year-end.

The balance remaining in the account is $250 from the previous period.	→	The total estimated uncollectible receivables is $1,450.	→	$1,200 must be recorded to bring the account to $1,450.

Allowance for Doubtful Accounts	
	Bal. 250

Allowance for Doubtful Accounts	
	Bal. 250
	Bal. 1,450

Allowance for Doubtful Accounts	
	Bal. 250
	1,200
	Bal. 1,450

The adjustment is recorded by the following journal entry:

Bad Debts Expense	613	1,200	
Allow. For Doubt. Acct.	111		1,200
To record estimated bad debts expense.			

As an alternative to using an aging analysis to estimate uncollectible accounts, a simplified balance sheet method can be used. The **simplified balance sheet method** calculates the total estimated uncollectible accounts as a percentage of the outstanding accounts receivables balance. For example, assume an unadjusted balance in the allowance for doubtful accounts of $250 as in the preceding example. Also assume the accounts receivable balance at the end of the period was $25,000 as in the previous illustration. If it was estimated that 6% of these would be uncollectible based on historical data, the adjustment would be:

Bad Debts Expense	613	1,250	
Allow. For Doubt. Acct.	111		1,250
To record estimated bad debts expense.			

The total estimated uncollectible accounts is $1,500 ($25,000 × 6%). Given an unadjusted balance in allowance for doubtful accounts of $250, the adjustment to allowance for doubtful accounts must be a credit of $1,250 ($1,500 - $250).

Regardless of whether the income statement method or balance sheet method is used, the amount estimated as an allowance for doubtful accounts seldom agrees with the amounts that actually prove uncollectible. A credit balance remains in the allowance account if fewer bad debts occur during the year than are estimated. There is a debit balance in the allowance account if more bad debts occur during the year than are estimated. By monitoring the balance in the Allowance for Doubtful Accounts general ledger account at each year-end, though, management can determine whether the estimates of uncollectible amounts are accurate. If not, they can adjust estimates going forward.

Writing Off Accounts Receivable

When recording the adjusting entry to estimate uncollectible accounts receivable at the end of the period, it is not known which specific receivables will become uncollectible. When a specific account is determined to be uncollectible, it must be removed from the accounts receivable account. This process is known as a **write-off**. To demonstrate the write-off of an account receivable, assume that on January 15, 2020 the $1,000 credit account for customer Bendix Inc. is identified as uncollectible because of the company's bankruptcy. The receivable is removed by this entry:

Allow. For Doubt. Acct.	111	1,000	
Acct. Rec. – Bendix Inc.	110		1,000
To write-off Bendix Inc.'s account receivable			

The $1,000 write-off reduces both the accounts receivable and allowance for doubtful accounts. The write-off does not affect net realizable accounts receivable, as demonstrated below.

	Before write-off	*Write-off*	*After write-off*
Accounts receivable	$25,000	Cr 1,000	$24,000
Less: Allowance for doubtful accounts	1,450	Dr 1,000	450
Net accounts receivable	$23,550		$23,550

A write-off does not affect bad debt expense. Recall that the adjusting entry to estimate uncollectible accounts was:

Bad Debts Expense	613	xxx	
Allow. For Doubt. Acct.	111		xxx
To record estimated uncollectible accounts receivable.			

This adjustment was recorded because GAAP requires that the bad debt expense be matched to the period in which the sales occurred even though it is not known which receivables will become uncollectible. Later, when an uncollectible receivable is identified, it is written off as:

Allow. For Doubt. Acct.	111	xxx	
Accounts Receivable	110		xxx
To record estimated uncollectible accounts receivable.			

The allowance for doubtful accounts entries cancel each other out so that the net effect is a debit to bad debt expense and a credit to accounts receivable. The use of the allowance for doubtful accounts contra account allows us to estimate uncollectible accounts in one period and record the write-off of bad receivables as they become known in a later period.

Recovery of a Write-Off

When Bendix Inc. went bankrupt, its debt to Big Dog Carworks Corp. was written off in anticipation that there would be no recovery of the amount owed. Assume that on July 31, 2020 an announcement was made that 25% of amounts owed by Bendix would be paid. This new information indicates that BDCC will be able to recover a portion of the receivable previously written off. This recovery requires two journal entries at July 31, 2020. The first entry reinstates the amount *expected* to be collected by BDCC — $250 ($1,000 x 25%) in this case — and is recorded as:

Accounts Rec. – Bendix Inc.	110	250	
Allow. For Doubt. Acct.	111		250

To reverse write-off and reinstate collectible portion of account.

This entry reverses the collectible part of the receivable previously written off. The effect of the reversal is shown below.

Accounts Receivable			
Bal.	$25,000		
		Write-off	1,000
Recovery	250		

Allowance for Doubtful Accounts			
		Bal.	1,450
Write-off	1,000		
		Recovery	250

The second entry records the collection of the reinstated amount as:

Cash.	101	250	
Acct. Rec. – Bendix Inc.	110		250

To record recovery of collectible portion of account previously written off.

The various journal entries related to accounts receivable are summarized below.

Sale on account	Accounts Receivable	XXX	
	Sales		XXX
	COGS..	XXX	
	Merchandise Inventory		XXX
Adjusting entry estimating uncollectible accounts	Bad Debts Expense......................	XXX	
	Allow. For Doubt. Acct............		XXX
Write-off of uncollectible account	Allow. For Doubt. Acct.	XXX	
	Accounts Receivable...............		XXX
Partial recovery of account previously written off	Accounts Receivable	XXX	
	Allow. For Doubt. Acct............		XXX
	Cash	XXX	
	Accounts Receivable...............		XXX

E. Notes Receivable

LO5 – Explain and record short-term notes receivable and calculate related interest.

Notes receivable are formalized accounts receivable. They are recorded as current assets if they are due within twelve months of the date of issue. A note receivable is a signed, legally-enforceable document. The customer who owes the money promises to pay the company the *principal* plus *interest* on the due date. The **principal** is the amount of the account receivable. **Interest** is calculated as: (principal × annual Interest rate × length of time outstanding).

Notes receivable can arise at the time of sale or when a customer's account receivable becomes overdue. For example, assume that BDCC provided $4,000 of services to customer Woodlow on August 1, 2019, but this amount is still unpaid at November 30. Because of the length of time that has elapsed, BDCC and the customer agree to sign a 4%, 3-month note receivable on December 1. The journal entry on August 1 would be:

Account Rec. - Woodlow	110	4,000	
Service Revenue	470		4,000
To record service revenue from Woodlow.			

Then entry on December 1 to record the conversion of the account receivable to a note receivable would be:

Note Receivable - Woodlow	120	4,000	
Account Rec. - Woodlow	110		4,000
To record conversion of the account receivable from Woodlow to a 4%, 3-month note receivable due February 28, 2020.			

If a year-end occurred on December 31, 2019, an adjusting entry would be made to record accrued interest from December 1 to December 31:

Interest Receivable	116	13	
Interest Earned	430		13
To record interest accrued on the Woodlow note receivable at year-end ($4,000 x 4% x 1/12 mos. = $13).			

The maturity date is three months from the date of issue, or February 28, 2020. On that date, BDCC would record the collection of the note receivable and related interest as:

Cash	101	4,040	
Note Rec. -Woodlow	120		4,000
Interest Receivable	116		13
Interest Earned	430		27

To record the collection of the note receivable and interest from January 1 to February 28, 2020 ($4,000 x 4% x 2/12 mos. = $27).

Summary of Chapter 7 Learning Objectives

LO1 – Define internal control and explain how it is applied to cash.

The purpose of internal controls is to safeguard the assets of a business. Since cash is a particularly vulnerable asset, policies and procedures specific to cash need to be implemented, such as the use of checks and electronic funds transfer for payments, daily cash deposits into a financial institution, and the preparation of bank reconciliations.

LO2 – Explain and journalize petty cash transactions.

A petty cash fund is used to pay small, irregular amounts for which issuing a check would be inefficient. A petty cash custodian administers the fund by obtaining a check from the cash payments clerk. The check is cashed and the coin and currency placed in a locked box. The petty cash custodian collects receipts and reimburses individuals for the related amounts. When the petty cash fund is replenished, the receipts are compiled and submitted for entry in the accounting records so that a replacement check can be issued and cashed.

LO3 – Explain the purpose of and prepare a bank reconciliation, and record related adjustments.

A bank reconciliation is a form of internal control that reconciles the bank statement balance to the general ledger Cash account, also known as the general ledger balance. Reconciling items that affect the bank statement balance are outstanding deposits, outstanding checks, and bank errors. Reconciling items that affect the general ledger Cash balance are collections made by the bank on behalf of the company, NSF checks, bank service charges, and errors. Once the book and bank statement balances are reconciled, an adjusting entry is prepared based on the reconciling items affecting the general ledger balance.

LO4 – Explain, calculate, and record estimated uncollectible accounts receivable and subsequent write-offs and recoveries.

Not all accounts receivable are collected, resulting in uncollectible accounts. Because it is not known which receivables will become uncollectible, the allowance approach is used to match the cost of estimated uncollectible accounts to the period in which the related revenue was generated. The adjusting entry to record estimated uncollectible amounts is a debit to the Bad Debt Expense general ledger account and a credit to the Allowance for Doubtful Accounts account. The income statement method and the balance sheet method are two ways to estimate and apply the allowance approach. The income statement method calculates bad debt expense based on a percentage of credit sales while the balance sheet method calculates total estimated uncollectible accounts in the Allowance for Doubtful Accounts using an aging analysis. When receivables are identified as being uncollectible, they are written off. If write-offs subsequently become collectible, a recovery is recorded using two entries: by reversing the write-off (or the portion that is recoverable), then recording the cash receipt.

LO5 – Explain and record short-term notes receivable and calculate related interest.

A short-term note receivable is a promissory note that bears an interest rate calculated over the term of the note. Short-term notes receivable are considered current assets if they mature within twelve months from the date of issue. Notes can be issued to a customer at the time of sale, or a note receivable can replace an overdue account receivable. Journal entries are required to record the creation and discharge of the note, and for any interest revenue that accrues.

A S S I G N M E N T   M A T E R I A L S

Concept Self-check

1. What is internal control?
2. What is an imprest petty cash system?
3. What is the difference between establishing and replenishing the petty cash fund?
4. How does the preparation of a bank reconciliation strengthen the internal control of cash?
5. What are some reconciling items that appear in a bank reconciliation?
6. What are the steps in preparing a bank reconciliation?
7. What is an NSF check?
8. How does use of allowance for doubtful accounts match expenses with revenue?
9. How does the income statement method calculate the estimated amount of uncollectible accounts?
10. What is an ageing schedule for bad debts, and how is it used in calculating the estimated amount of uncollectible accounts?
11. How are credit balances in accounts receivable reported on the financial statements?
12. What is an example of a journal entry to create a note receivable?

Comprehension Problems

CP 7–1

The following transactions were made by Landers Corp. in March 2019.

Mar. 1	Established a petty cash fund of $200		
12	Reimbursed the fund for the following:		
		Postage	$10
		Office supplies	50
		Maintenance	35
		Meals (selling expenses)	25
			$120
18	Increased the fund by an additional $200		
25	Reimbursed the fund for the following:		
		Office supplies	$75
		Delivery charges	30
			$105
28	Reduced the amount of the fund to $350.		

Required: Prepare journal entries to record these transactions.

CP 7–2

The following information pertains to Ferguson Corp. at December 31, 2019, its year-end:

Cash per company records		$5,005
Cash per bank statement		7,000
Bank service charges not yet recorded in company records		30
Note collected by bank not yet recorded in company records, including $25 of interest		1,325
Fluet Inc. check deducted in error by bank		200
December deposit recorded by the bank January 3, 2020		700
December checks not yet paid by bank in December		
#631	$354	
#642	746	
#660	200	
#661	300	
	$1,600	

Required: Prepare a bank reconciliation and all necessary adjusting journal entries at December 31, 2019.

CP 7–3

The Cash general ledger account balance of Gladstone Ltd. was $2,531 at March 31, 2019. On this same date, the bank statement had a balance of $1,500. The following discrepancies were noted:

a. A deposit of $1,000 made on March 30, 2019 was not yet recorded by the bank on the March statement.
b. A customer's check amounting to $700 and deposited on March 15 was returned NSF with the bank statement.
c. Check #4302 for office supplies expense, correctly made out for $125 and clearing the bank for this amount, was recorded in the company records as $152.
d. $20 for March service charges were recorded on the bank statement but not in the company records.
e. A cancelled check for $250 belonging to Global Corp. but charged by the bank to Gladstone Ltd. was included with the cancelled checks returned by the bank.
f. There were $622 of outstanding checks at March 31.
g. The bank collected a note receivable for $300 on March 31 including interest of $50. The bank charged Gladstone Ltd. a $10 service charge that also is not included in the company records.

Required: Prepare a bank reconciliation and record all necessary adjusting entries at March 31, 2019.

CP 7–4

Koss Co. Ltd. began operations on January 1, 2018. It had the following transactions during 2018, 2020, and 2021.

2018	Dec.	31	Estimated uncollectible accounts as $5,000 (calculated as 2% of sales)
2020	Apr.	15	Wrote off the balance of N. Lang, $700
	Aug.	8	Wrote off $3,000 of miscellaneous customer accounts as uncollectible
	Dec.	31	Estimated uncollectible accounts as $4,000 (1½% of sales)
2021	Mar.	6	Recovered $200 from N. Lang, whose account was written off in 2020; no further recoveries are expected
	Sept.	4	Wrote off as uncollectible $4,000 of miscellaneous customer accounts
	Dec.	31	Estimated uncollectible accounts as $4,500 (1½% of sales).

Required:

1. Prepare journal entries to record the above transactions.
2. Assume that management is considering a switch to the balance sheet method of calculating the allowance for doubtful accounts. Under this method, the allowance at the end of 2021 is estimated to be $2,000. Comment on the discrepancy between the two methods of estimating allowance for doubtful accounts.

CP 7–5

Impulse Inc. had the following unadjusted account balances at December 31, 2019, its year-end.

	Account Balances	
	Debit	*Credit*
Accounts Receivable	$125,000	
Allowance for Doubtful Accounts		$ 3,000
Sales		750,000

Impulse estimates its uncollectible accounts as five per cent of its December 31 accounts receivable balance.

Required:

1. Calculate the amount of estimated uncollectible accounts that will appear on Impulse's balance sheet at December 31, 2019.
2. Calculate the amount of bad debt expense that will appear on Impulse's income statement at December 31, 2019.
3. Prepare a partial balance sheet at December 31, 2019 showing accounts receivable, allowance for doubtful accounts, and the net accounts receivable.

CP 7–6

The following information is taken from the records of Salzl Corp. at its December 31 year-end:

	2019	*2020*
Accounts written off		
During 2019	$2,400	
During 2020		$1,000
Recovery of accounts written off		
Recovered in 2020		300
Allowance for doubtful accounts (adjusted balance)		
At December 31, 2018	8,000	
At December 31, 2019	9,000	

Salzl had always estimated its uncollectible accounts at two per cent of sales. However, because of large discrepancies between the estimated and actual amounts, Hilroy decided to estimate its December 31, 2019 uncollectible accounts by preparing an ageing of its accounts receivable. An amount of $10,000 was considered uncollectible at December 31, 2020.

Required:

1. Calculate the amount of bad debt expense for 2019.
2. Calculate the amount of bad debt expense for 2020.

CP 7–7

Sather Ltd. had the following unadjusted account balances at December 31, 2019:

Accounts Receivable	$150,000
Allowance for Doubtful Accounts	3,000
Sales	750,000

Required:

1. Assume that Sather Ltd. estimated its uncollectible accounts at December 31, 2019 to be two per cent of sales.
   a. Prepare the appropriate adjusting entry to record the estimated uncollectible accounts at December 31, 2019.
   b. Calculate the balance in the Allowance for Doubtful Accounts account after posting the adjusting entry.

2. Assume that Sather Ltd. estimated its uncollectible accounts at December 31, 2019 to be ten per cent of the net accounts receivable balance.
    a. Prepare the appropriate adjusting entry to record the estimated uncollectible accounts at December 31, 2019.
    b. Calculate the balance in the Allowance for Doubtful Accounts account after posting the adjusting entry.
3. Why is there a difference in the calculated estimates of doubtful accounts in questions 1 and 2**?**

CP 7–8

Elliot Inc. has the following unadjusted account balances at December 31, 2019:

	Account Balances	
	Debit	*Credit*
Accounts Receivable	$50,000	
Allowance for Doubtful Accounts	1,000	
Sales		$200,000

Required:

1. Assume Elliot estimates that two per cent of its sales will not be collected.
    a. What amount of bad debt expense will be reported on Elliot's income statement at December 31, 2019?
    b. What amount of allowance for doubtful accounts will be reported on Elliot's balance sheet at December 31, 2019?
2. Assume Elliot estimates that five per cent of accounts receivable will not be collected.
    a. What amount of bad debt expense will be reported on Elliot's income statement at December 31, 2019?
    b. What amount of allowance for doubtful accounts will be reported on Elliot's balance sheet at December 31, 2019?
3. Which calculation provides better matching: that made in question 1 or in question 2? Why?

CP 7–9

A $12,000 account receivable owing from Smith Co. to Jones Inc. was converted into a 6%, 3-month note receivable on November 1, 2019.

Required:

1. Prepare the entry needed to record the note receivable in Jones' accounting records.
2. Prepare the entry needed to record accrued interest on the note receivable in Jones' accounting records at December 31, 2019.
3. Record the cash received from the note in Jones' accounting records on February 1, 2020.

Problems

P 7–1

The following transactions were made by Simpson Corp. in December 2019.

Dec. 1 Established a petty cash fund of $100.

14 Reimbursed the fund for receipts as follows:

Office supplies	$50
Maintenance	35

Petty cash on hand prior to reimbursement was $46.

29 Reimbursed the fund for the following:

Office supplies	$10
Delivery charges	20

Petty cash on hand prior to reimbursement was $72.

31 Reduced the amount of the fund to $50.

Required:

1. Prepare journal entries to record these transactions.
2. Suggest improvements to the internal controls of Simpson's petty cash fund.

P 7–2

The reconciliation of the cash balance per bank statement with the balance in the Cash account in the general ledger usually results in one of five types of adjustments. These are

a. Additions to the reported general ledger cash balance
b. Deductions from the reported general ledger cash balance
c. Additions to the reported cash balance per the bank statement
d. Deductions from the reported cash balance per the bank statement
e. Information that has no effect on the current reconciliation.

Required:

1. Using the above letters *a* to *e* from the list, indicate the appropriate adjustment for each of the following items that apply to Goertzen Ltd. for December, 2019:

   __ The company has received a $3,000 loan from the bank that was deposited into its bank account but was not recorded in the company records.

   __ A $250 check was not returned with the bank statement though it was paid by the bank.

   __ Checks amounting to $4,290 shown as outstanding on the November reconciliation still have not been returned by the bank.

   __ A collection of a note receivable for $1,000 made by the bank has not been previously reported to Goertzen. This includes interest earned of $50.

   __ The bank has erroneously charged Goertzen with a $1,100 check, which should have been charged to Gagetown Ltd.

   __ A $350 check made out by Fynn Company and deposited by Goertzen has been returned by the bank marked NSF; this is the first knowledge Goertzen has of this action.

   __ A check for $840 was erroneously recorded as $730 in the company records.

   __ A $600 bank deposit of December 31 does not appear on the bank statement.

   __ Bank service charges amounting to $75 were deducted from the bank statement but not yet from the company records.

2. Prepare a bank reconciliation using the data given above. On December 31, the Cash account in the general ledger of Goertzen Ltd. showed a balance of $84,293. The bank statement showed a balance of $90,568.
3. Prepare journal entries required to adjust the general ledger Cash account of Goertzen Ltd. to the reconciled balance.

P 7–3

Gibson Energy Ltd. controls its cash by depositing receipts on a daily basis and making all disbursements by check. After all the posting for the month of November 2019 was completed, the Cash balance in the general ledger account at November 30 was $4,213. The bank statement for the month ended November 30 received from the First National Bank showed the balance to be $4,440. The following data are available for the purpose of reconciling these balances:

a. Cash receipts for November 30 amounting to $611 have been placed in the night depository and do not appear on the bank statement.

b. Bank memos previously not available to Gibson Energy are included with the bank statement. A memo for an NSF check, originally received as payment for an account receivable of $130, is included. A memo for bank charges of $10 is also included. Another memo advises Gibson Energy Ltd. that $494 has been deposited to the account, ($500 less a bank charge of $6). This represents the net proceeds of a collection the bank had made on behalf of Gibson Energy Ltd. on a $500 note receivable.

c. Checks written during November but not included with the bank statement are no. 1154, $32; no. 1192, $54; no. 1193, $83; no. 1194, $109.

d. Check no. 1042 is returned with the bank statement. The check was made for $494, the correct amount owing for office expense. The check was recorded in the company records as $548.

e. Checks outstanding at the end of October included checks no. 1014 for $152 and no. 1016 for $179. Check no. 1016 was paid in the bank statement; check no. 1014 was not.

Required:
1. Prepare a bank reconciliation at November 30.
2. Prepare the adjusting journal entries required to make the Cash in Bank account in the general ledger agree with the adjusted cash balance on the November bank reconciliation.

P 7–4

The balance of the accounts receivable account of Griffin Ltd. at December 31, 2019 was $74,460. Included in this balance are the credit balances of two customers, amounting to $3,200 and $1,800.

Required:

1. What amount for accounts receivable would be shown as assets on the balance sheet?
2. How would the credit balances in the customers' accounts be disclosed?

P 7–5

The following balances appear in the unadjusted trial balance of Lapointe Inc. at its year-end, December 31, 2019.

	Account Balances	
	Debit	*Credit*
Accounts Receivable	$100,000	
Allowance for Uncollectible Accounts		$ 5,000
Sales (all on credit)		600,000

Lapointe uses the balance sheet method of calculating its allowance for doubtful accounts account. At December 31, 2019, it estimates that three per cent of accounts receivable would not be collected. Lapointe had the following transactions during 2020:

a. Accounts receivable worth $9,000 were written off.
b. Credit sales amounted to $800,000.
c. Collections of accounts receivable amounted to $700,000.
d. Lapointe collected $2,000 in 2020 that was previously written off in 2019. This amount is not included in the collection of accounts receivable described in *c*.
e. At year-end, Lapointe estimated that the amount of doubtful accounts at December 31, 2020 was $10,000.

Required:

1. Prepare all journal entries required for 2019 and 2020.
2. If Lapointe had used the income statement method of estimating uncollectible accounts, calculate the balance in the Allowance for Doubtful Accounts general ledger account at December 31, 2019 and 2020. Assume that Lapointe estimated doubtful accounts to be one per cent of sales for both years.

P 7–6

The following balances are taken from the unadjusted trial balance of Penner Inc. at its year-end, December 31, 2019.

	Account Balances	
	Debit	*Credit*
Accounts Receivable	$150,000	
Allowance for Doubtful Accounts		$ 1,500
Sales	500,000	
Sales Returns and Allowances		50,000

An ageing of accounts receivable at December 31, 2019 reveals the following information:

Age (days)	*Accounts receivable*	*Estimated loss percentage*
1-30	$ 50,000	2%
31-60	27,000	4%
61-90	40,000	5%
91-120	30,000	10%
Over 120	3,000	50%
Total	$150,000	

The balance for R. Laws of $1,000 is over 90 days past due. It is included in the ageing of accounts receivable balance and has not yet been written off.

Part A: 2019

Required: Prepare journal entries to record:

1. The write-off of R. Laws' account of $1,000 on December 31, 2019. (*Hint:* Recalculate the accounts receivable balance after the write-off.)
2. The appropriate adjusting entry to set up the required balance in the Allowance for Doubtful Accounts general ledger account at December 31, 2019. *(Hint:* Remember that R. Laws' account has been written off.)

Part B: 2020

The following transactions were made in 2020.

a. Sales on account were $700,000.
b. Collections of accounts receivable amounted to $599,000.
c. Penner wrote off $10,000 of accounts receivable.
d. An ageing of accounts receivable at December 31, 2020 revealed the following information:

Age (days)	*Accounts receivable*	*Estimated loss percentage*
1-30	$170,000	2%
31-60	35,000	3%
61-90	-0-	4%
91-120	27,000	25%
Over 120	8,000	50%
Total	$240,000	

Required: Prepare the appropriate adjusting entry to set up the required Allowance for Doubtful Accounts general ledger account balance at December 31, 2020.

P 7–7

Tarpon Inc. made $1,000,000 in sales during 2020. Thirty per cent of these were cash sales. During the year, $25,000 of accounts receivable were written off as being uncollectible. In addition, $15,000 of the accounts that were written off in 2019 were unexpectedly collected. At its year-end, December 31, 2020, Tarpon had $250,000 of accounts receivable. The balance in the Allowance for Doubtful Accounts general ledger account was $15,000 credit at December 31, 2019.

Age (days)	*Accounts receivable*
1-30	$100,000
31-60	50,000
61-90	25,000
91-120	60,000
Over 120	15,000
Total	$250,000

Required:

1. Prepare journal entries to record the following 2020 transactions:
   a. The write-off of $25,000
   b. The recovery of $15,000.
2. Recalculate the balance in the Allowance for Doubtful Accounts general ledger account at December 31, 2020.
3. Prepare the adjusting entry required at December 31, 2020 for each of the following scenarios:
   a. The estimated uncollectible accounts at December 31, 2020 is three per cent of credit sales.
   b. The estimated uncollectible accounts at December 31, 2020 is estimated at five per cent of accounts receivable.
   c. The estimated uncollectible accounts at December 31, 2020 are calculated as follows:

Age (days)	*Estimated loss percentage*
1-30	2%
31-60	4%
61-90	5%
91-120	10%
Over 120	50%

P 7–8

The Arcand Co. Ltd. has estimated its bad debts at 1 per cent of net credit sales. During 2020, Arcand decided to calculate the required balance for the allowance for doubtful accounts at year-end, December 31, by ageing its accounts receivable. The review suggested a required balance of $7,200. The following data, which already have been recorded in the company's general ledger, are also available:

	2019	*2020*
Accounts written off		
On March 14, 2019 (Boven)	$600	
On March 30, 2020 (Seaton)		$300
Recoveries of accounts written off		
On June 5, 2020 (Boven)		400

The Allowance for Doubtful Accounts general ledger account reported the following balances: January 1, 2019—$1,500 credit; January 1, 2020—$3,900 credit.

Required: Prepare journal entries to record

1. The amount of bad debt expense for the year 2019
2. The bad debt expense on December 31, 2020
3. The collection from Boven on June 5, 2020.

P 7–9

At December 31, 2018, the Elias Paper Company Ltd. balance sheet had a balance of $1,268,800 in accounts receivable. In addition, a contra account showed an allowance for doubtful accounts balance of $32,400. Credit sales for 2019 were $8,540,000, with collections of the receivables amounting to $8,262,560, including $15,600 that Elias had written off as uncollectible in December 2018 from Huron Supplies Ltd. During 2019, Elias wrote off $33,660 as uncollectible.

On November 1, 2019, a customer with a $720,000 balance in accounts receivable sent $200,000 in cash (included in the cash collections) and a note receivable for the balance. The account was considered to be collectible.

At December 31, 2019, Elias' year-end, the balance in accounts receivable included $200,580 of past due accounts, which management estimated would result in a 10 per cent loss, based on past experience. In addition, it was management's policy to set up an allowance on remaining accounts receivable equal to 2 per cent of the balance outstanding.

Required:

1. Prepare general journal entries for all 2019 transactions relating to notes and accounts receivable.
2. Prepare all adjusting entries at December 31, 2019.
3. Show the amount that should appear in the 2019 income statement as bad debt expense.
4. What is the total for the allowance for doubtful accounts at December 31, 2019?

P 7–10

The accounts receivable listing of Grant Corporation shows the following on December 31, 2019. The general ledger showed a $200 credit balance in Allowance for Doubtful Accounts before adjustment.

Name of customer	*Invoice date*	*Amount*
Greenwood Fruit Packers Ltd.	May 2	$ 600
Granville Ltd.	August 15	335
Kutcher Inc.	October 2	720
Kutcher Inc.	December 8	275
Lamb Fruit Inc.	March 3	445
Grimm Fruit Company	November 11	822
Fehr Produce Corp.	November 20	250
Fehr Produce Corp.	September 4	465
Fehr Produce Corp.	July 10	922
Golden Fruit Ltd.	December 5	500

Required:

1. Prepare an aging of accounts receivable at December 31, 2019, divided into five time periods as follows:

Age (days)
1-30
31-60
61-90
91-120
121-150
Over 150

2. Compute the estimated loss (rounded to two decimal places) based on the following:

Age (days)	*Estimated loss percentage*
1-30	0.5%
31-60	1%
61-90	3%
91-120	10%
121-150	25%
Over 150	50%

3. Prepare the journal entry to record the bad debt expense for the year.

P 7–11

Zajic Corp. had a credit balance of $1,735 in its Allowance for Doubtful Accounts general ledger account at December 31, 2018. The company had the following transactions relating to uncollectible accounts during 2019:

Feb.	15	Wrote off F. Young's account of $200 as uncollectible
Apr.	30	Collected from G. Yopek Inc. $100 that had been written off in 2018
June	26	Received $300 from Wong Machine Ltd. (Wong's previous balance was $700); no further payments are expected and the balance was written off
Sept.	7	Wrote off H. Wolfe's account of $350
Dec.	31	An analysis of accounts receivable revealed the following accounts to be written off:

S. Wuff	$300
P. Levesque	400
T. White	100

An ageing of accounts receivable at December 31, 2019 showed the following:

Age (days)	*Accounts receivable*	*Estimated loss percentage*
1-30	$ 20,000	2%
31-60	12,000	4%
61-90	5,000	5%
91-120	3,000	10%
Over 120	10,000	50%
Total	$ 50,000	

Required:

1. Prepare the journal entries to record the 2019 transactions.
2. Prepare the appropriate adjusting entry to set up the required balance in the Allowance for Doubtful Accounts general ledger account at December 31, 2019.

P 7–12

A $120,000 account receivable owing from Baron Cabinets Ltd. to Glimmer Enterprises was converted into a 12%, 12-month note receivable on August 1, 2019. Principal of $10,000 per month plus accrued interest on the outstanding balance has been paid on the last day of each month.

Required:

1. Prepare the entry needed to record the note receivable in Glimmer's accounting records on August 1.
2. Prepare the entry needed to record accrued interest on the note receivable in Glimmer's accounting records at December 31, 2019.
3. Record the cash received from the note in Glimmer's accounting records on February 28, 2020.

CHAPTER EIGHT

Long-lived Assets

Long-lived or **capital** assets are used in the normal operating activities of a business and are expected to provide benefits for a period in excess of one year. Long-lived assets covered in this chapter consist of three types: (a) plant assets; (b) intangible assets; and (c) goodwill. Also discussed are *depreciation* and *amortization*, techniques to allocate the cost of most long-lived assets over their estimated useful lives.

Chapter 8 Learning Objectives

LO1 – Distinguish different types of plant assets.

LO2 - Explain, calculate, and record depreciation of plant assets using the units-of-production, straight-line, and double-declining balance methods.

LO3 – Calculate and record depreciation for partial years.

LO4 – Calculate and record entries for revised depreciation estimates.

LO5 – Calculate and record the impairment of plant assets.

LO6 – Account for the disposal of plant assets.

LO7 – Calculate and record entries for transactions involving major components of capital assets.

LO8 – Explain and record the acquisition and amortization of intangible assets.

LO9 - Explain goodwill and identify where on the balance sheet it is reported.

LO10 – Describe the disclosure requirements for long-lived assets in the notes to the financial statements.

A. Plant Assets

LO1 – Distinguish different types of plant assets.

Plant assets are long-lived assets that are acquired for the purpose of generating revenue either directly or indirectly. They are also called **fixed assets** or **property, plant, and equipment (PPE)**. Plant assets are held for use in the production or supply of goods and services, have been acquired for use on a continuing basis, and are not intended for sale in the ordinary course of business. Examples of plant assets include land, office and manufacturing buildings, production machinery, trucks, ships or aircraft used to deliver goods or transport passengers, salespersons' automobiles owned by a company, or a farmer's production machinery such as tractors and field equipment. Plant assets are **tangible assets** because they can be physically touched. There are other types of non-current assets that are *intangible*—existing only as legal concepts—such as copyrights and patents. These will be discussed later in this chapter.

A long-term asset can be considered a bundle of future benefits that will be used up over a period of years. Each year, a pre-determined portion of these benefits is allocated to expense on the income statement. This concept was briefly introduced in Chapter 3. It will be examined more fully in this chapter.

Capital Expenditures

Any cash disbursement is referred to as an **expenditure**. A **capital expenditure** results in the acquisition of a non-current asset, including any additional costs involved in preparing the asset for its intended use. Examples of various costs that may be incurred to prepare plant assets for use are listed below.

	Capital expenditures			
	Land	*Land Improvements*	*Building*	*Equipment*
Costs to acquire plant assets	Purchase price Commission to real estate agent Legal fees	Purchase price Transportation Insurance (during transportation)	Purchase price Commission to real estate agent Legal fees	Invoice cost Transportation Insurance (during transportation)
Costs to prepare plant assets for use	Costs of draining, clearing, and landscaping; demolition Assessments for streets and sewage system	Installation Wiring Inspection Testing	Repair and remodelling costs before use Payments to tenants for premature termination of lease	Assembly Installation (including wages paid to company employees) Special floor foundations or supports Wiring Inspection Test run costs

To demonstrate, assume that equipment is purchased for $20,000. Additional costs include transportation costs $500, installation costs $1,000, construction costs for a cement foundation $2,500, and test run(s) costs to debug the equipment $2,000. The total capitalized cost of the asset to put it into use is $26,000.

Determining whether an outlay is a capital expenditure or a *revenue expenditure* is a matter of judgment. A **revenue expenditure** does not have a future benefit beyond one year. The concept of materiality enters into the distinction between capital and revenue expenditures. As a matter of expediency, an expenditure of $20 that has all the characteristics of a capital expenditure would probably be expensed rather than capitalized, because the time and effort required by accounting staff to capitalize and then depreciate the item over its estimated useful life is much greater than the benefits derived from doing so. Capitalization policies are established by many companies to resolve the problem of distinguishing between capital and revenue expenditures. For example, one company's capitalization policy may state that all capital expenditures equal to or greater than $1,000 will capitalized, while all capital expenditures under $1,000 will be expensed when incurred. Another company may have a capitalization policy limit of $500.

Not all asset-related expenditures incurred after the purchase of an asset are capitalized. An expenditure made to maintain plant assets in satisfactory working order is a revenue expenditure and recorded as a debit to an expense account. Examples of these expenditures include: (a) the cost of replacing small parts of an asset that normally wear out (in the case of a truck, for example: new tires, new muffler, new battery); (b) continuing expenditures for maintaining the asset in good working order (for example, oil changes, antifreeze, transmission fluid changes); and (c) costs of renewing structural parts of an asset (for example, repairs of collision damage, repair or replacement of rusted parts).

Although some expenditures for repair and maintenance may benefit more than one accounting period, they may not be material in amount or they may have uncertain future benefits. They are therefore treated as expenses. These three criteria must all be met for an expenditure to be considered capital in nature.

1. Will it benefit more than one accounting period?
2. Will it enhance the service potential of the asset, or make it more valuable or more adaptable?
3. Is the dollar amount material?

If the expenditure does not meet all three criteria, then it is a revenue expenditure and is expensed.

Land

The purchase of land is a capital expenditure when the land is used in the operation of a business. In addition to the costs listed in the schedule above, the cost of land should be increased by the cost of removing any unwanted structures on it. This cost is reduced by the proceeds, if any, obtained from the sale of the scrap. For example, assume that the purchase price of land is $100,000 before an additional $15,000 cost to raze an old building: $1,000 is expected to be received for salvaged materials. The cost of the land is calculated as $114,000 ($100,000 + $15,000 - $1,000).

Frequently, land and useful buildings are purchased for a *lump sum*. That is, one price is negotiated for their entire purchase. A lump sum purchase price must be apportioned between the plant assets acquired on the basis of their respective market values, perhaps established by a municipal assessment or a professional land appraiser. Assume that a lump sum of $150,000 cash is paid for land and a building, and that the land is appraised at 25% of the total purchase price. The Land account would be debited for $37,500 ($150,000 x 25%) and the Building account would be debited for the remaining 75% or $112,500

($150,000 x 75% = $112,500 or $150,000 - $37,500 = $112,500) as shown in the following journal entry.

Land	37,500	
Building	112,500	
Cash		150,000

To record the purchase of land and building for a lump sum of $150,000; land: $150,000 x 25% = $37,500; building: $150,000 x 75% = $112,500.

Land Improvements

Land improvements are enhancements made to land. These improvements wear out over time and therefore necessitate a separate asset category from land. Examples of land improvements include parking lots, walkways, landscaping, lighting systems, and fences. The cost of land improvements are the materials, labor, and any other costs to prepare the improvements for their proper use. For example, assume a company spends $40,000 to pave a parking lot on their existing land. The journal entry would appear as follows:

Land improvements	40,000	
Cash		40,000

To record the costs associated with installing a parking lot.

Building and Equipment

When a capital asset is purchased, its cost includes the purchase price plus all costs to prepare the asset for its intended use. However, a company may construct its own building or equipment. In the case of a building, for example, costs include those incurred for excavation, building permits, insurance and property taxes during construction, engineering fees, the cost of labor incurred by having company employees supervise and work on the construction of the building, and the cost of any interest incurred to finance the construction during the construction period.

B. Depreciation

The role of **depreciation** is to allocate the cost of a plant asset (except land) over the accounting periods expected to receive benefits from its use. Depreciation begins when the asset is in the location and condition necessary for it to be put to use. Depreciation continues even if the asset becomes idle or is retired from use, unless it is fully

LO2 - Explain, calculate, and record depreciation of plant assets using the units-of-production, straight-line, and double-declining balance methods.

depreciated. Land is not depreciated, as it is assumed to have an unlimited life.

Depreciation is an application of the matching principle.

> According to generally accepted accounting principles, a company should select a method of depreciation that represents the way in which the asset's future economic benefits are estimated to be used up.

There are many different ways to calculate depreciation. The most frequently used methods are usage-based and time-based. There are three factors necessary to calculate depreciation of plant assets:

- cost of the asset
- salvage value
- estimated useful life or productive output.

Salvage value, also called **residual value,** is the estimated worth of the asset at the end of its estimated useful life. This concept was not introduced when depreciation was briefly discussed in Chapter 3. A long-lived asset is not depreciated below its salvage value.

Useful life, also known as **service life**, is the length of time that a long-lived asset is estimated to be of benefit *to the current owner*. This is not necessarily the same as the asset's economic life. If a company has a policy of replacing its delivery truck every two years, its useful life is two years even though it may be used by the next owner for several more years.

Productive output is the length of time the asset is estimated to be used productively in the company's operations. For example, useful life may be measured in units of output, hours used, or kilometres driven.

Regardless of depreciation method chosen, it must be applied consistently from year to year. Different depreciations methods can be applied to different types of depreciable assets, however.

Usage-Based Depreciation Method – Units-of-Production

Usage-based depreciation methods, such as the units-of-production method, are used when the output of an asset varies from period to period.

Usage methods assume that the asset will contribute to the earning of revenues in relation to the amount of output during the accounting period. Therefore, the depreciation expense will vary from year to year.

To demonstrate, assume that Big Dog Carworks Corp. purchased a $20,000 piece of equipment on January 1, 2019 with a $2,000 salvage value and estimated productive life of 10,000 units.

If 1,500 units were produced during 2019, the depreciation expense for the year ended December 31, 2019 would be calculated using the following formula:

$$\frac{\text{Cost} - \text{salvage value}}{\text{Estimated units output}} = \text{Depreciation per unit} \times \text{Number of units produced} = \text{Depreciation expense}$$

$$\frac{\$20{,}000 - 2{,}000}{10{,}000 \text{ units}} = \$1.80 \text{ per unit} \times 1{,}500 \text{ units} = \$2{,}700$$

The following adjusting entry would be made on December 31, 2019:

2019			
Dec. 31	Depreciation Expense	2,700	
	Accumulated Depreciation		2,700

To record depreciation expense using the units-of-production method; ($20,000 - $2,000)/10,000 units = $1.80/unit; $1.80/unit x 1,500 units = $2,700.

The **carrying amount** or net book value (NBV) of the asset is its cost less accumulated depreciation. On the December 31, 2019 balance sheet, the carrying amount would be $17,300 ($20,000 - 2,700).

Note that the salvage value is only used to calculate depreciation expense. It is not recorded in the accounts of the company or included as part of the carrying amount on the balance sheet.

If 2,000 units were produced during 2020, depreciation expense for that year would be $3,600 ($1.80 per unit x 2,000 units). At December 31, 2020, the following adjusting entry would be recorded:

2020			
Dec. 31	Depreciation Expense	3,600	
	Accumulated Depreciation		3,600

To record depreciation expense using the units-of-production method; ($20,000 - $2,000)/10,000 units = $1.80/unit; $1.80/unit x 2,000 units = $3,600.

The carrying amount at December 31, 2020 would be $13,700 ($20,000 – 2,700 – 3,600).

If the equipment produces 1,000 units in 2021, 2,500 units in 2022, and 3,000 units in 2023, depreciation expense and carrying amounts each year would be as follows:

(a)	*(b)*	*(c)*	*(d)*	*(e)*	*(f)*
Year	*Carrying amount at start of year*	*Usage (units)*	*Rate**	*Dep'n expense*	*Carrying amount at end of year (b) – (e)*
2019	$20,000	1,500	$1.80	$2,700	$17,300
2020	17,300	2,000	1.80	3,600	13,700
2021	13,700	1,000	1.80	1,800	11,900
2022	11,900	2,500	1.80	4,500	7,400
2023	7,400	3,000	1.80	5,400	2,000
		10,000		$18,000	

*($20,000 – 2,000)/10,000 units = $1.80 per unit

If the equipment produces exactly 10,000 units over its useful life and is then retired, depreciation expense over all years will total $18,000 (10,000 units x $1.80) and the carrying amount will equal salvage value of $2,000 ($20,000 – 18,000).

It is unlikely that the equipment will produce exactly 10,000 units over its useful life. Assume instead that 4,800 units were produced in 2023.

Depreciation expense and carrying amounts would be as follows each year:

(a) Year	(b) Carrying amount at start of year	(c) Usage (units)	(d) Rate	(e) Dep'n expense	(f) Carrying amount at end of year (b) – (e)
2019	$20,000	1,500	$1.80	$2,700	$17,300
2020	17,300	2,000	1.80	3,600	13,700
2021	13,700	1,000	1.80	1,800	11,900
2022	11,900	2,500	1.80	4,500	7,400
2023	7,400	4,800	1.80	**5,400**	2,000
		11,800		$18,000	

Although the 2023 depreciation expense would otherwise be $8,640 (4,800 units x $1.80), only $5,400 is recorded to bring the carrying amount of the asset down to its salvage value of $2,000.

Time-Based Depreciation Method - Straight-Line

A simplified method of **straight-line depreciation** was introduced in Chapter 3. This method assumes that the asset will contribute to the earning of revenues equally each time period. Therefore, equal amounts of depreciation are recorded during each year of the asset's useful life.

Straight-line depreciation is calculated as:

$$\frac{\text{(Cost - salvage value)}}{\text{Useful life}} = \text{Depreciation expense each period}$$

To demonstrate, assume the same $20,000 piece of equipment used earlier, with a useful life of five years and a salvage value of $2,000. Straight-line depreciation would be $3,600 per year calculated as:

$$\frac{(\$20{,}000 - \$2{,}000)}{5 \text{ years}} = \$3{,}600 \text{ depreciation expense each year}$$

Over the five-year useful life of the equipment, depreciation expense and carrying amounts will be as follows:

(a) Year	*(b)* Carrying amount at start of year	*(c)* Dep'n expense	*(d)* Carrying amount at end of year (b) – (c)
2019	$20,000	$3,600	$16,400
2020	16,400	3,600	12,800
2021	12,800	3,600	9,200
2022	9,200	3,600	5,600
2023	5,600	3,600	**2,000**
		$18,000	

The carrying amount at December 31, 2023 will be the salvage value of $2,000.

Under the straight-line method, depreciation expense for each accounting period remains the same dollar amount over the useful life of the asset.

Accelerated Time-Based Depreciation Method – Double-Declining Balance (DDB)

An **accelerated depreciation** method assumes that a capital asset will contribute more to the earning of revenues in the earlier stages of its useful life than in the later stages. This means that more depreciation is recorded in earlier years with the depreciation expense decreasing each year. This approach is most appropriate where assets experience a high degree of obsolescence (such as computers) or where the value of the asset is highest in the first years when it is new and efficient and declines significantly each year as it is used and becomes worn (such as mining equipment).

Under an accelerated depreciation method, depreciation expense decreases each year over the useful life of the asset.

One type of accelerated depreciation is the **double-declining balance (DDB) method**. To calculate, the percentage cost of the asset (100%) is divided by its estimated useful life, *without regard to salvage value*. The resulting rate is doubled. The doubled rate is applied at the end of each year to the carrying amount of the asset.

For example, assume the same $20,000 equipment with an estimated useful life of five years. The straight-line rate is 20 per cent, calculated by dividing 100 per cent by five years, the useful life (100%/5 = 20%). This straight-line rate of 20% is then doubled to 40%. A simpler way to calculate this is using the formula 2/n. Using this example, n = 5 years; 2/5 = 40%.

Regardless of which depreciation method is used, a capital asset cannot be depreciated below its carrying amount, which in this case is $2,000.

The DDB depreciation for the five years of the asset's useful life follows:

(a)	*(b)*	*(c)*	*(d)*	*(e)*
Year	*Carrying amount at start of year*	*DDB rate*	*Dep'n expense (b) x (c)*	*Carrying amount at end of year (b) – (d)*
2019	$20,000	40%	$8,000	$12,000
2020	12,000	40%	4,800	7,200
2021	7,200	40%	2,880	4,320
2022	4,320	40%	1,728	2,592
2023	2,592	40%	592	2,000
			$18,000	

Although the 2023 depreciation expense would otherwise be $1,037 ($2,592 x 40%), only $592 is recorded to bring the carrying amount of the asset down to its salvage value of $2,000.

Partial Year Depreciation

LO3 – Calculate and record depreciation for partial years.

Assets may be purchased or sold at any time during a fiscal year. Should depreciation be calculated for a whole year in such a case? The answer depends on corporate accounting policy. There are many alternatives. One is to calculate depreciation to the nearest whole month. Another, often called the **half-year rule**, records half a year's depreciation regardless of when a capital asset is purchased or sold during the year. The half-year rule is used in this textbook.

To demonstrate the half-year approach to calculating depreciation for partial periods, assume again that on January 1, 2019 Big Dog Carworks

Corp. purchases equipment for $20,000 with a useful life of five years and a salvage value of $2,000. Recall that depreciation expense for 2019 was calculated as $3,600 using the straight-line method. Because of the half-year rule, depreciation expense for 2019 would be $1,800 ($3,600 x ½) even though the asset was purchased on the first day of the fiscal year. Using the double-declining balance method, depreciation expense for 2019 under the half-year rule would be $4,000 ($20,000 x 40% = $8,000 x ½). *The half-year rule does not apply to the units-of-production depreciation method* because the method is usage-based and not time-based. Presumably, usage would be less if the asset is purchased or sold partway through a year, so this depreciation method already takes reduced use into account.

Revising Depreciation

LO4 – Calculate and record entries for revised depreciation estimates.

Depreciation calculations need to be revised when accounting estimates like useful life or salvage value change. Both the useful life and salvage value of a depreciable asset are estimated at the time it is purchased. As time goes by, these estimates may change for a variety of reasons. In these cases, the depreciation expense is recalculated from the date of the change in the accounting estimate and applied going forward. *No change is made to depreciation expense already recorded.*

Consider the example of the equipment purchased for $20,000 on January 1, 2019, with an estimated useful life of five years and salvage value of $2,000. If the straight-line depreciation method and the half-year rule are used, the depreciation expense is $1,800 in 2019 and $3,600 in 2020. The carrying amount at the end of 2020 is $14,600 ($20,000 – 1,800 – 3,600). Assume that on December 31, 2021, management estimates the remaining useful life of the equipment to be six years from that date, and the salvage value to be $5,000.

Depreciation expense for the remaining six years would be calculated as:

$$\frac{\text{(Remaining carrying amount – salvage value)}}{\text{Remaining useful life}}$$

$$= \frac{(\$14{,}600 - 5{,}000)}{6 \text{ years}}$$

$$= \$1{,}600 \text{ per year}$$

Impairment of Long-lived Assets

LO5 – Calculate and record the impairment of plant assets.

Under generally accepted accounting principles, management must compare the **recoverable amount** of a depreciable asset with its carrying amount at the end of each reporting period. The recoverable amount is the estimated fair value of the asset at the time less any estimated costs to sell it. If the recoverable amount is lower than the carrying amount, an **impairment loss** must be recorded.

An impairment loss may occur for a variety of reasons: technological obsolescence, an economic downturn, or a physical disaster, for example. When an impairment is recorded, subsequent years' depreciation expense must also be revised.

Recall our $20,000 equipment purchased January 1, 2019 with an estimated useful life of five years and a salvage value of $2,000. Assume straight-line depreciation has been recorded for 2019 amounting to $1,800. At December 31, 2020 and before 2020 depreciation is calculated, the carrying amount of the equipment is $18,200 ($20,000 – 1,800). At that point management determines that new equipment with equivalent capabilities can be purchased for much less than the old equipment due to technological changes. As a result, the recoverable value of the original equipment at December 31, 2020 is estimated to be $7,000, with no salvage value. Because the recoverable amount is less than its carrying amount of $18,200, an impairment loss of $11,200 ($18,200 – 7,000) is recorded in the accounting records as follows:

2020			
Dec. 31	Impairment Loss .	11,200	
	Acc. Dep'n – Equip.		11,200
To record impairment loss on equipment.			

This reduces the carrying amount of the equipment to $7,000 ($20,000 – 1,800 – 11,200). Revised depreciation expense of $2,333 per year would be recorded at the end of 2021, 2022, and 2023, calculated as follows, assuming no change to original useful life:

$$\frac{\text{(Revised carrying amount – revised salvage value)}}{\text{Remaining useful life}}$$

$$= \frac{\$7{,}000 - 0}{3 \text{ years}}$$

= $2,333 per year (rounded)

C. Disposal of Plant Assets

LO6 – Account for the disposal of plant assets.

Plant assets are **disposed** or **derecognized** when they are sold or when no future economic benefit is expected. The cost and any related accumulated depreciation are removed from the accounting records.

To account for the disposal of a plant asset, the following must occur:

1. If the disposal occurs part way through the accounting period, depreciation must be updated to the date of disposal by this type of adjusting entry:

Depreciation Expense	XXX	
Accumulated Depreciation.		XXX
To record depreciation to date of disposal.		

2. The disposal, including any resulting gain or loss, is recorded by this type of adjusting entry:

	Cash (or other assets received)	XXX	
	Accumulated Depreciation	XXX	
OR	Loss on Disposal	XXX	
	Gain on Disposal		XXX
	Plant Asset (such as Equipment)		XXX
	To record disposal of asset.		

A loss results when the carrying amount of the asset is greater than the proceeds received. A gain results when the carrying amount is less than proceeds received.

Sale or Retirement of Plant Assets

When a plant asset is sold or has reached the end of its useful life, the asset's cost and accumulated depreciation must be removed from the records, after depreciation expense has been recorded up to the date of disposal.

Recall the calculation of straight-line depreciation for the equipment purchased January 1, 2019 for $20,000, with an estimated useful life of five years and a salvage value of $2,000. Assume that the equipment is sold on November 30, 2023. First, depreciation would be calculated to the date of disposal. The ½ year rule applies on disposal, so the depreciation expense would be $1,800 in 2023 ($3,600 x ½).

After this entry is posted, the general ledger T-accounts at December 31, 2023 for Equipment and Accumulated Depreciation would show the following entries:

Equipment			
2019	20,000		

Accumulated Depreciation - Equipment			
		2019	1,800*
		2020	3,600
		2021	3,600
		2022	3,600
		2023	1,800*
			14,600

* ½ year rule applies

The carrying amount at this date is $5,600 ($20,000 cost – 14,400 accumulated depreciation). Three different situations are possible.

1. Sale at carrying amount

Assume the equipment is sold for its carrying amount of $5,600. No gain or loss on disposal would occur.

Cost	$ 20,000
Accumulated depreciation	(14,400)
Carrying amount	5,600
Proceeds of disposition	(5,600)
Gain on disposal	$ -0-

The adjusting entry would be:

2023			
Nov. 30	Cash	5,600	
	Accum. Dep'n – Equip.	14,400	
	Equipment		20,000

2. Sale above carrying amount

Assume the equipment is sold for $7,000. A gain of $1,400 would occur.

Cost	$ 20,000
Accumulated depreciation	(14,400)
Carrying amount	5,600
Proceeds of disposition	(7,000)
Gain on disposal	$ (1,400)

The adjusting entry would be:

2023			
Nov. 30	Cash	7,000	
	Accum. Dep'n – Equip.	14,400	
	Gain on Disposal		1,400
	Equipment		20,000

3. Sale below carrying amount

Assume the equipment is sold for $500. A loss on disposal of $5,100 would occur.

Cost	$ 20,000
Accumulated depreciation	(14,400)
Carrying amount	5,600
Proceeds of disposition	(500)
Loss on disposal	$ 5,100

The adjusting entry would be:

2023			
Nov. 30	Cash	500	
	Accum. Dep'n – Equip.	14,400	
	Loss on Disposal	5,100	
	Equipment		20,000

In each of these cases, the cash proceeds must be recorded (by a debit) and the cost and accumulated depreciation must be removed from the accounts. A credit difference represents a gain on disposal while a debit difference represents a loss. Losses and gains on disposal are reported on the income statement as *Other Revenues and Expenses*.

Disposal Involving Trade-In

It is a common practice to exchange a used plant asset for a new one. This is known as a **trade-in**. The value of the trade-in agreed by the purchaser and seller is called the *trade-in allowance*. This amount is applied to the purchase price of the new asset, and the purchaser pays the difference. For instance, if the cost of a new asset is $10,000 and a trade-in allowance of $6,000 is given for the old asset, the purchaser will pay $4,000 ($10,000 – 6,000).

Sometimes as an inducement to the purchaser, the trade-in allowance is higher than the fair value of the used asset on the open market. Regardless, the cost of the new asset must be recorded at its fair value, calculated as follows:

Cost of new asset = Cash paid + Fair value of asset traded

If there is a difference between the fair value of the old asset and its carrying value, a gain or loss results. For example, assume again that equipment was purchased for $20,000 on January 1, 2019. At that time, it had a salvage value of $2,000 and a useful life of five years. It is traded on November 30, 2023 for new equipment with a list price of $25,000. A trade-in allowance of $6,000 is given on the old equipment, so cash paid is $19,000 ($25,000 – 6,000). At the time, the old asset has a fair value of only $4,000.

In this case, the cost of the new asset is calculated as follows:

Cost of new asset = Cash paid + Fair value of asset traded
= $19,000 + 4,000
= $23,000

There will be a loss on disposal of $1,600 on the old equipment, calculated as follows:

Cost	$ 20,000
Accumulated dep'n	(14,400)
Carrying amount	5,600
Fair value	(4,000)
Loss on disposal	$ 1,600

The journal entry on November 30, 2023 to record the purchase of the new equipment and trade-in of the old equipment is:

2023			
Nov. 30	Equipment (new)	23,000	
	Acc. Dep'n –Equip (old)	14,400	
	Loss on Disposal	1,600	
	Equipment (old)		20,000
	Cash		19,000
	To record purchase of new equipment and trade-in of old equipment		

By this entry, the cost of the new equipment ($23,000) is entered into the accounts, the accumulated depreciation and cost of the old equipment is removed from the accounts, and the amount of cash paid is recorded. The debit difference of $1,600 represents the loss on disposal of the old equipment.

D. Accounting for Major Components and Subsequent Expenditures

Complexities are introduced when a large, complicated capital asset is acquired, and when amounts are added to capital assets after initial purchase. These are discussed below.

LO7 – Calculate and record entries for transactions involving major components of capital assets.

Major Components

Each **major component** with a different estimated useful life from the rest of the asset must be recorded and depreciated separately. For instance, assume a commercial airliner is purchased for $100 million ($100M) on January 1, 2019 with the following components: airframe, engines, landing gear, interior, and other parts. The cost of each major component as well as its related accumulated depreciation should be recorded separately in the company's records. Yearly depreciation expense is also calculated separately for each component as shown in column 'e' below, and the ½ year rule is observed in the year of acquisition and disposal.

(a)	*(b)*	*(c)*	*(d)*	*(e)*	
Component	*Component cost*	*Salvage value*	*Useful life (years)*	*2019 dep'n. expense {[(b) – (c)]/(d)} x ½*	*Post-2019 dep'n. expense [(b) – (c)]/(d)*
Airframe	$ 60M	$4M	20	$ 1.4M	$ 2.8M
Engines	20M	2M	5	1.9M	3.6M
Landing Gear	10M	-0-	4	1.25M	2.5M
Interior	2M	-0-	10	.1M	.2M
Other	8M	-0-	4	1M	2M
Total	$100M			$5.55M	$11.1M

Components that have the same estimated useful life, salvage value, and depreciation method can be grouped together. In the above, example, engines are considered one major component, even though there may be several on the aircraft. Despite separate recording in the accounting records, the carrying amount of the entire capital asset is generally reported on the balance sheet (for example, $94.5M at December 31, 2019). As well, depreciation expense is combined into one amount when reported on the income statement (for example, $5.55M in 2019).

Additions to Capital Assets

As noted earlier, recurring expenditures that relate to day-to-day servicing of depreciable assets are not capitalized, but rather are expensed when incurred. Oil changes and new tires for vehicles are examples of recurring expenditures that are expensed. However, expenditures that are material, can be reliably measured, and enhance the future economic benefit provided by the asset are added to the cost of the asset rather than being expensed when incurred (for example, adding a new room in an existing building or regular inspection costs of a capital asset).

Additions to existing capital assets affect future depreciation expense calculations in the same manner as changes in accounting estimates discussed above. For example, assume in our commercial airliner example above that the airframe is modified on April 14, 2022. A $5M change is made to decrease drag and increase fuel efficiency. This amount is deemed material and is paid in cash. The journal entry to record the addition is:

2022			
Apr. 14	Airframe	5M	
	Cash		5M
To record addition to airframe.			

The carrying amount of the original airframe at December 31, 2022 is $53M, calculated as:

Original cost		$60M
Accumulated depreciation		
2019	$1.4M	
2020	2.8M	
2021	2.8M	(7M)
Carrying amount		$53M

The salvage value of the airframe remains unchanged at $4M. Assume straight-line depreciation and use of the ½ year rule. Revised depreciation for 2022 is calculated as:

Original equipment (53M – 4M)/17 yrs.	$2.88M
Addition $5M/17 yrs. x ½ yr.	.15M
Total	$3.03M

Depreciation expense for 2023 and subsequent years is calculated as:

Original equipment (as above)	$2.88M
Addition (no ½ year rule)	.30M
Total	$3.18M[1]

If the double-declining balance method of depreciation is used, much the same calculation is performed as before.

[1] Alternately, the total cost minus salvage value can be used: (53M + 5M – 4M)/17 yrs. = $3.18M.

In our example, the 2022 carrying amount of the airframe using the double-declining balance method and prior to the additional $5M capital expenditure is $46.2M, calculated as:

(a) Year	*(b)* Carrying amount at start of year	*(c)* DDB rate	*(d)* Dep'n expense (b) x (c)	*(e)* Carrying amount at end of year (b) – (d)
2019	$60M	10%[2]	$3M[3]	$57M
2020	57M	10%	5.7M	51.3M
2021	51.3M	10%	5.1M	**46.2M**

[2] 100%/20 yrs. = 5% x 2 = 10% DDB
[3] ½ year rule in effect

Depreciation expense for 2022 will be $4.85M, calculated as follows:

(a) Year	*(b)* Carrying amount at start of year	*(c)* DDB rate	*(d)* Dep'n expense (b) x (c)	*(e)* Carrying amount at end of year (b) – (d)
2022				
Original equip.	$46.2M	10%	$4.6M	$41.6M
Addition	5M	10%	.25M[4]	4.75M
Carrying amt.			**4.85M**	46.35M

[4] ½ year rule in effect

Beginning in 2023, carrying amounts can be combined. For example, depreciation expense for 2023 will be $4.6M ($46.35 x 10%).

Replacement of a Major Component

At times, one of the major components of a capital asset needs to be replaced. In this case, the cost of the replacement component is capitalized. In addition, the cost of the replaced item and its related accumulated depreciation are removed from the accounting records, and a gain or loss on disposal is calculated. This is the same treatment as when an entire capital asset is replaced.

To demonstrate, refer to the commercial airline example again. Assume that on January 5, 2022 the landing gear needed to be entirely replaced at a cost of $12M. This was paid in cash.

The journal entry to record the new landing gear would be:

2022			
Jan. 5	Landing Gear	12M	
	Cash		12M
To record replacement of landing gear.			

Recall that the landing gear was originally valued at $10M. Using straight-line depreciation, the accumulated depreciation amount at the end of 2021 would be $6.25M ($1.25M + 2.5M + 2.5M). The entry to dispose of the old landing gear and remove it from the accounting records is:

2022			
Jan. 5	Accum. Dep. – Landing Gear	6.25M	
	Loss on Disposal	3.75M	
	Landing Gear		10M
To record disposal of old landing gear.			

Losses and gains on disposal are reported on the income statement as *Other Revenues and Expenses*.

At December 31, 2022, straight-line depreciation expense of 1.5M would be recorded for the landing gear [($12M – 0)/4 yrs. x ½ yr.]. The carrying amount would be $10.5M ($12M – 1.5M).

E. Intangible Assets

LO8 – Explain and record the acquisition and amortization of intangible assets.

Another major category of long-lived assets is intangible assets. These arise from legal rights. They do not have physical substance. The characteristics of various types of intangible assets are discussed below.

Patents

A **patent** grants a company an exclusive legal privilege to produce and sell a product or use a process for a specified period. This period varies depending on the nature of the product or process patented, and on the legislation in effect. Modifications to the original product or process can result in a new patent being granted, in effect extending the life of the original patent.

Patents are recorded at cost. If purchased from an inventor, the patent's cost is easily identified. If developed internally, the patent's capitalized costs include all expenditures incurred in the development of the product or process, including salaries and benefits of staff involved.

Copyrights

A **copyright** confers on the holder an exclusive legal privilege to publish a literary or artistic work. In this case, the state grants control over a published or artistic work for the life of the copyright holder (usually the original artist) and for a specified period afterward. This control extends to the reproduction, sale, or other use of the copyrighted material.

Trademarks

A **trademark** is a symbol or a word used by a company to identify itself or one of its products in the marketplace. Symbols are often logos printed on company stationery or displayed at company offices, on vehicles, or in advertising. A well-known example is Coke®. The right to use a trademark can be protected by registering it with the appropriate government agency. The symbol '®'denotes that a trademark is registered. Its use by others is thereby restricted.

Franchises

A **franchise** is a legal right granted by one company (the franchisor) to another company (the franchisee) to sell particular products or to provide certain services in a given region using a specific trademark or trade name. In return, the franchisee pays a fee to the franchisor. McDonald's® is an example of a franchised fast-food chain.

In addition to the payment of an initial franchise fee, which is capitalized, a franchise agreement usually requires annual payments. These payments are considered operating expenses.

Computer Software

Computer software programs may be developed by a company, patented, and then sold to customers for use on their computers. Productivity software like Microsoft Office® is an example. The cost of acquiring and developing computer software programs is recorded as an intangible asset, even if it is stored on a physical device like a computer. However, computer software that is integral to machinery—for instance, software that is necessary to control a piece of production equipment—is included as the cost of the equipment and classified as part of the plant asset.

Capitalization of Intangible Assets

Normally, intangible assets are measured at cost at the time of acquisition and are reported in the asset section of a company's balance sheet under the heading "Intangible Assets." The cost of an acquired intangible asset includes its purchase price and any expenditures needed to directly prepare it for its intended use. Only rarely are subsequent expenditures added to the initial cost of a purchased intangible asset. Instead, these are expensed as they are incurred.

Amortization of Intangible Assets

Plant and equipment assets are depreciated. Intangible assets are also depreciated but the term used is *amortization*. **Amortization** is the systematic process of allocating the cost of intangible assets over their estimated useful lives. The straight-line method is usually used but other methods are permitted under GAAP.

Like plant assets, useful lives and salvage values of intangible assets are estimated by management and must be reviewed annually for reasonableness. As well, any effects on amortization expense because of changes in estimates are accounted for prospectively. That is, prior accounting periods' expenses are not changed. This topic is covered in more detail in other financial accounting courses.

To demonstrate the accounting for intangibles, assume a patent is purchased for $20,000 on April 1, 2019. The entry to record the purchase is:

2019			
Apr. 1	Patent	20,000	
	Cash		20,000

To record the purchase of a patent as an intangible asset.

Assuming the patent will last 40 years with no salvage value and the ½ year rule applies, amortization expense will be recorded at the December 31, 2019 year-end as:

2019			
Dec. 31	Amortization Expense	250	
	Patent		250

To record patent amortization: ($20,000/40 yrs. = $500 x ½ = $250).

Notice that the Patent general ledger account is credited and not Accumulated Amortization. There is no accumulated amortization account maintained for intangible assets.

In other respects, impairment losses, and gains and losses on disposal of intangible assets are calculated and recorded in the same manner as for plant assets.

F. Goodwill

LO9 - Explain goodwill and identify where on the balance sheet it is reported.

Assume that Big Dog Carworks Corp. purchases another company for $10 million ($10M). BDCC takes over all operations, including management and staff. There are no liabilities. The fair values of the assets consist of the following:

Patents	$2M
Machinery	$7M
Total	$9M

Why would BDCC pay $10M for assets with a fair value of only $9M? The extra $1M represents *goodwill*. **Goodwill** is the excess paid over the fair value of the net assets when one company buys another. It is an estimate of the ability of the company to generate superior earnings in the future compared to other companies in the same industry.

Goodwill is the combination of the acquired company's assets which cannot be separately identified—such as a well-trained workforce, better retail locations, superior products, or excellent senior managers— the value of which is recognized only when a significant portion of the shares of another company are purchased.

Recall that among other characteristics, intangible assets must be separately identifiable. Because components of goodwill are not separately identifiable, goodwill is not considered an intangible asset.

Neither is it amortized. However, it does have future value and therefore is recorded as a long-lived asset under its own heading of "Goodwill" on the balance sheet. Its fair value is estimated by management at the end of each fiscal year. If its value has been impaired it is reported at this lower amount.

G. Disclosure

LO10 – Describe the disclosure requirements for long-lived assets in the notes to the financial statements.

When long-lived assets are presented on the balance sheet, the notes to the financial statements need to disclose the following:

- details of each class of assets (e.g., land; equipment including separate parts; patents; goodwill)
- measurement basis (usually historical cost)
- type of depreciation and amortization methods used, including estimated useful lives
- cost and accumulated depreciation at the beginning and end of the period, including additions, disposals, and impairment losses
- whether the assets are constructed by the company for its own use (if plant assets) or internally developed (if intangible assets).

Examples of appropriate disclosure of long-lived assets were shown in notes 3(d) and 4 of BDCC's financial statements in Chapter 4.

Summary of Chapter 8 Learning Objectives

LO1 – Distinguish different types of plant assets.

Plant assets are tangible, long-lived assets that are acquired for the purpose of generating revenue directly or indirectly. A capital expditure is debited to a plant asset account because it results in the acquisition of a non-current asset and includes any additional expenditures to prepare the asset for its intended use at or after initial acquisition. A revenue expenditure does not have a future benefit beyond one year so is expensed. The details regarding a plant asset are maintained in a plant asset subsidiary ledger.

LO2 – Explain, calculate, and record depreciation of plant assets using the units-of-production, straight-line, and double-declining balance methods.

Depreciation allocates the cost of a plant asset (except land) over the accounting periods expected to receive benefits from its use. A plant asset's cost, salvage value, and useful life or productive output are used to calculate depreciation. There are different depreciation methods. Units-of-production is a usage-based method. Straight-line and double-declining balance are time-based methods. The formulas for calculating yearly depreciation expense using these methods are:

Units of production:

$$\frac{\text{(Cost – salvage value)}}{\text{Estimated total output}} \text{ x units of actual output for year}$$

Straight-line:

$$\frac{\text{(Cost – salvage value)}}{\text{Useful life}}$$

Double-declining balance:

$$\text{Carrying amount x} \left\{ \frac{100\%}{\text{Useful life}} \text{ x 2} \right\}$$

Under DDB, depreciation expense in subsequent years is calculated based on the prior year's carrying amount.

Under all methods, carrying amount cannot be less than salvage value.

LO3 – Calculate and record depreciation for partial years.

When assets are acquired or disposed partway through the accounting period, partial period depreciation is recorded. There are several ways to account for partial period depreciation. The half-year rule assumes six months of depreciation in the year of acquisition and year of derecognition regardless of the actual date these occur.

LO4 – Calculate and record entries for revised depreciation estimates.

When there is a change that impacts depreciation (such as a change in the estimated useful life or estimated salvage value, or a subsequent capital expenditure) revised depreciation is applied prospectively – that is, prior accounting periods' expenses are not changed. The calculation is:

$$\frac{\text{(Remaining carrying amount – revised salvage value)}}{\text{Revised useful life}}$$

LO5 – Calculate and record the impairment of plant assets.

The recoverable amount of a long-lived asset must be compared with its carrying amount at the end of each reporting period. The recoverable amount is the fair value of the asset at the time less any estimated costs to sell it. If the recoverable amount is lower than the carrying amount, an impairment loss is recorded as:

Impairment Loss .	XXX	
Equipment… .		XXX
To record impairment loss.		

LO6 – Account for the disposal of plant assets.

Plant assets are derecognized when they are sold or when no future economic benefit is expected. To account for the disposal of a plant asset, the following must occur:

1. If the disposal occurs part way through the accounting period, depreciation must be updated to the date of disposal by this type of adjusting entry:

Depreciation Expense	XXX	
Accumulated Depreciation.		XXX
To adjust depreciation to date of disposal.		

2. The disposal, including any resulting gain or loss, is recorded by this type of adjusting entry:

	Cash (or other assets received)	XXX	
	Accumulated Depreciation	XXX	
OR	Loss on Disposal	XXX	
	Gain on Disposal		XXX
	Plant Asset (such as Equipment)		XXX

A loss results when the carrying amount of the asset is greater than the proceeds received, if any. A gain results when the carrying amount is less than any proceeds received.

It is a common practice to exchange a used PLANT asset for a new one, known as a trade-in. The value of the trade-in is called the trade-in allowance and is applied to the purchase price of the new asset so that the purchaser pays the difference. Sometimes the trade-in allowance is higher than the fair value of the used asset.

The cost of the new asset must be recorded at its fair value, calculated as:

Cost of new asset = Cash paid + Fair value of asset traded

If there is a difference between the fair value of the old asset and its carrying value, a gain or loss results.

LO7 – Calculate and record entries for transactions involving major components of capital assets.

Major components of a large, complex capital assets are recorded separately in the accounting records. Depreciation is calculated based on useful life and salvage value, which is estimated for each major component. Material additions to major components are capitalized and are depreciated using the usual methods of the company. Replacements of major components are capitalized. The replaced major components and related accumulated depreciation are removed from the accounts. A gain or loss on disposal usually results.

LO8 – Explain and record the acquisition and amortization of intangible assets.

Intangible assets are long-lived assets that arise from legal rights and do not have physical substance. Examples include patents, copyrights, trademarks, and franchises. Intangibles are amortized using the straight-line method. The entry to record amortization is a debit to amortization expense and a credit to the intangible asset—there is no accumulated amortization account.

LO9 – Explain goodwill and identify where on the balance sheet it is reported.

Goodwill is a long-lived asset that does not have physical substance but it is *not* an intangible. When one company buys another company, goodwill is the excess paid over the fair value of the net assets purchased and represents the ability to generate superior future earnings compared to other companies in the same industry. Goodwill appears in the asset section of the balance sheet under its own heading of "Goodwill." It is not amortized.

LO10 – Describe the disclosure requirements for long-lived assets in the notes to the financial statements.

When long-lived assets are presented on the balance sheet, the notes to the financial statements need to disclose the following:

- details of each class of assets (e.g., land; equipment including separate parts; patents; goodwill)
- measurement basis (usually historical cost)
- type of depreciation and amortization methods used, including estimated useful lives
- cost and accumulated depreciation at the beginning and end of the period, including additions, disposals, and impairment losses
- whether the assets are constructed by the company for its own use (if plant assets) or internally developed (if intangible assets).

A S S I G N M E N T   M A T E R I A L S

Concept Self-check

1. The cost of a long-lived asset is said to be *capitalized*. What does this mean?
2. How does a capital expenditure differ from a revenue expenditure?
3. Assume that you have purchased a computer for business use; illustrate, using examples, capital and revenue expenditures associated with its purchase.
4. A company purchases land and buildings for a *lump sum*. What does this mean? What is the acceptable manner of accounting for a lump sum purchase?
5. How does the concept of materiality affect the recording of an expenditure as a capital or revenue item?
6. List the three criteria used to determine whether a replacement part for equipment is considered a capital or revenue expenditure.
7. When one long-lived asset is exchanged for another, how is the cost of the newly-acquired asset determined?
8. What is depreciation?
9. Long-lived assets can be considered future benefits to be used over a period of years. The value of these benefits in the first years may not be the same as in later years. Using a car as an example, indicate whether you agree or disagree.
10. Assume that you have recently purchased a new sports car. Is a usage or a time-based method preferable for recording depreciation? Why?
11. What is the effect on the carrying amount of an asset over its useful life when it is depreciated using the declining balance method? the straight-line method?
12. What is the double-declining balance rate of depreciation for an asset that is expected to have a ten-year useful life?
13. How is partial-year depreciation expense calculated?
14. What changes in estimates affect calculation of depreciation expense using the straight-line method? Explain the appropriate accounting treatment when there is a revision of an estimate that affects the calculation of depreciation expense.
15. Explain the effect on the calculation of depreciation expense for capital expenditures made subsequent to the initial purchase of plant assets.

16. Explain the process for determining whether the value of a long-lived asset has been impaired, and the required adjustments to the accounting records.
17. Your friend is concerned that the calculation of depreciation and amortization relies too much on the use of estimates. Your friend believes that accounting should be precise. Do you agree that the use of estimates makes accounting imprecise? Why or why not?
18. Why are the significant parts of plant assets recorded separately?
19. When does the derecognition of plant assets not result in a gain or loss on disposal?
20. What is a trade-in? Explain whether a trade-in is the same as the sale of an asset.
21. Why might a trade-in allowance, particularly in the case of a car, be unrealistic? Why would a dealer give more trade-in allowance on a used car than it is worth?
22. How is the cost of a new capital asset calculated when a trade-in is involved?
23. How are intangible assets different from plant assets? the same?
24. What is a patent? Assume a patent's legal life is twenty years. Does a patent's useful life correspond to its legal life? Why or why not? Support your answer with an example.
25. How does a copyright differ from a trademark? Give an example of each.
26. How are intangible assets valued, and what are their financial statement disclosure requirements?
27. What is goodwill? How does it differ from an intangible asset? Why is a company's internally-generated goodwill not recorded in its accounting records?

Comprehension Problems

CP 8-1

Accountants distinguish between capital and revenue expenditures for some types of transactions. The entries for such transactions can be made to any one of the following accounts:

Balance sheet accounts
a. Land
b. Buildings
c. Land improvements
d. Equipment
e. Trucks
f. Automobiles
g. Accumulated depreciation

Income statement accounts
h. A revenue account
i. An expense account.

Required: For each transaction below, indicate the account to be adjusted. Explain your answers and state any assumptions you make.

Example:
__b__ Architect fees to design building
___ Battery purchased for truck
___ Cash discount received on payment for equipment
___ Commission paid to real estate agent to purchase land
___ Cost of equipment test runs
___ Cost to remodel building
___ Cost to replace manual elevator with automatic elevator
___ Cost of sewage system
___ Equipment assembly expenditure
___ Expenditures for debugging equipment
___ Installation of air-conditioner in automobile
___ Insurance paid during construction of building
___ Legal fees associated with court case to defend title to land purchased
___ Oil change for truck
___ Payment for paving parking lot

___ Proceeds received on demolition of derelict building on land purchased
___ Expenditures for removal of derelict structures
___ Repair made to building after moving in
___ Repair of collision damage to truck
___ Repair of torn seats in automobile
___ Replacement of rusted fender on automobile
___ Replacement of transmission in automobile
___ Special floor foundations for installation of equipment
___ Tires purchased for truck
___ Transportation expenditures to bring equipment to plant.

CP 8-2

Ekman Corporation purchased a new laser printer to be used in its business. The printer had a list price of $4,000, but Ekman was able to purchase it for $3,250. The company expects it to have a useful life of five years, with an estimated salvage value of $250. Ekman is paying the delivery costs of $100, set-up and debugging costs of $300, and the costs of purchasing an appropriate table for $50. There was sales tax of 10 per cent on the purchase price of the printer but not on the other costs.

Required:

1. Calculate the total cost of the laser printer.
2. Ekman management asks you whether the straight-line or double-declining balance method of depreciation would be most appropriate for the printer. Provide calculations to support your answer. Assume the company uses the ½ year rule to calculate depreciation expense in the year of acquisition and disposal.

CP 8-3

Freeman Inc. purchased a piece of agricultural land several years ago for $125,000. The land has a fair value of $200,000 now. The company plans to exchange this land for equipment owned by a land developer that has a fair value of $240,000. The equipment was originally purchased for $325,000, and $80,000 of depreciation has been recorded to the date of the sale on April 30, 2019.

Required:
1. Assume each party values the acquired asset based on the fair value of the asset given up. Prepare the journal entry on the books of
   a. Freeman
   b. the developer.
2. Why would the developer give up an asset with a fair value of $240,000 in exchange for an asset with a fair value of only $200,000?

CP 8-4

Mayr Inc. purchased a machine for its factory on June 6, 2019 for $110,000. The machine is expected to have an estimated useful life of ten years with a salvage value of $10,000. Assume the company uses the ½ year rule to calculate depreciation expense in the year of acquisition and disposal.

Required: Compute the depreciation for 2019 and 2020 using
1. The straight-line method
2. The double-declining balance method.

CP 8-5

Penny Corp. purchased a new car on March 1, 2019 for $25,000. The estimated useful life of the car was five years or 500,000 kms. Estimated salvage value was $5,000. The car was driven 120,000 kms. in 2019 and 150,000 kms. in 2020.

Required: Calculate the depreciation for 2019 and 2020 using
1. The straight-line method
2. Usage method (kms.)
3. Double-declining balance method.

Assume where applicable that the company uses the ½ year rule to calculate depreciation expense in the year of acquisition and disposal.

CP 8-6

Global Flow Inc. purchased a computer on January 1, 2019 for $3,000 cash. It had an estimated useful life of three years and no salvage value. Global Flow made the following changes to the computer:

Mar. 1, 2019	Added storage capacity at a cost of $1,000. This had no effect on salvage value or estimated useful life.
Apr. 1, 2020	Added a new processing board for $2,000, which extended the estimated useful life of the computer another three years but did not affect salvage value.

Required:

1. Prepare a journal entry to record each of the above expenditures. Assume all amounts are material. Descriptions are not necessary.
2. Calculate and prepare journal entries to record depreciation expense for 2019 and 2020 using the double-declining balance method. Assume a December 31 fiscal year-end and that the company uses the ½ year rule to calculate depreciation expense in the year of acquisition and disposal.

CP 8-7

Refer to the information in CP 8-4. At December 31, 2021, Mayr revised its estimate of the machine's useful life to four years. The salvage value remained the same.

Required: Calculate the depreciation for 2021 using

1. The straight-line method
2. The double-declining balance method.

CP 8-8

Refer to the information in CP 8-4 and 8-7. Assume Mayr disposed of the machine on May 31, 2022.

Required: Using the straight-line method of depreciation, record the disposal assuming

1. The equipment was sold for $60,000
2. The equipment was sold for $85,000
3. The equipment was sold for $63,125.

Show all calculations.

CP 8-9

Refer to the information in CP 8-4 and 8-7. Assume that on May 31, 2022 Mayr traded in the machine on an improved model with a listed selling price of $150,000. The company received a trade-in allowance of $100,000 on the old machine. The fair value of the old machine was $95,000.

Required: Prepare the journal entry to record the trade-in on the equipment. Assume the straight-line method of depreciation is used.

CP 8-10

Murphy Limited purchased a $30,000 asset with a five-year life expectancy and no salvage value. Two alternative methods of calculating depreciation expense are presented below.

	Method A	*Method B*
Year		
1	$3,000	$6,000
2	6,000	9,600
3	?	?

Required:

1. Identify the method of depreciation and compute the depreciation expense for the third year under each method.
2. The chief financial officer of Murphy considers depreciation to be nothing more than an arbitrary calculation, based on unreliable estimates. She proposes to use method B for years 1 and 2 and method A for years 3, 4, and 5. In this way, she can deduct the maximum depreciation each year over the life of the asset. Is her proposal acceptable? Why or why not?
3. What factors should be considered in choosing a method of depreciation?

CP 8-11

The Savage Corporation purchased three milling machines on January 1, 2015 and immediately placed them into service. The following information relates to these purchases:

	Machine 1	*Machine 2*	*Machine 3*
Cost	$7,500	$7,500	$7,500
Salvage value	-0-	1,200	300
Useful life	5 Years	6 Years	8 Years

The company uses the straight-line method of depreciation, and records ½ year depreciation in the years of acquisition and disposal. On January 1, 2020, machine 1 was sold for $500. On the same day, management re-evaluated the estimated useful lives and the salvage values of the remaining machines. They came to the conclusion that machine 2 had a remaining useful life of two years (that is, to December 31, 2021), while salvage value remained unchanged. Machine 3 had a remaining useful life of five years (that is, to December 31, 2024) but now had no salvage value.

Required: Prepare journal entries

1. To record the sale of machine 1 on January 1, 2020.
2. To record the revised 2020 depreciation expense for machine 2.
3. To record the revised 2020 depreciation expense for machine 3.

CP 8-12

The following Equipment and Accumulated Depreciation accounts appear in the general ledger of the Sadler Corporation at December 31, 2018.

GENERAL LEDGER

Equipment — Acct. No. 183

Date 2016		Description	PR	Debit	Credit		Balance
Aug.	1	Purchase	GJ7	15,000		DR	15,000

Accumulated Depreciation – Equipment — Acct. No. 193

Date 2018		Description	PR	Debit	Credit		Balance
		Balance forward				CR	2,250
Dec.	31	Depreciation 2018	GJ9		1,500	CR	3,750

The company uses the ½ year rule to calculate depreciation expense in the years of acquisition and disposal. At the time of purchase, the equipment had an estimated useful life of ten years with no salvage value. The straight-line method of depreciation is used. On January 1, 2019, it was estimated that the equipment would last only four more years (to December 31, 2022).

Required:

1. Calculate the depreciation expense for 2019.
2. Prepare the journal entry to record 2019 depreciation expense.
3. Post the accumulated depreciation part of the entry in 2 above to the general ledger and calculate the new balance in the account.
4. How much should the depreciation amount have been in each year if the actual four-year useful life of the equipment had been known at the time of purchase?
5. Given the substantial difference between the depreciation amounts in 2018 and 2019, is the information conveyed to the reader of Sadler Corporation's 2019 financial statements reasonable?

CP 8-13

St. Laurent Limited purchased a truck for cash on January 1, 2018. The company's fiscal year-end is December 31. The company uses the ½ year rule to calculate depreciation in the year of acquisition and disposal. The following details apply:

Cost	*Useful life*	*Salvage value*	*Depreciation method*
$10,500	5 years	$500	Double-declining balance

On March 1, 2019, the company paid $3,500 for gas and oil, a tune-up, new tires, and a battery. It also paid $4,000 to install a lift on the back of the truck. Only the latter amount is material.

Required:

1. Prepare journal entries to record
   a. the purchase of the truck
   b. depreciation for 2018
   c. the 2019 expenditures relating to the truck
   d. depreciation for 2019.
2. Prepare the journal entries to record the sale of the truck on March 3, 2020 for $8,000 cash, including 2020 depreciation expense.

CP 8-14

Brown Company paid $900,000 cash to purchase the following tangible and intangible assets of Coffee Company on January 1, 2019:

Land	$300,000
Building	200,000
Patents	100,000
Machinery	250,000

The building is depreciated using the double-declining balance method, has an estimated useful life of ten years, and a salvage value of $10,000. The machinery has an estimated useful life of five years and a salvage value of 10% of cost. Depreciation expense is calculated on the basis of productive output. The machinery's productive output was estimated to be 60,000 units. Actual production was as follows:

2019	10,000
2020	15,000
2021	20,000

The patents have an estimated useful life of twenty years and are amortized on a straight-line basis. They have no salvage value. On December 31, 2020, the value of the patents was estimated to be $80,000. The machinery was sold on December 2, 2021 for $100,000. The company uses the ½ year rule to calculate depreciation and amortization expense in the years of acquisition and disposal. Its fiscal year-end is December 31.

Required: Prepare journal entries to record in the records of Brown:

1. The $900,000 purchase
2. Depreciation and amortization expense for 2019
3. The decline in value of the patents at December 31, 2020
4. The sale of the machinery.

Problems

P 8-1

Arrow Construction Company Ltd. purchased a farm from K. Jones. Arrow and Jones completed the transaction under the following terms: a check from Arrow to Jones for $140,000; bank loan assumed by Arrow, $100,000. Legal, accounting, and brokerage fees amounted to $20,000. It was Arrow's intention to build homes on the property after sub-dividing. Crops on the farm were sold for $6,000; a house was sold for $1,600; barns were razed at a cost of $6,000. Salvaged lumber was sold for $4,400. The property was cleared and levelled at a cost of $10,000. The necessary property was turned over to the township for roads, schools, churches, and playgrounds. Riverside still expected to secure a total of 500 identical lots from the remaining land.

Required: Prepare a schedule showing the cost to Arrow of the 500 lots.

P 8-2

The following items relate to the acquisition of a new machine by the Bohn Group Inc. On the right-hand side are a number of possible accounting treatments; on the left-hand side are a number of independent accounting situations:

Situation	
___	Invoice price of new machine, net of cash discount offered
___	Cash discount on the above, which has not yet been taken
___	Anticipated first year's savings in operating costs from use of new machine
___	Two-year service contract on operations of new machine paid in full
___	Cost of materials used while testing new machine
___	Cost of installing sound insulation in wall near machine so that nearby office employees will not be disturbed by it
___	Cost of removing machine that new machine replaces.

Accounting treatment

(1) Debit Machinery account
(2) Debit an expense account for the current period
(3) Debit an asset other than the machine and write-off the asset separately from the machine
(4) Credit Machinery account
(5) None of the above; explain what account would be appropriate, if applicable.

Required: Indicate the appropriate accounting treatment for each situation. Record any assumptions that you think might be necessary for any given situation.

P 8-3

Northland Shows Ltd. acquired a new amusement ride on July 1. The following details apply to the purchase:

Cost per supplier's invoice (The invoice provided a 1% cash discount if paid within 30 days. It was paid on July 15.)	$20,000
Cash payment on July 4 to Dalton Construction Ltd. for cement base for new ride	4,000
Transportation paid on purchase, July 5	520
Insurance for operation of ride paid in cash on July 5 for three-year term, commencing July 6	90
Alterations to new ride paid in cash July 5 (25% of this will be reimbursed by the vendor)	900
Installation costs paid in cash July 6	188

Required:
1. Prepare journal entries to record the acquisition of Northland's new ride.
2. Calculate the carrying amount of the asset.

P 8-4

Janz Corporation purchased a piece of machinery on January 1, 2017. The company's year-end is December 31. The following information is applicable:

Cost	*Useful life*	*Salvage value*	*Depreciation method*
$90,000	9,000 units	-0-	Usage

Output during 2018 and 2019 was 2,000 and 3,000 units, respectively.

Required:
1. Calculate the depreciation expense for 2018 and 2019.
2. What is the balance of accumulated depreciation at the end of 2019?
3. What is the carrying amount of the machinery shown on the balance sheet at the end of 2019?
4. Prepare a partial comparative balance sheet for Janz Corporation at the end of 2019.

P 8-5

Livingston Corp. purchased a printer on January 1, 2019. The company year-end is December 31. The following information is applicable:

Cost	*Estimated useful life*	*Salvage value*	*Usage (units)*	
$5,000	4 years	$1,000	2019	10,000
			2020	15,000
			2021	20,000
			2022	5,000

Required:

1. Calculate the depreciation expense for the four-year period under each of these depreciation methods: straight-line, double-declining balance, and usage. Assume the company uses the ½ year rule to calculate depreciation expense in the year of acquisition and disposal where applicable. Present your solution in the following format:

	Depreciation expense		
Year	*Straight-line*	*Double-declining balance*	*Usage*
2019			
2020			
2021			
2022			
Total			

2. The president has asked you to describe one factor that might affect depreciation rate and salvage value estimates, and how these changes to estimates will be accommodated should they occur. How would you respond?
3. Which method of depreciation would you recommend in this case? Why?

P 8-6

Roberto Trucks Inc. purchased a delivery van on January 1, 2018. Assume this was the company's only capital asset and that the company uses the ½ year rule in the year of acquisition and disposal for straight-line and double-declining balance depreciation methods. The following information is available.

Cost	*Estimated useful life*	*Salvage value*
$11,000	4 years or 75,000 kms.	$2,000

The truck was driven 20,000 km in 2018.

Required:

1. Calculate the depreciation for 2018 under each of the following methods:
   a. Usage
   b. Straight-line
   c. Double-declining balance
2. Compare the depreciation expense and carrying amount for 2018 under each of these methods.
3. If one of management's objectives is to maximize 2018 net income, what method should be adopted?

P 8-7

Wynne Ltd. purchased a machine on January 1, 2019 for $23,000. During 2019, transportation charges paid by Wynne amounted to $600 and another $1,400 cost was incurred for installation. Useful life is three years. The salvage value of the machine is $2,000.

Required:

1. Determine the cost of the machine on which depreciation will be calculated (that is, the depreciable amount, not the carrying amount) under
   a. straight-line method
   b. double-declining balance method.
2. Calculate the depreciation for each year of the expected useful life of the machine under
   a. straight-line method
   b. double-declining balance method.

   Assume that the ½ year rule is used in the years of acquisition and disposal.

3. On January 1, 2020, Wynne changed the estimated useful life of the machine from the date of purchase from a total of three years to a total of five years. Salvage value remained at $2,000. Calculate the depreciation that should be recorded in 2020 and each year thereafter assuming the company uses the straight-line method.

P 8-8

On January 1, 2013, Young Inc. purchased a machine for $30,000. Its engineers had estimated useful life for the machine at twenty years. The salvage value was estimated to be 10 per cent of the original cost. Seven years later, on January 1, 2020, experts were hired to review the expected useful life and salvage value of the machine. Here are the findings:

Estimated useful life as of January 1, 2020	8 years
New salvage value	$6,000

Depreciation has not yet been recorded in 2020. Assume that the straight-line method of depreciation is used and the company uses the ½ year rule in the years of acquisition and disposal.

Required:
1. Calculate the carrying amount of the machine at December 31, 2019.
2. Calculate the cost of the machine that remains to be depreciated at January 1, 2020 based on the new estimates.
3. Calculate the amount of depreciation expense to be recorded at December 31, 2020, and prepare the necessary journal entry.
4. Record the journal entries if the machine is sold on March 31, 2021 for $22,000.

P 8-9

Part A

Davies Fabricating Inc. started business on May 1, 2018. The year-end of the company is December 31. On May 5, 2018, the company purchased equipment for $130,000 cash. The equipment had an estimated useful life of four years, an estimated total production output of 100,000 units, and a salvage value of $10,000. The equipment was depreciated using the units-of-production (usage) method. Actual units of output over three years were: 2018— 12,000; 2019—30,000; and 2020—20,000.

On January 1, 2021, the company traded in the original equipment for new equipment. The company paid and additional $140,000 cash for the new equipment. The company had used the units-of-output (usage) method to calculate depreciation on the old manufacturing equipment. The fair value of the original equipment was $60,000 at the date of the trade.

Required: Prepare journal entries to record the transactions on the following dates:
1. May 1, 2018
2. January 1, 2021

Part B

On January 1, 2019, Davies Fabricating Inc. was able to buy a nearby warehouse for the storage of its finished product. The cost included land, $50,000 and building, $300,000. The company signed a ten-year bank loan for $320,000 and paid the balance in cash. The building had an estimated useful life of fifty years with no salvage value. On June 28, 2023, the warehouse was totally destroyed by fire. On July 31, the company was notified that it would receive $270,000 from the insurance company at a later date as settlement in full for the building. The building was depreciated on the straight-line basis. Assume the company uses the ½ year rule to calculate depreciation expense in the year of acquisition and disposal.

Required: Prepare journal entries to record the transactions on the following dates:
1. January 1, 2019
2. June 28, 2023.

P 8-10

Robbins Inc. purchased the following assets of Marine Company for $500,000 cash on September 30, 2018:

Land	$300,000
Building	100,000
Computer software	75,000

The building will be depreciated using the straight-line method. It has an estimated useful life of forty years and a salvage value of 10% of cost.

The computer software has an estimated useful life of three years and no salvage value. It will be amortized using the double-declining balance method. On January 2, 2019, the value of the computer software was estimated at $50,000. The computer software was sold on September 15, 2020 for $65,000.

Robbins Inc. uses the ½ year rule to calculate depreciation and amortization expense in the year of acquisition and disposal. Its fiscal year-end is December 31.

Required:

1. Prepare journal entries to record
   a. the $500,000 purchase
   b. depreciation and amortization expense for 2018
   c. the change in the value of the computer software at January 2, 2019
   d. the sale of the computer software on September 15, 2020.
2. Calculate the carrying amounts of the assets at December 31, 2020.

P 8-11

CPA Rail purchased an electric-diesel locomotive for $3 million on January 1, 2017. It had the following major components:

(a) Component	*(b)* Component cost	*(c)* Salvage value	*(d)* Useful life (years)
Wheel assemblies (4)	$1,200,000	$30,000	30
Diesel engine	1,000,000	100,000	5
Electric motors (4)	600,000	60,000	6
Other	200,000	-0-	10
Total	$3,000,000		

On January 1, 2019 management revised the estimated useful life of the diesel engine down to two years (to December 31, 2020). Salvage value remained unchanged. On August 31, 2020 one of the electric motors was replaced for $180,000, a material amount. Useful life of the new motor is estimated at four years (to December 31, 2024) and salvage value is estimated at $20,000. The replaced motor was sold for $10,000 cash on the same date. The locomotive was sold on September 20, 2021 for $1,500,000.

Assume the company uses straight-line depreciation and the ½ year rule to calculate depreciation expense in the years of acquisition and disposal.

Required
1. Calculate 2019 depreciation expense for the locomotive.
2. Calculate the gain or loss on disposal of the electric motor in 2020.
3. Calculate 2020 depreciation expense.
4. Calculate the carrying amount of the locomotive at December 31, 2020.
5. Calculate the gain or loss on disposal of the locomotive in 2021.

CHAPTER NINE

Debt Financing: Current and Non-current Liabilities

A corporation often has liabilities – amounts owing to creditors. These liabilities must be classified on the balance sheet as current or non-current. Current liabilities can include known liabilities such as payroll liabilities, interest payable, and bank loans that must be paid in the near future, and estimated liabilities related to warranties, for instance. Non-current debt includes amounts owing to creditors that will be paid over many years, like some kinds of bank loans.

Chapter 9 Learning Objectives

LO1 – Identify and explain the difference between current and non-current liabilities.

LO2 – Record and disclose known current liabilities.

LO3 – Record and disclose estimated current liabilities.

LO4 – Explain, calculate, and record non-current debt.

A. Current versus Non-current Liabilities

LO1 - Identify and explain the difference between current and non-current liabilities.

Current or **short-term liabilities** are a form of debt that is expected to be paid within the longer of one year of the balance sheet date or the next operating cycle, whichever is longer. Examples include accounts payable, salaries payable, unearned revenues, notes payable, and short-term bank loans.

Non-current liabilities are forms of debt expected to be paid beyond one year of the balance sheet date or the next operating cycle, whichever is longer. Long-term bank loans secured by real estate (mortgages) are examples of non-current liabilities.

As discussed in Chapter 4, current and non-current liabilities must be shown separately on the balance sheet. Doing so helps financial statement readers assess the *liquidity* of a corporation – its ability to satisfy current liabilities (generally with cash) as they come due.

B. Known Current Liabilities

LO2 - Record and disclose known current liabilities.

Known current liabilities are those where the payee, amount, and timing of payment are known. Examples include accounts payable, unearned revenues, and payroll liabilities. These are different from **estimated current liabilities** where the amount is not known and must be estimated. These may arise when a supplier's invoice has not been received by the time the financial statements have been prepared, for instance. Estimated current liabilities are discussed later in this chapter.

Employee Payroll Liabilities

Short-term bank loans, accounts payable and unearned revenues were introduced in previous chapters. Payroll liabilities are amounts owing to various agencies on behalf of employees.

Gross pay is the amount of salaries or wages[1] to which employees are entitled before any deductions. **Net pay** is the actual cash payment that the employees receive at the end of a pay period after various deductions are made. Common items withheld from employees' pay checks are personal income taxes, social security taxes, pension and

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[1] Salaries are fixed amounts paid to an employee on a regular basis (for example, monthly). Wages are calculated based on an hourly rate times the actual hours worked each day.

health insurance contributions, and union dues. These withheld amounts are remitted by the employer to agencies like the government, a private pension plan administrator, a union, or a health care provider, and usually within a few days of being deducted. The **Federal Insurance Contributions Act (FICA)** is a United States law that requires payroll contributions from employees and employers in order to fund Social Security and Medicare programs. These are federal programs that provide assistance to retirees, disabled people, and certain qualifying children. Employers must remit the withheld FICA taxes to the Internal Revenue Service (IRS) by the filing deadlines specified during the year. The FICA tax is separated into two categories – Social Security and Medicare. The Social Security tax is computed as 6.2% of an employee's gross wages up to $128,700[2]. The Medicare tax is computed as 1.45% of *all* gross wages. There is no upper limit.

Assume a company has two employees. S. Smith's gross pay for the pay period December 16-31, 2019 is $1,560. J. Jone's gross pay is $975. Each employee is required to have the following amounts deducted from their gross pay each period:

Personal income taxes	15%
FICA Social Insurance	6.2%
FICA Medicare	1.45%
Union dues	1%
Company pension plan	3%

In addition, each employee contributes $55 per pay period to a company health plan. Gross pay, payroll deductions, and net pay for the two employees would be as shown below:

			Payroll Deductions							
Row	*Employee*	*Gross pay*	*Income taxes (15%)*	*FICA Soc. Sec. (6.2%)*	*FICA Medic. (1.45%)*	*Comp. health plan*	*Union dues (1%)*	*Comp. pension (3%)*	*Total. deduct.*	*Net pay*
1.	S. Smith	1,560.00	234.00[3]	96.72[4]	22.62[5]	55.00	15.60[6]	46.80[7]	470.74	1,089.26
2.	J. Jones	975.00	146.25	60.45	14.14	55.00	9.75	29.25	314.84	660.16
3.	Total employee deductions		380.25	157.17	36.76	110.00	25.35	76.05	785.58	

Figure 9–1: December 16-31, 2019 Payroll Record Example

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[2] Gross pay limit may be changed each year. Visit [ssa.gov](ssa.gov) for further information.

[3] $1,560.00 x 15% - $234.00

[4] $1,560.00 x 6.2% = $96.72

[5] $1,560.00 x 1.45% = $22.62

[6] $1,560.00 x 1% = $15.60

[7] $1,560.00 x 3% = $46.80

Calculations are similar for J. Jones.

This is the same as the "Gross pay" amount for Smith shown in Figure 9-1.

The journal entry to record the amount payable at year-end to S. Smith would be:

Dec. 31	Salaries Expense	1,560.00	
	Employee Inc. Taxes Pay.		234.00
	FICA Soc. Sec. Pay.		96.72
	FICA Medicare Payable		22.62
	Company Health Plan Pay.		55.00
	Union Dues Payable		15.60
	Company Pension Payable		46.80
	Salaries Payable		1,089.26
	To record amount due to S. Smith, net of deductions.		

These are all current liability accounts.

These are the amounts deducted for Smith shown in row 1.

This is the same as net pay figure shown for Smith in Figure 9-1.

The journal entry to record the amount payable at year-end to J. Jones would be similar:

Dec. 31	Salaries Expense	975.00	
	Employee Inc. Taxes Pay.		146.25
	FICA Soc. Sec. Pay.		60.45
	FICA Medicare Payable		14.14
	Company Health Plan Pay.		55.00
	Union Dues Payable		9.75
	Company Pension Payable		29.25
	Salaries Payable		660.16
	To record amount due to J. Jones, net of deductions.		

These are the amounts deducted for Jones shown in row 2.

When the two employees are paid on say, January 2, 2020, the following entries would be made:

2020			
Jan. 2	Salaries Payable	1,089.26	
	Cash		1,089.26
	Salaries Payable	660.16	
	Cash		660.16
	To record payment of net amounts owing to Smith and Jones at December 31.		

In most countries, the employer is required by law to also contribute to certain government programs. These amounts are known as **payroll expenses**.

In addition to the required withholdings mentioned above, employers may offer to withhold additional amounts based on employee requests or other agreements. Common examples include pension contributions, health insurance payments, union dues, or life insurance premiums. These withholdings are considered current liabilities until paid.

To demonstrate the journal entries to record a business's payroll expenses for the period December 16-31, 2019, refer to the payroll records in Figure 9–2 below. Information shown for Smith and Jones is the same as in Figure 9–1. Assume that in addition to amounts that it withholds from employees' pay as shown in row 3, the company must also pay federal unemployment tax of $187.20 and state unemployment tax of $93.60. In addition, it one-half as much as the employees to the company pension plan. Assume that the maximum wages for Social Security have not been met. The company therefore incurs the payroll expenses shown in row 4 of Figure 9–2 below ("emp'ee" = employee; "emp'er" = employer):

			Payroll Deductions								
Row	*Employee*	*Gross pay*	*Income taxes (15%)*	*FICA Soc. Sec. (6.2%)*	*FICA Medic. (1.45%)*	*Comp. health plan*	*Union dues (1%)*	*Comp. pension (3%)*	*Fed. unemp. tax*	*State unemp. tax*	*Net pay*
1.	S. Smith	1,560.00	234.00	96.72	22.62	55.00	15.60	46.80			1,089.26
2.	J. Jones	975.00	146.25	60.45	14.14	55.00	9.75	29.25			660.16
3.	Total emp'ee ded.		380.25	157.17	36.76	110.00	25.35	76.05			
4.	Total emp'er ded.			157.17[8]	36.76[9]			38.03[10]	187.20	93.60	512.75
5.	Total remittances		380.25	314.34	73.52	110.00	25.35	114.08	187.20	93.60	

Figure 9–2: December 16-31, 2019 Payroll with Employer Contributions

These are payroll expense categories on the income statement.

The journal entry to record the company's matching contributions would be:

Dec. 31	FICA Soc. Sec. Expense	157.17	
	FICA Medicare Expense	36.76	
	Company Pension Expense	38.03	
	Federal Unemp. Tax Exp.	187.20	
	State Unemp. Tax Exp.	93.60	
	FICA Soc. Sec. Payable		157.17
	FICA Medicare Payable		36.76
	Company Pension Payable		38.03
	Federal Unemp. Tax Pay.		187.20
	State Unemp. Tax Pay		93.60
	To record employer contributions owing for December.		

These are new current liability accounts.

These amounts are the same as those shown in row 4 of Fig. 9–2 above.

[8] Matches total employee deductions.
[9] Matches total employee deductions.
[10] $76.05 x ½ = $38.03

The deductions payable accounts would be recorded as current liabilities on the December 31, 2019 balance sheet, since they will be remitted to various agencies within the next few weeks.

When deductions are paid to the various agencies, say on January 15, 2020, the following five entries would be made to eliminate these current liability accounts, one entry for each agency. Both employee and company portion of the deductions are remitted. These are the same amounts as shown in row 5 of Figure 9-2 above:

2020			
Jan. 15	Employee Inc. Taxes Pay.	380.25	
	FICA Soc. Sec. Payable	314.34	
	FICA Medicare Payable	73.52	
	Federal Unemp. Tax Pay.	187.20	
	Cash		955.31
	To record employee deductions and employer contributions for December 31, 2019 paid to Internal Revenue Service.		
Jan. 15	Company Health Plan Payable	110.00	
	Cash		110.00
	To record payment of employee deductions to ABC Healthcare.		
Jan. 15	Union Dues Payable	25.35	
	Cash		25.35
	To record payment of employee deductions to Union X, Local 251.		
Jan. 15	Company Pension Payable	114.08	
	Cash		114.08
	To record payment of employee deductions and employer contributions to Greenview Private Pension Plan Administrator.		
Jan. 15	State Unemp. Tax Payable	93.60	
	Cash		93.60
	To record payment of employer unemployment tax to State Y.		

These are simple examples. Payroll accounting can be complex and is covered in more detail in specialized accounting courses.

Sales Taxes

Another type of known current liabilities is a **sales tax**. Sales taxes are assessed on the sale of most tangible goods in many states and counties. The tax is usually calculated as a percent of the good's selling price. This tax is collected by the company selling the goods and then remitted to the appropriate agency in a timely manner. Since the selling company owes these tax collections to the local governments, a current liability needs to be recorded at the time of sale. For example, assume that Joe's Cars Corporation operates in North Dakota and that the state sales tax is 5% of revenue from the sale of tangible goods. The company purchased a vehicle for $20,000 cash from a supplier on December 15, 2019. Recall from chapter five that using the perpetual inventory method, the entry to record the purchase would be:

2019			
Dec. 15	Merchandise Inventory	20,000	
	Cash		20,000
	To record purchase of vehicle.		

Assume the company then sold the vehicle to a customer on December 20 for $25,000 cash. The customer must pay Joe's Cars $26,250: $25,000 for the vehicle plus sales tax of $1,250 ($25,000 x 5% = $1,250). The entry to record the sale and related cost of goods sold would be:

2019			
Dec. 20	Cash	26,250	
	Sales		25,000
	Sales Tax Payable		1,250
	Cost of Goods Sold	20,000	
	Merchandise Inventory		20,000
	To record sale of vehicle plus 5% sales tax, and related cost of goods sold.		

The balance sheet at December 31 would show a current liability, Sales Tax Payable, amounting to $1,250. No expense would be recorded on the company's income statement. The Sales Tax Payable liability of $1,250 would be paid to the applicable government agency soon after the balance sheet date.

Assuming this payment is made on January 15, 2020, the following journal entry would be made:

2020			
Jan. 15	Sales Tax Payable	1,250	
	Cash		1,250
	To record payment of sales tax owing at December 31.		

Short-term Notes Payable

Short-term notes receivable were discussed in Chapter 7. A note receivable can arise when an account receivable is overdue and the debtor and creditor agree to enter into a formal legal agreement for payment. A **short-term note payable** is the flip side of a note receivable. It is an arrangement to formalize repayment of an account from the creditor's point of view. It is recorded as a current liability if it is expected to be paid within one year from the balance sheet date.

In Chapter 7, BDCC provided $4,000 of services on August 1, 2019 to customer Woodlow. Woodlow was unable to pay this amount in a timely manner. The receivable was converted in BDCC's accounting records on December 1, 2019 to a 4%, three-month note receivable, meaning that the $4,000 was to be repaid with interest on February 28, 2020.

The following example compares the entries recorded by BDCC for the note receivable to the entries recorded by Woodlow to establish and then satisfy a note payable for the same transaction.

	BDCC records			Woodlow records		
2019						
Dec. 1	Note Rec. – Woodlow	4,000		Account Payable – BDCC	4,000	
	Account Rec. – Woodlow		4,000	Note Payable – BDCC		4,000
	To record conversion of the account receivable from Woodlow to a 4%, 3-month note receivable due February 28, 2020.			To record conversion of the account payable to BDCC to a 4%, 3-month note payable due February 28, 2020.		
Dec. 31	Interest Receivable	13		Interest Expense	13	
	Interest Earned		13	Interest Payable		13
	To record interest revenue accrued on the Woodlow note receivable at year-end ($4,000 x 4% x 1/12 mos. = $13).			To record interest expense accrued on the BDCC note payable at year-end ($4,000 x 4% x 1/12 mos. = $13).		
2020						
Feb. 28	Cash	4,040		Note Payable – BDCC	4,000	
	Interest Receivable		13	Interest Payable	13	
	Interest Earned		27	Interest Expense	27	
	Note Rec. – Woodlow		4,000	Cash		4,040
	To record the collection of the note receivable and interest revenue from January 1 to February 28, 2020 ($4,000 x 4% x 1/12 mos. = $27).			To record the payment of the note payable and interest expense from January 1 to February 28, 2020 ($4,000 x 4% x 1/12 mos. = $27).		

Notice that the dollar amounts in the entries for BDCC are mirrors of those for Woodlow. BDCC records interest earned; Woodlow records interest expense. BDCC will report two current assets in its balance sheet at December 31 (note receivable; interest receivable); Woodlow will report two current liabilities (note payable; interest payable).

Income Tax Liabilities

Besides sales taxes and payroll deductions, a company must also remit corporate income taxes to the government. A company's income taxes are based on the amount of income, net of expenses, reported on its annual income statement.[11] It is one of the last adjusting entries made at a company's year-end.

Often, profitable companies are required to remit income tax installments for the current year to the government on a monthly or quarterly basis, and before the fiscal year-end. Installment calculations are beyond the scope of this text but are often influenced by the amount of corporate income taxes paid in the prior year by a company.

Assume that BDCC is required to make monthly corporate income tax installments during 2019 of $1,500 and that these amounts must be paid to the government by the 15th day of the following month. If the

[11] Corporate income taxation is complex and covered more thoroughly in advanced accounting courses.

payment for January 2019 was made by February 15, the journal entry would be:

2019			
Feb. 15	Corporate Income Taxes Payable	1,500	
	Cash		1,500
	To record payment of January income tax installment.		

After the monthly payment on December 15, 2019, the balance in the Corporate Income Taxes Payable general ledger account would be a $16,500 debit balance ($1,500 x 11 mos.).

Various adjusting entries would be made to prepare the BDCC financial statement for the year ended December 31, 2019. Assume that after all these adjustments, BDCC reported revenues of $500,000 and expenses of $400,000 for the year ended December 31, 2019. Income before income taxes would be $100,000. This figure is used as a basis to prepare the corporate tax return for the year. If the corporate income tax rate is 20%, BDCC would pay corporate income taxes of $20,000 ($100,000 x 20% = $20,000).

The adjusting entry to record the corporate income taxes expense and adjust the amount owing would be:

2019		Debit	Credit
Dec. 31	Corporate Income Taxes Expense	20,000	
	Corporate Inc. Taxes Payable		20,000
	To record 2019 corporate income tax expense.		

Corp. Inc. Tax Exp.	
20,000	

Corp. Inc. Tax. Pay.	
16,500	20,000
	3,500

Since the company has already paid $16,500 in corporate income tax installments for the 2019 fiscal year, it only owes $3,500 at December 31, 2019 (see bolded amount above).

The condensed BDCC income statement at December 31 would show:

Big Dog Carworks Corp.
Income Statement
For the Year Ended December 31, 2019

Revenue	$500,000
Operating expenses	400,000
Income before income taxes	100,000
Income taxes	20,000
Net income	$80,000

The $3,500 balance in the Corporate Income Taxes Payable general ledger account would be shown as a current liability on the balance sheet at December 31, 2019. BDCC will pay this amount in cash sometime in 2020 after the income tax return has been filed with the government and assessed.

C. Estimated Current Liabilities

LO3 - Record and disclose estimated current liabilities.

An estimated current liability is an obligation that exists at the balance sheet date. However, its amount can only be approximated – for because an invoice has not yet been received from a supplier. Two common examples of estimated liabilities are warranties and fees for services rendered by professionals like lawyers and auditors related to year-end financial statement preparation.

Warranty Liabilities

A **warranty** is a guarantee offered by the seller to replace or repair defective products. Warranties typically apply for a limited period of time. The seller does not know which product will require warranty work, when it might occur, or the amount. However, based on past experience, warranty expense can be estimated. Often this is based on a percentage of sales revenue. The adjustment is done at year –end. Doing this matches warranty expenses with revenue in the year of sale.

As an example, assume High Road Appliances Corp. estimated its warranty expense to be 5% of its sales revenue. Sales amounted to $500,000 for its first year ended December 31, 2019.

To match the warranty expense to the period in which the revenue was realized, the following adjusting entry would be recorded at the year-end:

2019			
Dec. 31	Warranty Expense	25,000	
	Estimated Warranty Liability		25,000
	To record estimated warranty expense for the year ($500,000 x 5% = $25,000).		

Prior to this year-end adjusting entry, parts and labor are used to perform warranty work during the year. The following type of entry is recorded many times as each piece of warranty work is completed:

Estimated Warranty Liability	XXX	
Parts Inventory		XXX
Wages Payable		XXX
To record the actual costs of parts and labor for warranty work, job 1234.		

These many small entries gradually increase the debit balance in the Estimated Warranty Liability account until the estimated liability account is adjusted as above to record the estimated expense.

Over time, the year-end balance in the Estimated Warranty Liability account should be stable if actual expenditures are equal to estimated expenditures. If the balance gradually increases or decreases, the estimate of warranty expense as a percentage of sales revenue needs to be reviewed and adjusted.

Professional Fess

An independent accounting firm may be contracted to prepare or audit the annual financial statements. Services of lawyers and pension actuaries may also be needed. Precise fees for these services will be unknown until an invoice is rendered by the supplier. However, this usually occurs after the financial statements have been issued. To match the expense to the year in which the services apply, the fees are estimated and recorded as part of the Estimated Current Liabilities general ledger account at year-end.

Assume BDCC estimates that the audit fee for the 2019 financial statements will be $10,000.

The following adjusting entry would be made:

2019			
Dec. 31	Professional Fees	10,000	
	Estimated Current Liabilities		10,000
	To record estimated audit fees for the year.		

Contingent Liabilities

An estimated liability results from a past occurrence. It is recorded when the likelihood of paying is probable and the amount can be reliably estimated. A **contingent liability** exists as a result of a past occurrence, but only if payment is not probable or the amount of the liability is not known at the date the financial statements are issued. A contingent liability is just disclosed in a note to the financial statement. A liability with only a remote likelihood of success is neither recorded nor disclosed in a note. The following is a summary of the treatment of these types of liabilities:

	Outcome		
	Remote	*Possible*	*Probable*
Amount can be estimated	Do not report	Note to financial statements	Record in financial statements
Amount cannot be estimated	Do not report	Note to financial statements	Note to financial statements

As an example, assume a lawsuit is commenced in 2019 against Jones Corp. claiming damages of $100,000. At December 31, 2019, lawyers for the company indicate that it is probable that the lawsuit will be successful but the damages cannot be reasonably estimated. In this case, a note to the financial statements might state:

Note X A lawsuit has been commenced during the year against the company related to the alleged sale of defective merchandise. Legal counsel has advised that this action will likely be successful. The amount of award cannot be reasonably estimated at this time. The lawsuit seeks compensation for damages amounting to $100,000.

Assume now that it is probable that the lawsuit will be successful and that full damages will be awarded. The following entry would be recorded in the company's records:

2019			
Dec. 31	Lawsuit Damages Expense	100,000	
	Estimated Current Liabilities		100,000
	To record estimated lawsuit award.		

If this amount is relatively large, it would be reported in the Other Income (Expenses) section of the income statement.

D. Non-current Liabilities

LO4 – Explain, calculate, and record non-current debt.

A corporation often incurs long-term debt to acquire plant assets. These borrowing are repayable over many years. There are three main types of non-current borrowings discussed below:

1. **Bonds** pay *only interest* at regular intervals to *bondholders*. The original investment is repaid to bondholders when the bond *matures* (or comes due), usually after a number of years. Bonds issued by a company are generally purchased by many investors, including individuals, financial institutions, and other corporations. Bonds are discussed in detail in a later chapter.

2. **Loans** are also sums of money lent for interest. They differ from bonds in that they are repaid in equal payments on a regular basis, often monthly. The repayments usually consist of both *interest* and *principal* paid to creditors. Such payments are said to be *blended*. That is, each payment contains repayment of a certain amount of the original amount of the loan (the principal), as well as interest on the remaining principal balance. Loans are usually received from only one or a small number of financial institutions. After obtaining a loan, a company often purchases long-lived assets from a third party with the cash proceeds. The loan in turn may be *secured* by these purchased assets to reduce the risk of non-repayment to the lender. If the loan is not repaid, the lender can seize and legally sell the secured assets, and retain the funds owed to it. For instance a *mortgage* is a loan secured by specified real estate of the company, usually land with buildings on it.

3. A **finance lease** is similar to a loan in that a series of cash payments are also made over a specified period of time. However, these are not quite the same as repayment of a bank loan. Instead of payments to the bank, the payments are made to a leasing

company, called the *lessor*. The payments give the *lessee* (the company making the payments) the right to use a long-lived asset owned by the leasing company for a specified period of time. Unlike a short-term rental agreement, the amount of the payments is so large as a percentage of the value of the related long-lived asset and the period of time over which they are made is so long that the lessee in effect purchases the asset, even though legal title may not be transferred from the leasing company to the lessee.

Non-current loans and finance leases are discussed further below.

Loans Payable

As noted above, a loan is another form of long-term debt that can be used by a corporation to finance its operations.

Assume BDCC obtained a $100,000, 10% loan on January 1, 2019 from First Bank to acquire a piece of production equipment. When the loan proceeds are deposited into the bank account of BDCC, the company would make the following journal entry:

2019			
Jan. 1	Cash	100,000	
	Loan-Payable – First Bank		100,000
	To record 10% loan from First Bank.		

When the equipment is purchased (assumed here to be the same day), this journal entry would be made:

2019			
Jan. 1	Equipment	100,000	
	Cash		100,000
	To record purchase of equipment with loan proceeds.		

BDCC will depreciate this long-lived asset as usual over its estimated useful life, as discussed in a previous chapter. Interest is calculated on the unpaid balance of the loan. This balance decreases over the life of the loan because each payment contains part interest and part principal payments. In the example above, assume the $100,000 loan is repayable in three annual blended payment of $40,211. Each payment is made on December 31, commencing in 2019. While the payments remain the same each year, the amounts of interest paid decrease while the amount of principal repaid increases.

Figure 9-3 illustrates this effect. Note particularly columns B, C, and D.

	A	B	C	D	E
			(D – B)		
Year ended Dec. 31	*Beginning loan balance*	*(A x 10%) Interest expense*	*Reduction of loan payable ($40,211 – B)*	*Total loan payment*	*(A – C) Ending loan balance*
2019	$100,000	$10,000	$30,211	$40,211	$69,789
2020	69,789	6,979	33,232	$40,211	36,557
2021	36,557	3,654	36,557	$40,211	-0-
			$100,000		

Interest expense decreases with each loan payment because the remaining principal (A) has decreased. Principal repaid plus interest each year (B + C) always totals $40,211, the amount of each payment

Figure 9-3 Effect of blended interest and principal payments

Amounts in Figure 9-3 can be used to construct the journal entries to record the loan payments at the end of each year:

2019			
Dec. 31	Interest Expense (col. B)	10,000	
	Loan Payable (col. C)	30,211	
	Cash		40,211
2020			
Dec. 31	Interest Expense (col. B)	6,979	
	Loan Payable (col. C)	33,232	
	Cash		40,211
2021			
Dec. 31	Interest Expense (col. B)	3,654	
	Loan Payable (col. C)	36,557	
	Cash		40,211

The amounts in Figure 9-3 can also be used to present the related information on the financial statements of BDCC at each year-end. Recall that assets and liabilities need to be classified as current and non-current on the balance sheet. Current liabilities are amounts paid within one year of the balance sheet date. Part of the loan payable to First Bank will be paid in the upcoming year. Therefore, it needs to be classified as a current liability on the balance sheet even though the full amount of the loan outstanding is reported in a single general ledger account called Loan Payable – First Bank. The amount of the total loan outstanding at December 31, 2019, 2020, and 2021 and the current and non-current portions are shown in Figure 9-4:

A	*B*	*C*	*D*
Year ended Dec. 31	*Ending loan balance per general ledger (Fig. 9-2, Col. D)*	*Current portion (Fig. 9-2, col. C)*	*(B – C) Non-current portion*
2019	$69,788	$33,232	$36,557
2020	36,557	36,557	-0-
2021	-0-	-0-	-0-

Figure 9-4 Allocation of current and non-current portions of loan principal

Balance sheet presentation would be as follows at each year-end:

	2019	*2020*	*2021*
Current liabilities			
Current portion of borrowings	$33,232	$36,557	$ -0-
Non-current liabilities			
Borrowings (Note X)	36,557	-0-	-0-

Details of the loan would be disclosed in a note to the financial statements. Only the *principal* amount of the loan is reported on the balance sheet. The *interest* expense portion is reported on the income statement as an expense. Because these payments are made at BDCC's year-end (December 31), no interest payable is accrued or reported on the balance sheet in this example.

Finance Leases

After obtaining a long-term loan, a company often purchases long-lived assets from a third party with the cash proceeds. The mechanics of recording a finance lease are much the same as that of a loan. The value of the finance lease is determined by calculating the amount of a similar loan that could be paid off, given the period of time, interest rate, and amount of payments stated in the lease agreement, and the fair value of the leased asset.

For instance, assume that on January 1, 2019 Big Dog Carworks Corp. agrees to pay First Leasing Company annual payments of $40,211 on December 31 for the next three years for the use of a large truck that could be purchased elsewhere for $100,000. BDCC is responsible for insuring, maintaining, and repairing the truck, though title to the truck remains with the leasing company.

Even though BDCC does not legally own the truck, the substance of the lease agreement is the same is if the company received a 10% loan from a bank and then purchased the truck from a third party (recall the example above). As a result, BDCC is required under GAAP to record the finance lease as a liability and the truck as a long-lived asset on its balance sheet. When the lease agreement is signed on January 1, 2019 the following journal entry is made:

2019			
Jan. 1	Truck	100,000	
	Finance Lease		100,000
	To record First Leasing Company lease of a truck.		

As in the first example, the truck asset is depreciated over its estimated useful life. To record the loan payments, the *implicit* rate of interest within the lease agreement needs to be established. In the BDCC example, this is 10% – the amount of annual interest that would need to be paid to a bank for a similar loan.

When each of the three payments is made on December 31 of 2019, 2020, and 2021, much the same journal entries are recorded as in the previous bank loan example. Refer to Figure 9–3 for calculations.

2019			
Dec. 31	Interest Expense	10,000	
	Finance Lease	30,211	
	Cash		40,211
2020			
Dec. 31	Interest Expense	6,979	
	Finance Lease	33,232	
	Cash		40,211
2021			
Dec. 31	Interest Expense	3,654	
	Finance Lease	36,557	
	Cash		40,211

Balance sheet presentation of the finance lease liability would also be similar. The same current and non-current portions would be presented each year as in the bank loan example above (see Figure 9–4).

E. Demonstration Problem

The following unadjusted trial balance has been taken from the records of Rockfish Rentals Corp at December 31, 2020:

No.	*Account*	*Unadjusted TB*		*Adjustments*				*Adjusted TB*	
		Debit	*Credit*		*Debit*	*Credit*		*Debit*	*Credit*
101	Cash	2,000							
110	Accounts receivable	3,000							
150	Merch. inventory	50,000							
180	Plant assets, net	282,160							
210	Accounts payable		8,000						
212	Est. current liab.								
213	Est. warranty liab.	10,000							
220	Note payable		12,000						
222	Interest payable								
226	Salaries payable								
227	Emp’ee inc. tax pay.								
228	FICA Soc. Sec. pay.								
229	FICA Medicare pay.								
230	Co. health plan pay.								
231	Union dues pay.								
232	Co. pension pay.								
238	Sales tax payable		1,000						
242	Unearn. comm. rev.		500						
260	Corp. inc. tax pay.	5,000							
275	Mortgage payable		200,000						
276	Finance lease		20,000						
320	Common stock		2,000						
340	Retained earnings		40,000						
410	Commiss. earned		23,000						
500	Sales		477,000						
570	Cost of goods sold	134,000							
621	Dep’n expense	8,940							
632	Interest expense	15,000							
653	Professional fees								
656	Salaries expense	240,000							
658	FICA Soc. Sec. exp.	6,000							
659	FICA Medicare exp.	4,800							
660	Co. health insur. exp.	3,600							
661	Co. pension exp.	12,000							
662	State unemp. tax exp.	7,000							
678	Warranty exp.								
830	Corp. inc. tax exp.								
		783,500	783,500						

The company uses the perpetual inventory method. Sales tax applies only when indicated. The following additional information is available:

a. Actual unearned commission revenue at December 31 should be $800.
b. A December 31 sale on account for $3,000 was not recorded. Sales tax of 5% was charged on the sale. Related cost of goods sold was $2,500.
c. The $12,000 note payable was issued on December 1, 2020. It bears interest at 4% per year and is due November 30, 2021. No interest expense has been recorded.
d. Warranty expense for the year is estimated at 3% of sales revenue.
e. Unpaid salaries for the week of December 24-31 were as follows:

		Payroll Deductions							
Employee	*Gross pay*	*Income taxes*	*FICA Soc. Sec.*	*FICA Medicare*	*Comp. health*	*Union dues*	*Comp. pension*	*Total deduct.*	*Net pay*
J. Smith	5,000	1,000	310	75	50	200	250	1,885	3,115

The company's portion of contributions is:

FICA Social Security tax	$310
FICA Medicare tax	$75
Company health insurance	$50
Company pension	$500
State unemployment tax	$200

f. Audit fees for the 2020 financial statements are estimated to be $6,000.

g. Payments on the mortgage and finance lease, including interest, were made on December 31. Payments during 2021 will be made as follows:

	Interest	*Reduction of principal*	*Total payments*
Mortgage	$7,000	$3,000	$10,000
Finance lease	1,500	2,500	4,000

h. It is possible that the company will lose a lawsuit filed against it during the year. The estimated award is $5,000.
i. The corporate income tax rate is 20% calculated on income before income taxes.

Required:

1. Prepare necessary adjusting entries at December 31, 2020. Include general ledger account numbers and appropriate descriptions.
2. Post the entries to the "Adjustments" column of the worksheet. Total the worksheet.
3. Prepare a classified income statement and statement of changes in equity for the year ended December 31, 2020 and a classified balance sheet at December 31.
4. Assume the salaries, employee deductions, and company payroll expenses were paid on January 5, 2021. Record the journal entries. Assume payments were made as applicable to employee J. Smith, Internal Revenue Service, Union Local 151, Purple Cross Healthcare, and Fidelity Mutual Pension Administration.
5. Assume amounts owing for 2020 corporate income taxes payable are remitted in cash to the Internal Revenue Service and the sales tax payable is remitted to State Y on January 15, 2021. Record the journal entries.
6. Assume the estimated warranty liability reported on the December 31, 2019 balance sheet was $30,000. Should this be a concern when Rockfish management reviews the 2020 financial statements?
7. What types of information about the various liability accounts should be disclosed in the notes to the financial statements?

Solution to Demonstration Problem

1. Prepare necessary adjusting entries at December 31, 2020. Include general ledger account numbers and appropriate descriptions.

a.

2020				
Dec. 31	Commissions Earned	410	300	
	Unearned Comm. Rev.	242		300
	To adjust unearned commissions revenue to actual at December 31.			

b. 2020

Dec. 31	Accounts Receivable	110	3,150	
	Sales	500		3,000
	Sales Tax Payable	238		150
	Cost of Goods Sold	570	2,500	
	Merchandise Inventory	150		2,500

To record additional sales on account and related sales tax.

c. 2020

Dec. 31	Interest Expense	632	40	
	Interest Payable	222		40

To record interest on note payable ($10,000 x 4% x 1/12 mos. = $40)

d. 2020

Dec. 31	Warranty Expense	678	14,400	
	Estimated Warranty Liab.	213		14,400

To record estimated warranty expense for 2020 [($477,000 + 3,000[1]) x 3% = $14,400]

[1] See b. above

e. The summary of deductions is as follows:

Row	*Employee*	*Gross pay*	*Payroll Deductions* *Income taxes*	*FICA Soc. Sec.*	*FICA Medicare*	*Comp. health*	*Union dues*	*Comp. pension*	*State unemp.*	*Net pay*
1.	J. Smith	5,000	1,000	310	75	50	200	250		3,115
2.	Employer ded.			310	75	50			200	
3.	Total remit.		1,000	610	150	100	200	250	200	

i. The amount owing to Smith and related deductions are shown in row 1. The journal entry to record these would be:

2020

Dec. 31	Salaries Expense	656	5,000	
	Emp'ee Income Tax. Pay.	227		1,000
	FICA Soc. Sec. Pay.	228		310
	FICA Medicare Pay.	229		75
	Co. Health Plan Payable	230		50
	Union Dues Payable	231		200
	Co. Pension Payable	232		250
	Salaries Payable	226		3,115

To record Dec. 24-31 salaries and benefits payable.

ii. The company's matching contributions are shown in row 2 above. The journal entry to record these would be:

2020				
Dec. 31	FICA Soc. Sec. Exp.	658	310	
	FICA Medicare Exp.	659	75	
	Company Health Plan Exp.	660	75	
	Company Pension Expense	661	500	
	State Unemployment Tax Exp.	662	200	
	FICA Soc. Sec. Pay.	228		310
	FICA Medicare Payable	229		75
	Co. Health Plan Payable	230		50
	Co. Pension Payable	232		500
	State Unemp. Tax Pay.	233		200
	To record company contributions for Dec. 24-31 salaries and benefits payable.			

f.

2020				
Dec. 31	Professional Fees	653	6,000	
	Estimated Current Liab.	212		6,000
	To record estimated audit fees.			

g. No entry. This only affects balance sheet presentation for current and non-current liabilities.

h. No entry. The event would only be recorded if the outcome was probable, even if the amount to be awarded can be reasonably estimated.

i.

2020				
Dec. 31	Corporate Income Taxes Exp.	830	8,457	
	Corporate Inc. Tax. Pay.	260		8,457
	To record corporate income taxes for the year ($42,285[1] x 20% = $8,457)			

[1] See the income statement. This entry is recorded after the partial income statement is prepared up to the income before income taxes amount. The income statement can be completed after this entry is recorded.

2. Post the entries to the "Adjustments" column of the worksheet. Total the worksheet.

No.	*Account*	*Unadjusted TB*		*Adjustments*				*Adjusted TB*	
		Debit	*Credit*		*Debit*	*Credit*		*Debit*	*Credit*
101	Cash	2,000						2,000	
110	Accounts receivable	3,000		b	3,150			6,150	
150	Merch. inventory	50,000				2,500	c	47,500	
180	Plant assets, net	282,160						282,160	
210	Accounts payable		8,000			1,050	b		9,050
212	Est. current liab.					6,000	g		6,000
213	Est. warranty liab.	10,000				14,400	e		4,400
220	Note payable		12,000						12,000
222	Interest payable					40	d		40
226	Salaries payable					3,115	e(i)		3,275
227	Emp'ee inc. tax pay.					1,000	e(i)		1,000
228	FICA Soc. Sec. pay.					310 310	e(i) e(ii)		300
229	FICA Medicare pay.					75 75	e(i) e(ii)		200
230	Co. health plan pay.					50 50	e(i) e(ii)		125
231	Union dues pay.					200	f		200
232	Co. pension pay.					250 500	e(i) e(ii)		750
233	State unemp. tax pay.					200	e(ii)		
238	Sales tax payable		1,000			150	b		1,100
242	Unearn. comm. rev.		500			300	a		800
260	Corp. inc. tax pay.	5,000				8,457	i		3,514
275	Mortgage payable		200,000						200,000
276	Finance lease		20,000						20,000
320	Common stock		2,000						2,000
340	Retained earnings		40,000						40,000
410	Commiss. earned		23,000	a	300				22,700
500	Sales		477,000			3,000	b		480,000
570	Cost of goods sold	134,000		b	2,500			136,500	
621	Dep'n expense	8,940						8,940	
632	Interest expense	15,000		c	40			15,040	
653	Professional fees			f	6,000			6,000	
656	Salaries expense	240,000		e(i)	5,000			245,000	
658	FICA Soc. Sec. exp.	6,000		e(ii)	175			6,310	
659	FICA Medicare exp.	4,800		e(ii)	100			4,875	
660	Co. health insur. exp.	3,600		e(ii)	75			3,650	
661	Co. pension exp.	12,000		e(ii)	500			12,500	
662	State unemp. tax exp.	7,000		e(ii)	200			7,200	
678	Warranty exp.			d	14,400			14,400	
830	Corp. inc. tax exp.			i	8,514			8,457	
		783,500	783,500		40,982	40,982		806,682	806,682

3. Prepare a classified income statement and statement of changes in equity for the year ended December 31, 2020 and a classified balance sheet at December 31.

Rockfish Rentals Corp.
Income Statement
For the Year Ended December 31, 2020

Revenue		
Sales		$480,000
Commissions earned[12]		22,700
		502,700
Cost of goods sold		136,500
Gross profit		366,200
Operating expenses		
Selling		
Salaries	$245,000	
FICA Social Security	6,310	
FICA Medicare	4,875	
Company health insurance	3,650	
Company pension	12,500	
State unemployment tax	7,200	
Warranty	14,400	
Total selling	293,935	
General and administrative		
Depreciation - building	8,940	
Professional fees	6,000	
Total general and admin. expenses	14,940	
Total operating expenses		308,875
Income before interest and income taxes		57,325
Interest expense		15,040
Income before income taxes		42,285
Income taxes		8,457
Net income		$33,828

Rockfish Rentals Corp.
Statement of Changes in Equity

	Common stock	*Retained earnings*	*Total equity*
Balance at January 1, 2020	$2,000	$40,000	$42,000
Net income		33,828	33,828
Balance at December 31, 2020	$2,000	$73,828	$75,828

[12] Alternately, commission earned could be reported separately from gross profit calculations. Several presentation formats are acceptable.

Rockfish Rentals Corp.
Balance Sheet
At December 31, 2020

Assets		*Liabilities*	
Current		*Current*	
Cash	$2,000	Accounts payable	$8,000
Accounts receivable	6,150	Estimated liabilities	6,000
Merchandise inventories	47,500	Estimated warranty liabilities	4,400
	55,650	Note payable	12,000
		Interest payable	40
		Salaries and benefits payable[13]	6,135
		Sales tax payable	1,150
		Unearned commissions revenue	800
		Corporate inc. tax payable	3,457
		Current portion of debt[14]	5,500
			47,482
Plant assets (net)	282,160	*Non-current*	
		Mortgage payable	200,000
		Finance lease	20,000
		Less: Current portion	(5,500)
			214,500
		Total liabilities	261,982
		Stockholders' Equity	
		Common stock	2,000
		Retained earnings	73,828
		Total stockholders' equity	75,828
Total assets	$337,810	Total liabilities and equity	$337,810

[13] $3,115 + 1,000 + 620 + 150 + 100 + 200 + 750 + 200 = $5,850. These amounts could be disclosed separately. Alternate presentation formats are acceptable.
[14] 3,000 + 2,500 = $5,500. See requirement 1(g).

4. The journal entry to record payment of salaries and benefits payable would be:

2021				
Jan. 5	Salaries Payable	226	3,115	
	Emp'ee Income Tax. Pay.	227	1,000	
	FICA Soc. Sec. Pay.	228	620	
	FICA Medicare Payable	229	150	
	Co. Health Plan Payable	230	100	
	Union Dues Payable	231	200	
	Co. Pension Payable	232	750	
	State Unemp. Tax Pay.	233	200	
	Cash	101		6,135
	To record payments of salaries and benefits owed at December 31, 2020 to:			

J. Smith	*$3,115*
Internal Revenue Service	*1,770*
Union Local 151	*200*
Purple Cross	*100*
Fidelity Mutual	*750*
State Y	*200*
	$5,850

Alternately, six separate entries could be made.

5. The journal entry to record the payment of sales tax and corporate income taxes would be:

2021				
Jan. 15	Sales Tax Payable	238	1,150	
	Corporate Income Tax Payable	260	3,457	
	Cash	101		4,607
	To record payments of sales tax and corporate income taxes owing at December 31, 2020 to State Y and the Internal Revenue Service, respectively.			

Alternately, two separate entries could be made.

6. The estimated warranty liability at December 31, 2019 was $30,000. It is only $4,400 at December 31, 2020. Management should review this. It may be that the estimated warranty expense of 3% of sales revenue is too low. Alternately, the amount of warranty claims in 2020 might have been abnormally high.

7. A note should disclose more information about the note payable, the mortgage payable, and the finance lease – due dates, interest rates, repayment terms, and any assets pledged as security.

   A note should also disclose the details of the contingent liability related to the outstanding lawsuit. This should include the likelihood of success (possible) and the estimated amount of the award.

   Significant accounting policies should also be stated. The estimated warranty expense rate (3% of sales) should be disclosed, for instance.

Summary of Chapter 9 Learning Objectives

LO1 – Identify and explain the difference between current and non-current liabilities.

A current or short-term liability is a form of debt that is expected to be paid within the longer of one year of the balance sheet date or one operating cycle. A non-current liability is a form of debt that is expected to be paid beyond one year of the balance sheet date or the next operating cycle, whichever is longer. Current and non-current liabilities must be shown separately on the balance sheet.

LO2 – Record and disclose known current liabilities.

Known current liabilities are those where the payee, amount, and timing of payment are well-established and documented. Accounts payable and payroll liabilities are types of known current liabilities. Employers are responsible for withholding from employees amounts including FICA Social Security and Medicare taxes, and income taxes, and then remitting the amounts to the appropriate authority. Sales taxes owing are usually remitted to the government on a regular basis, often monthly or quarterly. Current notes payable may require interest to be accrued.

LO3 – Record and disclose estimated current liabilities.

An estimated liability occurs when amounts owing can be reasonably estimated, but the invoice has not yet been received at the date financial statements are issued, for example. Professional fees incurred to prepare year-end financial statements are an example. An estimated liability can also arise based on past experience of claims against the company. Warranty liabilities are an example. A contingent liability exists when it is possible but not probable that a debt will arise as a result of a past occurrence, or the event is probable but the amount cannot be reliably estimated. A contingent liability is disclosed in the notes to the financial statements. Events with a remote likelihood of occurrence are not disclosed or recorded.

LO4 – Explain, calculate, and record non-current debt.

A loan is a form of long-term debt that can be used by a corporation to finance its operations. Long-term loans can be secured and are typically obtained from a bank. Loans are often repaid over many years in equal blended payments containing both interest and principal. Finance leases are like loans in that they are generally repaid in equal blended payments over a number of years. However, payments are made to a leasing company (the lessor) for the right to use a long-lived asset owned by the leasing company. Unlike loans and finance leases, bonds pay only interest at regular intervals to bondholders. The original investment is repaid to bondholders when the bond matures (or comes due), usually after a number of years.

A S S I G N M E N T   M A T E R I A L S

Concept Self-check

1. What is the difference between a current and non-current liability?
2. What are some examples of current liabilities?
3. How are known current liabilities different from estimated current liabilities?
4. What are some examples of estimated current liabilities?
5. How is an estimated current liability different from a contingent liability?
6. How is a loan payable similar to a bond? How is it different?
7. How is a finance lease similar to a long-term loan from a bank? How is it different?

Comprehension Problems

CP 9–1

The following unadjusted accounts are taken from the records of Brown Corp. at December 31, 2019:

Bank Loan	201	Interest Expense	632	Interest Payable	222
	12,000	200			100

Additional Information: The bank loan bears interest at 6% per year. It was obtained on April 1, 2019. Payment in full is due on March 31, 2020.

Required: Prepare the adjusting entry at December 31, 2019.

CP 9-2

An extract from the trial balance of Selby Corp. at December 31, 2019 is reproduced below:

	Account	*Amount in unadjusted trial balance*	*Amount in adjusted trial balance*
a.	Accounts payable (re. supplies)	$ 60	$ 100
b.	Interest payable	-0-	100
c.	Unearned rent revenue	1,000	500

Required: Prepare in general journal format the adjusting entries that were posted, including plausible descriptions. General ledger account numbers are not necessary.

CP 9-3

An extract from the trial balance of Paragon Corporation at December 31, 2019 is reproduced below:

		Amount in unadjusted trial balance	*Amount in adjusted trial balance*
a.	Salaries expense (re. J. Smith)	$50,000	$52,000
b.	Employee income taxes payable	-0-	500
c.	FICA Social Security taxes payable	-0-	248
d.	FICA Medicare taxes payable	-0-	58

Additional Information: Employees pay 6.2% of their gross salaries to Social Security and 1.45% of gross salaries to Medicare. The company matches employees' Social Security and Medicare contributions 1 to 1.

Required:

1. a. Prepare the adjusting entry that was posted to record the salary payable.

   b. Prepare the adjusting entry that was posted to record the company's payroll expenses.
2. Prepare the journal entries to record the payments on January 5, 2020 to employee J. Smith and the Internal Revenue Service.

Provide descriptions for journal entries. General ledger account numbers are not necessary and show calculations where needed.

CP 9-4

Smith Corporation purchases merchandise on account from a supplier on June 30, 2019 for $4,000. On July 5, merchandise is sold for $5,000 plus state sales tax (5%) to Customer A on account. Assume that the perpetual inventory method is used.

Required:

1. Prepare the journal entry to record the $4,000 purchase from the supplier.
2. Prepare the journal entry to record the sale to Customer A.
3. Prepare the journal entry to record payment of sales tax on these to the State X on July 31. A description is not necessary.
4. How much sales tax revenue or expense will Smith Corporation report on its income statement?

Descriptions and general ledger account numbers are not necessary for journal entries.

CP 9-5

Paul's Roofing Corporation paid monthly corporate income tax installments of $500 commencing February 15, 2019. The company's income before income taxes for the year ended December 31, 2019 was $15,000. The corporate income tax rate is 40%. Paul's Roofing paid the 2019 corporate income taxes owing on January 31, 2020.

Required:
1. Record the February 15, 2019 payment.
2. Record the 2019 corporate income tax expense.
3. Record the January 31, 2020 payment.

Descriptions and general ledger account numbers are not necessary. Show calculations where applicable.

CP 9-6

On November 1, 2019 Branch Corporation converted a $10,000 account payable owing to Tree Corp. to a note payable bearing interest at 10% per year due on January 31, 2020.

Required:
1. Record the November 1, 2019 transaction in the records of Branch.
2. Record the adjusting entry needed on December 31, 2019.
3. Record the journal entry for the January 31 payment.
4. Record the above journal entries in the records of Tree Corp.

Provide descriptions for journal entries. General ledger account numbers are not necessary.

CP 9-7

Zebra Corp. commenced operations on January 1, 2019. It estimates warranty expense as 1% of yearly sales. During June 2019 it satisfied warranty claims as follows:

Parts from inventory	$2,000
Salaries paid in cash	500

The 2019 warranty claims amounted to $22,000 (including the entry above) and 2019 sales revenue was $2 million.

Required:
1. Record the June warranty claims of $2,500.
2. Record the 2019 warranty expense.
3. Calculate the balance in the estimated warranty liability account at December 31, 2019. Comment on your calculations.

Descriptions and general ledger account numbers are not necessary. Show calculations where applicable.

CP 9-8

ClaimsRUs Corp. is the defendant in three lawsuits:

Claim 1: It is possible that the lawsuit will be successful. Damages are estimated at $1.5 million.

Claim 2: It is probable that this lawsuit will be successful. Damages cannot be reasonably estimated as yet.

Claim 3: It is probable that this lawsuit will be successful. Damages are estimated at $1 million.

Required: Identify the accounting treatment for each claim**.**

CP 9-9

Rosedale Corp. obtained a $50,000 loan from Second Capital Bank on January 1, 2019. It purchased a piece of heavy equipment for $48,000 on the same day. The loan bears interest at 6% per year on the unpaid balance and is repayable in three annual blended payments of $18,705 on December 31 each year.

Required:

1. Prepare the journal entries to record the following transactions:
   a. Receipt of loan proceeds from the bank
   b. Purchase of the equipment.
2. Complete the following loan repayment schedule.

	A	*B*	*C*	*D*	*E*
Year ended Dec. 31	*Beginning loan balance*	*(A x 6%) Interest expense*	*(D – B) Reduction of loan payable*	*Total loan payment*	*(A – C) Ending loan balance*
2019	$50,000			$18,705	
2020				18,705	
2021				18,705	-0-

3. Prepare the journal entry to record the first loan payment.
4. What is the current portion of the loan reported on the balance sheet at December 31, 2019?

Provide descriptions for journal entries. General ledger account numbers are not necessary.

CP 9-10

Day Corp. entered into a finance lease agreement with Night Leasing Ltd. on January 1, 2019. Day Corp. agreed to pay Night annual payments of $24,154 on December 31 for the next four years to lease a vehicle with a fair value of $80,000. The interest rate implicit in the lease agreement was 8%.

Required:

1. Prepare the journal entries to record the assumption of the lease on January 1, 2019. Provide descriptions for journal entries. General ledger account numbers are not necessary.
2. Complete the following lease repayment schedule.

	A	*B*	*C*	*D*	*E*
Year ended Dec. 31	*Beginning lease balance*	*(A x 8%) Interest expense*	*(D – B) Reduction of finance lease*	*Total lease payment*	*(A – C) Ending lease balance*
2019	$80,000			$24,154	
2020				24,154	
2021				24,154	
2022				24,154	-0-

3. Prepare the partial balance sheet of Day Corp. at December 31, 2019. Assume the first lease payment has been made.

Problems

P 9–1

Latex Paint Corporation started operations on January 1, 2019. It had the following transactions during the year.

a. Jan 1 Issued $20,000 common stock to the stockholders in return for cash.

b. Jan 1 Obtained a bank loan for $30,000. The interest rate is 4%. The loan will be repaid in one year.

c. Jan. 2 Purchased merchandise on account from a supplier for $20,000.

d. Jan. 8 Sold $8,000 of paint to a customer on credit and added State Y sales tax of 5%. Cost of the paint sold was $3,000. Latex uses the perpetual inventory method.

e. Jan 15 Paid an employee J. Jones $1,560 cash for January 1-15 salary, calculated as follows:

	Deductions				
Gross pay	*Income taxes*	*FICA Soc. Sec.*	*FICA Medicare*	*Total deduct.*	*Net pay*
2,000	300	124	29	453	1,547

The company matches FICA deductions.

f. Unrecorded liabilities at January 31 include:
   i. Salaries payable to J. Jones for January 16-31, amounting to $1,547 (net). Employer contributions are as shown in e. above.
   ii. Corporate income taxes amounting to 20% of income before income taxes.

Required:
1. Prepare journal entries to record the above transactions. Show necessary calculations.
2. Prepare all adjusting entries needed at January 31, 2019. Show necessary calculations.
3. Calculate total current liabilities at January 31, 2019.

Descriptions and general ledger account numbers are not necessary.

P 9–2

Refer to P 9-1.

Required:
1. Post all entries to general ledger T-accounts.
2. Prepare a classified income statement and statement of changes in equity for the month ended January 31, 2019 and a classified balance sheet at January 31. Consider salaries and benefits to be selling expenses.

P 9-3

The following unadjusted trial balance has been taken from the records of Mudryk Wholesalers Corp. at December 31, 2019:

No	*Account*	*Unadjusted TB*		*Adjustments*				*Adjusted TB*	
		Debit	*Credit*		*Debit*	*Credit*		*Debit*	*Credit*
101	Cash	12,000							
110	Accounts receivable	30,000							
150	Merch. inventory	70,000							
151	Parts inventory	10,000							
210	Accounts payable		40,000						
212	Est. current liab.								
213	Est. warranty liab.	3,000							
226	Salaries payable								
227	Emp'ee inc. tax pay.								
228	FICA Soc. Sec. pay.								
229	FICA Medicare pay.								
230	Co. health ins. pay.								
238	Sales tax payable		1,000						
248	Unearn. rent rev.								
260	Corp. inc. tax pay.								
320	Common stock		100						
340	Retained earnings		3,000						
440	Rent earned		13,000						
500	Sales		791,900						
570	Cost of goods sold	263,500							
653	Professional fees								
656	Salaries expense	400,000							
658	FICA Soc. Sec. exp.	8,000							
659	FICA Medicare exp.	20,000							
660	Co. health plan exp.	12,000							
678	Warranty exp.	4,000							
830	Corp. inc. tax exp.	16,500							
		849,000	849,000						

The following additional information is available at the year-end. Sales tax of 5% only applies when indicated.

a. The company has sublet space in its leased facilities to another company for $1,000 per month since January 1.
b. A review of warranty claims indicates that the following amounts have been incorrectly recorded in income statement general ledger accounts:

Cost of goods sold	$500
Salaries expense	$100

c. A $4,000 purchase of parts inventory on account plus sales tax has not been recorded.
d. Warranty expense for the year is estimated at 1% of sales.
e. Unpaid gross salaries amount to $5,000. Deductions from gross pay are as follows:

Employee income taxes	15%
FICA Social Security	6.2%
FICA Medicare	1.45%
Company health insurance	3%

The company matches employee FICA contributions and company health insurance deductions on a 1 to 1 basis.
f. Audit fees are estimated to be $8,000.
g. The corporate income tax rate is 25% of income before income taxes. Corporate income tax installments during the year have been recorded as income taxes expense in the records.

Required:
1. Prepare necessary adjusting entries at December 31, 2019. Include descriptions and general ledger account numbers, and calculations if necessary.
2. Post the entries to the worksheet and prepare an adjusted trial balance.
3. Prepare a classified income statement and statement of changes in equity for the year ended December 31, 2019 and a classified balance sheet at December 31. Consider salary, benefits, and warranty expenses to be selling expenses. No stock was issued during the year.

P 9-4

Zinc Corp. obtained a $100,000 loan from First Capital Bank on December 31, 2019, its fiscal year-end. It purchased a piece of heavy equipment for $95,000 on January 1, 2020. The loan bears interest at 8% per year on the unpaid balance and is repayable in four annual blended payments of $30,192 on December 31 each year, starting in 2020.

Required:

1. Prepare the journal entries to record the following transactions:
   a. Receipt of loan proceeds from the bank
   b. Purchase of the equipment.
2. Prepare the loan repayment schedule in the following format:

Zinc Corp.
Loan Repayment Schedule

	A	*B*	*C*	*D*	*E*
			(D – B)		*(A – C)*
Year ended Dec. 31	*Beginning loan balance*	*Interest expense*	*Reduction of loan payable*	*Total loan payment*	*Ending loan balance*
2020					
2021					
2022					
2023					

3. Prepare the journal entry to record the last loan payment.
4. Prepare a partial balance sheet showing the loan liability at December 31, 2021.

P 9-5

East Corp. has a fiscal year-end of December 31, The company entered into a finance lease agreement with West Leasing Ltd. on April 1, 2019. East Corp. agreed to pay West an initial payment of $10,000 on that date and annual payments of $71,081 on March 31 for the next three years to lease a piece of equipment with a fair value of $200,000. The interest rate implicit in the lease agreement is 6%.

Required:

1. Prepare the journal entry to record the purchase of the equipment and assumption of the lease on April 1, 2019.
2. Prepare the lease repayment schedule as follows:

East Corp.
Lease Repayment Schedule

	A	*B*	*C*	*D*	*E*
Year ended March 31	*Beginning lease balance*	*(A x 6%) interest expense*	*(D – B) Reduction of finance lease*	*Total lease payment*	*(A – C) Ending lease balance*
2020					
2021					
2022					

3. Prepare the partial balance sheet of East Corp. at December 31, 2021 showing the finance lease balance and accrued interest. Assume all payments have been made to date.

CHAPTER TEN

Debt Financing: Bonds

A corporation often incurs long-term debt in order to finance the acquisition of plant assets or other capital assets. This debt may take the form of a bond issue, a bank loan, or a finance lease. Bank loans and finance leases were covered in Chapter 9. This chapter discusses in more detail the means to finance operations by issuing bonds.

Chapter 10 Learning Objectives

LO1 – Describe the nature of bonds and the rights of bondholders.

LO2 – Describe how bonds, premiums and discounts are recorded in the accounting records and disclosed on the balance sheet.

LO3 – Describe and calculate how bond premiums and discounts are amortized.

LO4 – (Appendices) Describe and calculate the effective interest method of amortization and explain how this differs from the straight-line amortization method.

A. The Nature of Bonds and the Rights of Bondholders

LO1 – Describe the nature of bonds and the rights of bondholders.

A *bond* is a debt instrument generally issued to many investors that requires future repayment of the original amount at a fixed date, as well as periodic interest payments during the intervening period. A contract called a **bond indenture** is prepared between the corporation and the future bondholders. It specifies the terms with which the corporation will comply, such as how much interest will be paid and when. Another of these terms may be a restriction on further borrowing by the corporation in the future. A **trustee** is appointed to be an intermediary between the corporation and the bondholder. The trustee administers the terms of the indenture.

Ownership of a bond certificate carries with it certain rights. These rights are printed on the actual certificate and vary among bond issues. Individual bondholders always acquire two rights.

The right to receive the face value of the bond at a specified date in the future, called the **maturity date**, and

The right to receive periodic interest payments, usually semi-annually, at a specified percent of the bond's face value.

Every corporation is legally required to follow a well-defined sequence in **authorizing** a bond issue. The bond issue is presented to the board of directors by management and must be approved by stockholders. Legal requirements must be followed and disclosure is required in the financial statements of the corporation.

Stockholder approval is an important step because bondholders are creditors with a prior claim on the assets of the corporation if liquidation occurs. Further, dividend distributions may be restricted during the life of the bonds. Affected stockholders usually need to approve this. These restrictions are reported to the reader of financial statements through note disclosure.

There are as well several additional considerations related to the decision to issue bonds.

Cash Required in the Immediate and the Foreseeable Future

Most bond issues are sold in their entirety when market conditions are favourable. However, more bonds can be authorized in a particular bond issue than will be immediately sold. Authorized bonds, like authorized common stock, can be issued whenever cash is required.

Important Terms of the Bonds

The interest rate of the bonds, their maturity date, and other important provisions — such as convertibility into common stock and restrictions on future dividend distributions of the corporation — are also considered. The success of a bond issue often depends on the proper combination of these and other similar features.

Assets of the Corporation to Be Pledged

Whether long-lived assets like plant assets are pledged as security is an important consideration for bondholders because it helps to safeguard their investments. It is important to the corporation because the pledging of all these assets may restrict future borrowings. The total amount of authorized bonds is usually a fraction of the pledged assets, for example, 50%. The difference represents a margin of safety to bondholders. The value of these assets can shrink substantially but still permit reimbursement of bondholders should the company be unable to pay the bond interest or principal, and need to sell the pledged assets.

Bond Characteristics and Terminology

There are three main categories of bond terms. These are shown in Figure 10–1.

BOND TERMS

Terms relating to different types of bonds:	Terms relating to special features of corporate bonds:	The amount printed on the bond certificate:
Secured bonds (Mortgage bonds)	Serial bonds	Face (or par) value
Unsecured bonds (Debentures)	Callable bonds	
Registered bonds	Convertible bonds	
Bearer bonds	Sinking fund bonds	

Figure 10–1: Bond Terms

Each corporation issuing bonds has unique financing needs and attempts to satisfy various borrowing situations and investor preferences. Many types of bonds have been created to meet these varying needs. Some of the common types are described below.

Secured bonds are backed by physical assets of the corporation. These are usually long-lived assets. When real property is legally pledged as security for the bonds, they are called **mortgage bonds**.

Unsecured bonds are commonly referred to as **debentures**. A debenture is a formal document stating that a company is liable to pay a specified amount with interest. The debt is not backed by any collateral. As such, debentures are usually only issued by large, well-established companies. Debenture holders are ordinary creditors of the corporation. These bonds usually command a higher interest rate because of the added risk for investors.

Registered bonds require the name and address of the owner to be recorded by the corporation or its trustee. The title to **bearer bonds** passes on delivery of the bonds to new owners and is not tracked. Payment of interest is made when the bearer clips coupons attached to the bond and presents these for payment.

Special features can be attached to bonds in order to make them more attractive to investors.

When **serial bonds** are issued, the bonds have differing maturity dates, as indicated on the bond contract. Investors are able to choose bonds with a term that agrees with their investment plans. For example, in a $30 million serial bond issue, $10 million worth of the bonds may mature each year for three years.

The issue of bonds with a **call provision** permits the issuing corporation to redeem, or call, the bonds before their maturity date. The bond indenture usually indicates the price at which bonds are callable. Corporate bond issuers are thereby protected in the event that market interest rates decline below the bond contract interest rate. The higher interest rate bonds can be called to be replaced by bonds bearing a lower interest rate.

Some bonds allow the bondholder to exchange bonds for a specified type and amount of the corporation's capital stock. Bonds with this feature are called **convertible bonds**. This feature permits bondholders to enjoy the security of being creditors while having the option to become stockholders if the corporation is successful.

When **sinking fund bonds** are issued, the corporation is required to deposit funds at regular intervals with a trustee. This feature ensures the availability of adequate cash for the redemption of the bonds at maturity. The fund is called "sinking" because the transferred assets are tied up or "sunk," and cannot be used for any purpose other than the redemption of the bonds.

The corporation issuing bonds may be required to restrict its Retained Earnings, thereby limiting the amount of dividends that can be paid and protecting bondholders.

Investors consider the interest rates of bonds as well as the quality of the assets, if any, that are pledged as security. The other provisions in a bond contract are of limited or no value if the issuing corporation is in financial difficulties. A corporation in such difficulties may not be able to sell its bonds, regardless of the attractive provisions attached to them.

Each bond has an amount printed on the face of the bond certificate. This is called the **face value** of the bond; it is also commonly referred to as the **par-value** of the bond. When the cash received is the same as a bond's face value, the bond is said to be issued at *par.* A common face value of bonds is $1,000, although bonds of other denominations exist. A $30 million bond issue can be divided into 30,000 of bonds, for example. This permits a large number of individuals and institutions to participate in corporate financing.

B. The Bond Accounting Process

LO2 – Describe how bonds, premiums and discounts are recorded in the accounting records and disclosed on the balance sheet.

Assume that Big Dog Carworks Corp. decides to issue $30 million of 7% bonds to finance its expansion. The bonds are repayable three years from the date of issue, January 1, 2019. The amount of authorized bonds, their interest rate, and their maturity date can be shown in the general ledger as follows:

GENERAL LEDGER

Bonds Payable – Long-term Acct. No. 272

Date 2019		Description	PR	Debit	Credit		Balance
Jan.	1	Memorandum: Authorized to issue $30M of 7%, 3 yr. bonds, due Jan. 1, 2022.					

If the bonds are also sold at face value the same day, the journal entry is straight forward:

2019			
Jan. 1	Cash	30,000,000	
	Bonds Payable, 7%		30,000,000
	To record the issue of 7% bonds at par.		

Although different bond issues may be combined and disclosed on the balance sheet as one amount, the characteristics of each bond issue are disclosed in a note the financial statements. This includes the interest rate and maturity date of the bond issue. Also disclosed in a note are any restrictions imposed on the corporation's activities by the terms of the bond indenture and the assets pledged, if any.

If interest is paid once a year on December 31, the 2019 entry would be:

2019			
Dec. 31	Bond Interest Expense	2,100,000	
	Bonds Payable, 7%		2,100,000
	To record 2019 interest expense on bonds ($30M x 7% - $2.1M).		

The partial balance sheet of BDCC at December 31, 2019 would show:

Liabilities

Non-current

Bonds payable, 7% (Note X) 30,000,000

Note X could state:

> On January 1, 2019 the corporation was authorized to issue $30M of bonds. The terms of the bond indenture are administered by a trustee, Fidelity Mutual. The bonds bear interest at 7% per year on the face value. Interest is paid on December 31 of each year. The bonds are secured by a mortgage on some of the corporation's properties. The bonds are non-convertible and non-callable. Dividends may not be paid to stockholders until bond interest has been paid to bondholders. The corporation issued the entire bond issue at face value on January 1, 2019.

Premiums and Discounts

A bond is sold at a **premium** when it is sold for more than its face value. This usually results when the bond interest rate is higher than the market interest rate at the date of issue.

For instance, assume Big Dog Carworks Corp. issues a $1,000 bond on January 1, 2019, a maturity date of one year, and a stated interest rate of 8% per year, at a time when bonds with similar terms, features, and risk are earning only a 7% return. Potential investors will bid up the bond price on the bond market to the point at which the price paid will equal the interest and return of the original investment at the end of the year as if the bond actually yielded 7%. This works out to about $1,009 because an investor who buys the 8% bonds will receive $80 ($1,000 x 8%) interest plus the original $1,000 investment back at December 31, 2019, for a total of $1,080. The amount that would need to be invested at the market rate of 7% to return back $1,080 at the end of one year would be about $1,009 ($1,080/1.07). The price of the 8% bond will be bid up to this amount.

The difference between the selling price of the bond ($1,009) and the face value ($1,000) is the premium of $9. The journal entry to record the sale of the bond is:

2019			
Jan. 1	Cash	1,000	
	Premium on Bonds Payable		9
	Bonds Payable, 8%		1,000
	To record the issue of 8% bonds at a premium.		

Because the bonds mature in one year, the $9 amount is added to the value of the bonds and recorded in the current liabilities section of the balance sheet. The net amount is referred to as the **bond carrying amount.** The balance sheet just before the bond redemption would show:

Liabilities	
Current	
Bonds payable, 8%	1,000
Add: Premium on bonds	9
Carrying amount	1,009

On December 31, 2019, the interest expense of $80 is paid, the bond matures, bondholders are repaid, and the premium is written off as a reduction of interest expense.

These three journal entries would be made:

2019			
Dec. 31	Interest Expense	80	
	Cash		80
	To record interest on bonds.		
Dec. 31	Bonds Payable, 8%	1,000	
	Cash		1,000
	To record retirement of 8% bonds.		
Dec. 31	Premium on Bonds Payable	9	
	Interest Expense		9
	To record write-off of premium on bonds.		

Note that the interest expense recorded on the income statement would be $71 ($80 – 9) or about 7% (rounded). This is equal to the market rate of interest at the time of bond issue.

If the bond is sold for less than $1,000, then the bond has been sold at a **discount**. This usually results when the bond interest rate is lower than the market interest rate.

Assume now that the same $1,000, one-year, 8% bond is issued by BDCC. If similar bonds are earning a return of 9% at the date of issue, the selling price of the bond will fall on the market until the point at which the amount of interest to be paid at the end of 2019 ($80) plus the original $1,000 investment produces a return of 9% to the bonds' purchasers. This selling amount will be about $991 ($1,080/1.09). The difference between the face value of the bond ($1,000) and the selling price of the bond ($991) is $9. This is the *discount*.

The journal entry to record the transaction on January 1, 2019 is:

2019			
Jan. 1	Cash	991	
	Discount on Bonds Payable	9	
	Bonds Payable		1,000
	To record issue of 8% bonds at a discount.		

The $9 amount is a contra liability account and is *deducted* from to the value of the bonds recorded in the current liabilities section of the balance sheet just before the bond redemption would show:

Liabilities

Current	
Bonds payable, 8%	1,000
Less: Discount on bonds	(9)
Carrying amount	991

These three journal entries would be made on December 31, 2019:

2019			
Dec. 31	Interest Expense	80	
	Cash		80
	To record interest on bonds.		
Dec. 31	Bonds Payable, 8%	1,000	
	Cash		1,000
	To record retirement of 8% bonds.		
Dec. 31	Interest Expense	9	
	Discount on Bonds Payable		9
	To record write-off of discount on bonds.		

The interest expense recorded on the income statement would be $89 ($80 + 9) or about 9% (rounded). This is equal to the market rate of interest at the time of bond issue.

These are simplified examples, and the amounts of bond premiums and discounts are insignificant. In reality, bonds may be issued part-way through a fiscal year and may be outstanding for a number of years. Related premiums and discounts can be significant when millions of dollars of bonds are issued and these amounts need to be reduced systematically over the life of a bond issue. Accounting for these considerations is discussed below.

C. Bond Amortization and Interest

LO3 – Describe and calculate how bond premiums and discounts are amortized.

The mechanisms whereby the market establishes a price for a bond issue are complex. Some of the considerations include *present value* calculations. These are explained further in appendix 1.

In order to focus on the accounting process associated with bonds covered in this section, any applicable premiums or discounts will be provided, and a simplified method of **amortizing** the bond premium or discount presented using the **straight-line** method. Under GAAP, the **effective interest** method of amortizing bond premiums and discounts must be used when the interest expense amount is materially different from the interest expense calculated under the straight-line method. The effective interest method is discussed in appendix 2.

In this section, assume the following three scenarios:

1. Big Dog Carworks Corp. issues $100,000 of 3-year, 12% bonds on January 1, 2019. Market value is the same as face value ($100,000). The journal entry to record the sale would be:

2019			
Jan. 1	Cash	100,000	
	Bonds Payable, 12%		100,000
	To record sale of 12% bonds at par.		

2. BDCC's bonds are issued at a premium because the market rate of interest is 8% at the date of issue for similar bonds offered in the market. (The difference between the 12% rate on the BDCC bonds and the market rate of 8% is exaggerated for purposes of illustration. In reality, these differences are generally fractions of a percent.) As a result, market value is $110,485. The premium is $10,485 ($110,845 – 100,000). The journal entry to record the sale would be:

2019			
Jan. 1	Cash	110,845	
	Premium on Bonds Payable		10,485
	Bonds Payable, 12%		100,000
	To record sale of 12% bonds at a premium.		

3. BDCC's bonds are issued at a discount. Market value is $90,754 because the market rate of interest is 16%. The discount is $9,246 ($100,000 – 90,754). The journal entry to record the sale on would be:

2019			
Jan. 1	Cash	90,754	
	Discount on Bonds Payable	9,246	
	Bonds Payable, 12%		100,000
	To record sale of 12% bonds at a discount.		

Interest begins to accumulate from the previous interest payment date of the bond and is usually paid semi-annually regardless of when the bond is actually sold. Interest paid to bondholders is always calculated based on the face value of the bond, regardless of whether the bonds are issued at par, at a premium, or at a discount. BDCC's $100,000 bond issue with an interest rate of 12% pays $12,000 interest each year. This interest is usually paid semi-annually, that is, individual bondholders would receive $6,000 every six months.

As noted previously, any premium or discount is assumed to be amortized over the life of the bond in equal amounts. An entry is made at each point interest is paid. BDCC's bonds are issued for three years and interest will be paid twice each year, on June 30 and December 31 for a total of six payment dates. For our purposes, the premium or discount will be amortized on a straight-line basis over these six periods, in the following amounts:

Premium: ($10,485/6)	$1,747 (rounded)
Discount ($9,246/6)	$1,541

The journal entries to record interest payments for the first year of BDCC's $100,000 bond issue, together with the appropriate amortization entry, are recorded below.

2019			
Jun. 30	Interest Expense	6,000	
	Cash		6,000
	To record payment of semi-annual interest ($100,000 x 12% x 6/12 mos.)		
Dec. 31	Interest Expense	6,000	
	Cash		6,000
	To record payment of semi-annual interest ($100,000 x 12% x 6/12 mos.)		

The additional adjusting entries to record the 2019 amortization of the bond premium under scenario 2 are:

2019			
Jun. 30	Bond Premium	1,747	
	Interest Expense		1,747
	To record amortization of bond premium ($10,485/6 periods)		
Dec. 31	Bond Premium	1,747	
	Interest Expense		1,747
	To record amortization of bond premium ($10,485/6 periods)		

The additional adjusting entries to record the 2019 amortization of the bond discount under scenario 3 are:

2019			
Jun. 30	Interest Expense	1,541	
	Bond Discount		1,541
	To record amortization of bond discount ($9,246/6 periods)		
Dec. 31	Interest Expense	1,541	
	Bond Discount		1,541
	To record amortization of bond discount ($9,246/6 periods)		

Similar entries are made each June 30 and December 31 until the bonds are retired in three years. At maturity on December 31, 2021, the bonds are retired by the payment of cash to bondholders.

The usual entries would be made to record the payment of semi-annual interest and amortization of the premium or discount, as well as this final entry:

2021			
Dec. 31	Bonds Payable, 12%	100,000	
	Cash		100,000
	To record retirement of 12% bonds.		

The bonds payable would be recorded as non-current liabilities at December 31, 2019. The balance sheet presentation under each of the three scenarios would be:

Scenario 1		*Scenario 2*		*Scenario 3*	
Non-current liabilities		*Non-current liabilities*		*Non-current liabilities*	
Bonds payable	$100,000	Bonds payable	$100,000	Bonds payable	$100,000
		Add: Premium on bonds payable	6,991[1]	*Less:* Discount on bonds payable	(6,164)[2]
		Carrying amount	106,991	Carrying amount	93,836

[1] ($10,485 – 1,747 – 1,747) = $6,990

[2] ($9,246 - 1,541 - 1,541) = $6,164

Alternately, just carrying amounts could be shown on the balance sheet. If so, details about face value and unamortized premiums or discounts would be disclosed in a note to the financial statements along with other pertinent details like interest rate, maturity date, and bond indenture provisions.

The bonds mature on December 31, 2021. When the bonds become payable within one year from the balance sheet date, they are classified as current liabilities. This would be done on the December 31, 2020 BDCC balance sheet, along with any unamortized premium or discount.

Amortization

The effect of amortizing a premium is to reduce interest expense (note the credit to interest expense in the middle journal entry above). This is appropriate, because the market rate of interest was lower than the face value of the bonds actually issued in scenario 2 above (8% vs. 12%).

Amortizing a discount increases interest expense (note the debit to interest expense in the right-hand entry above). This is also appropriate, because in scenario 3 the market rate of interest was higher than the face value of the bonds (16% vs. 12%).

The effect of amortizing a premium or discount is to gradually change the carrying amount of the bonds to the retirement (face) value of the bonds. At retirement, carrying amount is equal to face value under each scenario, as shown in Figure 10–2 below.

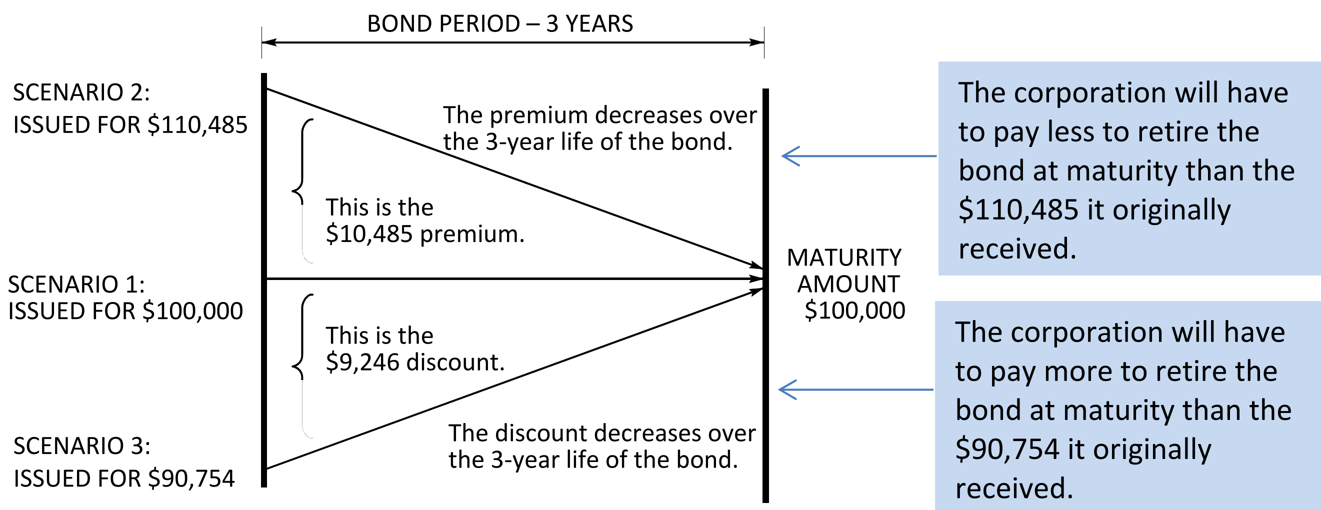


Figure 10–2 Straight-line Amortization of Bond Premium or Discount Over the Life of the Bond Issue

The combined effect on interest expense and carrying amount of issuing the bonds at a premium and amortizing this premium over the life of the bonds is shown in Figure 10–3 below:

Issue of $100,000 Bonds Payable for $110,485
Amortization Table

Year	Six-month period ending	A Beginning bond carrying amount	B Cash interest paid	C Periodic premium amortization	D (B – C) Periodic interest expense	E (A - C) Ending bond carrying value
2019	Jun. 30	$110,485.00	$ 6,000.00	$ 1,747.50	$ 4,252.50	$108,737.50
	Dec. 31	108,737.50	6,000.00	1,747.50	4,252.50	106,990.00
2020	Jun. 30	106,999.00	6,000.00	1,747.50	4,252.50	105,242.50
	Dec. 31	105,242.50	6,000.00	1,747.50	4,252.50	103,495.00
2021	Jun. 30	103,495.00	6,000.00	1,747.50	4,252.50	101,747.50
	Dec. 31	101,747.50	6,000.00	1,747.50	4,252.50	100,000.00
			$36,000.00	$10,485.00	$25,515.00	

The interest expense on the income statement will be decreased by the amount of the premium amortization.

Figure 10–3 Effect of Straight-line Amortization of Bond Premium at Each Interest Payment Date

The similar combined effect of a discount is shown in Figure 10–4:

Issue of $100,000 Bonds Payable for $90,754
Amortization Table

		A	B	C	D	E
Year	Six-month period ending	Beginning bond carrying amount	Cash interest paid	Periodic discount amortization	(B – C) Periodic interest expense	(A - C) Ending bond carrying value
2019	Jun. 30	$90,754	$ 6,000	$ 1,541	$ 7,541	$92,295
	Dec. 31	92,295	6,000	1,541	7,541	93,836
2020	Jun. 30	93,836	6,000	1,541	7,541	95,377
	Dec. 31	95,377	6,000	1,541	7,541	96,918
2021	Jun. 30	96,918	6,000	1,541	7,541	98,459
	Dec. 31	98,459	6,000	1,541	7,541	100,000
			$36,000	$9,246	$45,246	

The interest expense on the income statement will be increased by the amount of the discount amortization.

Figure 10–4 Effect of Straight-line Amortization of Bond Discount at Each Interest Payment Date

In the case of bonds issued at a discount, the interest rate consists of the 12% bond rate plus the amortized bond discount. The expense reported on the income statement is higher than the cash interest paid. Thus, whenever a corporation sells a bond for less than its face value, its total cost of borrowing is increased because of discount amortization.

Bond Redemption

A bond issue can also be retired in whole, or in part, before its maturity date. As discussed above, there are several different possibilities:

1. The bonds can be repurchased on the open market if the purchase is financially advantageous to the issuer.

2. A **call provision** is sometimes included in a bond indenture permitting early redemption at a specified price, usually higher than face value. The issuer may decide to exercise this call provision if it is financially advantageous.
3. The bondholder may be able to exercise a **conversion provision** if one was provided for in the bond indenture; in this case, the bonds can be converted into specified capital stock at the option of the bondholder.

Whenever bonds are retired before their maturity date, the amount payable to bondholders is the face amount of the bonds or the amount required by the call provision. Any unamortized premium or discount must be removed from the accounts. The accounting required for BDCC's January 1, 2019 issue of $100,000, 12% bonds has been illustrated. Suppose that ½, or $50,000 of face value bonds, are redeemed for cash at 102 (that is, for $50,000 x 102% = $51,000) on December 31, 2019, when the account balances are as follows:

2019	Bonds Payable		Premium on Bonds		
Jan. 1		100,000		10,485.00	
Jun. 30			1,747.50		
Dec. 31			1,747.50		
				6,990.00	Bal.

Since $50,000 of the bonds is redeemed, only half of the $6,990 premium balance ($3,495) is removed from the accounting records. The journal entry would be:

2019			
Dec. 31	Bonds Payable, 12%	50,000	
	Premium on Bonds	3,495	
	Cash		51,000
	Gain on Retirement		2,495
	To record retirement of 12% bonds at 102 ($50,000 x 1.02 = $51,000).		

In this case, retirement results in a gain.

Under different market conditions, a loss may result. If ½ of the outstanding bonds are redeemed at 97, cash of $48,500 would be received ($50,000 x 97%) and this journal entry would be recorded:

2019			
Dec. 31	Bonds Payable, 12%	50,000	
	Premium on Bonds	3,495	
	Loss on Retirement	4,995	
	Cash		48,500
	To record retirement of 12% bonds at 97.		

The BDCC retirement occurred on an interest payment date, December 31, 2022. If the retirement had occurred between interest payment dates, accrued interest also would be paid to the bondholders (this will be covered below) and the proportionate write-off of the remaining premium or discount would be recorded at that date.

Sale of Bonds between Interest Dates

Not all bonds are issued on the date when interest begins to accumulate. For example, consider the sale of an additional $50,000 of 12% BDCC bonds on April 1, 2019. Interest began to accumulate on January 1 per the terms of the bond indenture and, regardless of the date on which the bonds were issued, a six-month interest payment is made to the bondholders on June 30. This $3,000 payment ($50,000 x 12% x 6/12 mos.) is owing to the bondholders even though the bond has been issued for only three months, from April 1 to June 30.

If the bond is sold between interest dates, the purchaser pays the accrued interest to the issuer at the date of purchase. The purchaser will get the full six months of interest in cash on June 30, having only held the bonds for three months. In this case, $1,500 of interest has accrued on the bond from January 1 to April 1 ($50,000 x 12% x 3/12 mos.). Assuming the bonds are issued at par, the purchasers would pay a total of $51,500. The corporation would record the bond issue as follows:

2019			
Apr. 1	Cash	51,500	
	Bond Interest Payable		1,500
	Bond Payable		50,000
	To record issue of 12% bonds at par on April 1.		

The regular semi-annual interest payment on the $100,000 of issued bonds is then made on June 30. It is recorded as follows:

2019			
Jun. 30	Bond Interest Expense	4,500	
	Bond Interest Payable	1,500	
	Cash		6,000
	To record payment of interest on 12% bonds outstanding ($100,000 x 12% x 6/12 mos. = $6,000).		

In this way, interest expense is recorded on $50,000 of the bonds for three months ($50,000 x 12% x 3/12 mos. = $1,500) and for the remaining $50,000 of bonds for six months ($50,000 x 12% x 6/12 mos. = $3,000), for a total of $4,500.

If the bond has interest payment dates that do not coincide with the year-end of the issuing corporation, an adjusting journal entry is required at year-end to record interest owing at that date. Assume a corporation issued $200,000, 6% bonds on October 1, 2019 that pay interest semi-annually on April 1 and September 30. If it has a December 31 year-end, the following entry would be made at that date:

2019			
Dec. 31	Bond Interest Expense	2,000	
	Bond Interest Payable		2,000
	To accrue interest on 6% bonds issued October 1 ($200,000 x 6% x 2/12 mos. = $2,000).		

When the semi-annual payment is made on April 1 of the next year, this entry is made:

2020			
Apr. 30	Bond Interest Expense	4,000	
	Bond Interest Payable	2,000	
	Cash		6,000
	To record semi-annual interest payment on 6% bonds ($200,000 x 6% x 6/12 mos. = $6,000).		

Amortizing Premiums and Discounts on Bonds Sold Between Interest Dates

If bonds are sold between interest payment dates, it is also necessary to calculate the number of months remaining in the life of the bonds at the date the bonds are sold to record the amortization of premiums or discounts. Recall our original example. $100,000 of 12% bonds was sold on January 1, 2019; in one scenario, a bond premium of $10,485 resulted; in the other scenario, a bond discount of $9,246 resulted. Now assume the bonds were issued on April 1 instead of January 1. The amortization at June 30 would be calculated as follows:

Amortization of premium:

Premium is	$10,485(a)
Months left are	33(b)
Months amortized to date	3(c)

Calculation of amortization April 1 to June 30:
(a/b) x c
($10,485/33) x 3 mos. = $953 (rounded)
Every six months thereafter:
($10,485/33) x 6 mos. = $1,906

Amortization of discount:

Discount is	$9,246(a)
Months left are	33(b)
Months amortized to date	3(c)

Calculation of amortization April 1 to June 30:
(a/b) x c
($9,246/33) x 3 = $840 (rounded)
Every six months thereafter:
($9,246/33) x 6 mos. = $1,681

Appendix 1: Present Value Calculations

LO4 – Describe and calculate the effective interest method of amortization and explain how this differs from the straight-line amortization method.

Interest is the time value of money. If you borrow $1 today for one year at 10% interest, its future value in one year is $1.10 ($1 x 110% = $1.10). The increase of 10 cents results from the interest on $1 for the year. Conversely, if you are to pay $1.10 one year from today, the **present value** is $1 – the amount you would need to invest today at 10% to receive $1.10 in one year's time ($1.10/110% = $1). The exclusion of applicable interest in calculating present value is referred to as **discounting**.

If the above $1.10 amount at the end of the first year is invested for an additional year at 10% interest, its future value would be $1.21 ($1.10 x 110%). This consists of the original $1 investment, $.10 interest earned in the first year, and $.11 interest earned during the second year. Note that the second year's interest is earned on both the original $1 and on the 10 cents interest earned during the first year. This increase provides an example of **compound interest** – interest earned on interest.

The following formula can be used to calculate this:

$$F = P \times (1+i)^n$$

where F = future value, P = present value, i = the interest rate, and n = number of periods.

Substituting the values of our example, the calculation would be, F = $1[(1 + .1)^2]$, or $1.21.

If the **future value** of today's $1 at 10% interest compounded annually amounts to $1.21 at the end of 2 years, the present value of $1.21 to be paid in 2 years, discounted at 10%, is $1. The formula to calculate this is just the inverse of the formula shown above, or

$$P = \frac{F}{(1 + i)^n}$$

Substituting the values of our example,

$$P = \frac{\$1.21}{(1 + .1)^2} = \$1$$

That is, the present value of $1.21 received two years in the future is $1. The present value is always less than the future value, since an amount received today can be invested to earn a return (interest) in the intervening period. Calculating the present value of amounts payable or receivable over several time periods is explained more thoroughly below.

Future Cash Flows

The following example illustrates how the prices of $100,000 of bonds issued by Big Dog Carworks Corp. were derived. Recall the three scenarios:

1. Big Dog Carworks Corp. issues $100,000 of 3-year, 12% bonds on January 1, 2019 when the market rate of interest is also 12%. Interest is paid semi-annually.
2. BDCC's bonds are issued at a premium ($110,485) because the market rate of interest is 8% at the date of issue for similar bonds offered in the market.
3. BDCC's bonds are issued at a discount ($90,574). The market rate of interest is 16%.

There are two steps to calculate the present value of the bonds, because there are two types of future cash amounts that relate to the bond issue. The bond *principal* will be repaid at the end of three years, and *interest* payments will be received every six months for three years. The present value of each of these must be calculated and totaled to arrive at the present value of the bonds at the date of issue.

In the examples below, it will be shown that the resulting amount equals the issue price of the bonds in each scenario described above. First, the present value of the repayment of the bond principal at the end of three years for each of the three scenarios will be calculated.

Present Value of Bond Principal to be Repaid at End of Three Years

The present value of a single future amount — $100,000 in this case — can be calculated using table A below. Since semi-annual interest payments are made, the 6-month rate is used. This is half the annual rate, or 6% (12% x ½). Therefore the "6%" column below is used, rather than the 12% column. Also, because there are 6 interest payment periods over the 3-year life of the bond, the "6 period" row is used instead of the "3 period" row. The intersection of this row and column is $.704961 (see amount in blue in the table). This represents the present value of $1 to be received six periods hence, assuming an interest rate of 6% per period.

Table A
Present Value (P) of $1

$$P = \frac{1}{1 + i^n}$$

Periods	4%	6%	8%	10%	12%	14%	16%
1	.961538	.943396	.925926	.909091	.892857	.877193	.862069
2	.924556	.889996	.857339	.826446	.797194	.769468	.743163
3	.888996	.839619	.793832	.751315	.711780	.674972	.640658
4	.854804	.792094	.735030	.683013	.635518	.592030	.552291
5	.821927	.747258	.680583	.620921	.567427	.519369	.476113
6	**.790315**	.704961	**.630170**	.564474	.506631	.455587	.410442
7	.759918	.665057	.583490	.513158	.452349	.399637	.353830
8	.730690	.627412	.540269	.466507	.403883	.350559	.305025
9	.702587	.591898	.500249	.424098	.360610	.307508	.262953
10	.675564	.558395	.463193	.385543	.321973	.269744	.226684
11	.649581	.526788	.428883	.350494	.287476	.236617	.195417
12	.624597	.496969	.397114	.318631	.256675	.207559	.168463
13	.600574	.468839	.367698	.289664	.229174	.182069	.145227
14	.577475	.442301	.340461	.263331	.204620	.159710	.125195
15	.555265	.417265	.315242	.239392	.182696	.140096	.107927
16	.533908	.393646	.291890	.217629	.163122	.122892	.093041
17	.513373	.371364	.270269	.197845	.145644	.107800	.080207
18	.493628	.350344	.250249	.179859	.130040	.094561	.069144
19	.474642	.330513	.231712	.163508	.116107	.082948	.059607
20	.456387	.311805	.214548	.148644	103667	.072762	.051385

Scenario 1: The Bond Contract Interest Rate (12%) Is the Same as the Market Interest Rate (12%)

The present value of $100,000 principal to be received three years from now is $100,000 x 0.704961 = $70,496.

Scenario 2: The Market Interest Rate Is 8% (per Year)

Again, since semi-annual interest payments are made, the 6-month rate is half the annual rate. Therefore, the compounding rate this time is 4% (8% x ½); there are 6 periods of interest payments.

According to table A, the present value of $1 compounded at 4% for 6 periods is 0.790315 (see bolded amount in 4% column). The present value of the principal amount of the bonds is therefore calculated as: $100,000 x 0.790315 = $79,032.

Scenario 3: The Market Interest Rate Is 16% (per Year)

For these semi-annual interest payments, the 6-month rate is 8% (16% x ½); there are also 6 periods of interest payments.

According to table A, the present value of $1 compounded at 8% for 6 periods is 0.630170 (see bolded amount in 8% column). The present value of the principal amount of the bonds is therefore calculated as: $100,000 x 0.630170 = $63,017.

Present Value of Six Interest Payments to be Made Semi-annually for Three years

The present value of the interest payments can be calculated using table B. This formula is just the sum of the present value of each of the six interest payments made at varying points over the three-year life of the bonds. In this instance, interest of $6,000 is paid semi-annually for 6 periods on the bonds. Since BDCC's payments are made semi-annually, the rate used is half the prevailing market rate of interest.

Table B

Present Value (P) of a Series of Payments of $1

$$P = \left[\frac{1 - \dfrac{1}{1 + i^{n}}}{i}\right]$$

Periods	4%	6%	8%	10%	12%	14%	16%
1	.961538	.943396	.925926	.909091	.892857	.877193	.862069
2	1.886095	1.833393	1.783265	1.735537	1.690051	1.646661	1.605232
3	2.775091	2.673012	2.577097	2.486852	2.401831	2.321632	2.245890
4	3.629895	3.465106	3.312127	3.169865	3.037349	2.913712	2.798181
5	4.451822	4.212364	3.992710	3.790787	3.604776	3.433081	3.274294
6	**5.242137**	**4.917324**	**4.622880**	4.355261	4.111407	3.888668	3.684736
7	6.002055	5.582381	5.206370	4.868419	4.563757	4.288305	4.038565
8	6.732745	6.209794	5.746639	5.334926	4.967640	4.638864	4.343591
9	7.435332	6.801692	6.246888	5.759024	5.328250	4.946372	4.606544
10	8.110896	7.360087	6.710081	6.144567	5.650223	5.216116	4.833227
11	8.760477	7.886875	7.138964	6.495061	5.937699	5.452733	5.028644
12	9.385074	8.383844	7.536078	6.813692	6.194374	5.660292	5.197107
13	9.985648	8.852683	7.903776	7.103356	6.423548	5.842362	5.342334
14	10.563123	9.294984	8.244237	7.366687	6.628168	6.002072	5.467529
15	11.118387	9.712249	8.559479	7.606080	6.810864	6.142168	5.575456
16	11.652296	10.105895	8.851369	7.823709	6.963986	6.265060	5.668497
17	12.165669	10.477260	9.121638	8.021553	6.119630	6.372859	5.748704
18	12.659297	10.827603	9.371887	8.202012	7.249670	6.467420	5.817848
19	13.133939	11.158116	9.603599	8.364920	7.365777	6.550369	5.877455
20	13.590326	11.469921	9.818147	8.513564	7.469444	6.623131	5.928841

Scenario 1: The Market Interest Rate Is 12% (per Year)

According to table B, the sum of the present values of six regular payments of $1 compounded at 6% (l2% x ½) for six periods is 4.917324 (see bolded amount in 6% column). The total present value of the six, $6,000 interest payments made over the three-year life of the BDCC bonds under scenario 1 is therefore $6,000 x 4.917324 = $29,504.

Scenario 2: The Market Interest Rate Is 8% (per Year)

Again using table B, the sum of the present values of six regular interest payments of $1 compounded at 4% (8% x ½) for 6 periods is 5.242137 (see bolded amount in 4% column). The total present value of the six, $6,000 interest payments made over the three-year life of the BDCC bonds under scenario 2 is therefore $6,000 x 5.242137 = $31,453.

Scenario 3: The Market Interest Rate Is 16% (per Year)

The sum of the present values of six regular interest payments of $1 compounded at 8% (16% x ½) for 6 periods is 4.622880 according to table B. The total present value of the six, $6,000 interest payments made over the three-year life of the BDCC bonds under scenario 3 is therefore $6,000 x 4.622880 = $27,737.

Calculating the Total Present Value of the BDCC bonds

The total present value of the $100,000 BDCC bonds issued under each of the three scenarios is the sum of the present value of the principal and interest payments derived above.

Scenario 1: The Bond Contract Interest Rate (12%) Is the Same as the Market Interest Rate (12%)

In this case, the bonds are sold at face value. An investor is willing to pay face value because the present value of the future cash payments is $100,000 – the sum of the present value of the principal and interest payments of the bonds:

1. The $100,000 bond face value is due at the end of six periods. The present value of this cash flow is calculated as $100,000 x 0.704961 (table A)	$70,496
2. The semi-annual $6,000 interest is to be received for six periods in total. The present value of this cash flow is calculated as $6,000 x 4.917324 (table B)	29,504
Total present value of these bonds is	$100,000

When the bond contract interest rate is the same as the market interest rate, the present value of all cash flows is the same as the bond's face value. In actual practice, however, the market interest rate may be different from the bond indenture interest rate because of the time that elapses between the creation of the indenture and the time the bonds are actually sold on the bond market. Scenarios 2 and 3 deal with this situation.

Scenario 2: The Bond Contract Interest Rate (12%) Is Greater than the Market Interest Rate (8%)

Here the bonds are sold at a premium. An investor is willing to pay more than face value because the present value of the future cash flow amounts to $110,485, calculated as follows:

1. The $100,000 bond face value is due at the end of six periods. The present value of this cash flow is calculated as $100,000 x 0.790315 (table A)	$79,032
2. The semi-annual $6,000 interest is to be received for six periods in total. The present value of this cash flow is calculated as $6,000 x 5.242137 (table B)	31,453
Total present value of these bonds is	$110,485

Therefore, when the bond contract interest rate is greater than the market interest rate, the present value of principal and interest payments is greater than the face value of the bonds, other things being equal. This excess amount of $10,485 ($110,485 – 100,000) is the premium that was assumed in the original scenario 2 example in the main part of the chapter.

Scenario 3: The Bond Contract Interest Rate (12%) Is Less than the Market Interest Rate (16%)

In this case, the bonds are sold at a discount. An investor will pay less than face value because the present value of future cash flow amounts to only $90,754.

1.	The $100,000 bond face value is due at the end of six periods. The present value of this cash flow is calculated as $100,000 x 0.630170 (table A)	$63,017
2.	The semi-annual $6,000 interest is to be received for six periods in total. The present value of this cash flow is calculated as $6,000 x 4.622880 (table B)	27,737
	Total present value of these bonds is	$90,754

Therefore, when the bond contract interest rate is less than the market interest rate, the present value of all cash flows is less than the face value of the bonds. This difference, calculated as $9,246 ($100,000 - $90,754) in this example, is the discount used in the original scenario 3 discussed earlier in the chapter.

Appendix 2: The Effective Interest Method of Amortization

As also discussed earlier, the bond premium or discount is amortized over the bond life remaining from the date of the bond's issue. The straight-line method allocates an equal amount of amortization to each semi-annual interest period. The simplicity of this method makes it appropriate as an introduction to the bond accounting process.

However, GAAP requires the use of the **effective interest** amortization method when the interest expense differs materially from interest expense amount calculated using the straight-line method. Under the effective interest method, the amount of amortization calculated differs from one period to another but produces a more consistent rate of interest expense when it is recognized in the income statement.

The calculation is facilitated through the preparation of an amortization table. To illustrate, assume that Big Dog Carworks Corp. uses this method of amortization and again issues 8%, $100,000, three-year bonds on January 1, 2019. The issue price is $110,485.

Calculating Interest Expense and Premium Amortization

The amortization table shown in Figure 10–5 is prepared:

Issue of $100,000 Bonds Payable for $110,485
Amortization Table
Using Market Interest Rate of 8%

		A	B	C	D	E
Year	*Six-month period ending*	*Beginning bond carrying amount*	*Using 8% market rate to calculate six-month interest expense* ([½ of 8% = 4%] x A)	*Actual cash interest paid*	(B - C) *Periodic premium amortization*	(A - D) *Ending bond carrying amount*
2019	Jun. 30	$110,485	(4% x $110,485) = $4,419	$6,000	$1,581	$108,904
	Dec. 31	108,904	(4% x 108,904) = 4,356	6,000	1,644	107,260
2020	Jun. 30	107,260	(4% x 107,260) = 4,290	6,000	1,710	105,550
	Dec. 31	105,550	(4% x 105,550) = 4,222	6,000	1,778	103,772
2021	Jun. 30	103,772	(4% x 103,772) = 4,151	6,000	1,849	101,923
	Dec. 31	101,923	(4% x 101,923) = 4,077	6,000	1,923	100,000

Note the use of a constant interest rate under this method.

This amount is the interest expense for each 6-month period.

This amount is the amortization for each 6-month period.

Figure 10–5 Effective Interest Method of Bond Amortization

The calculation begins with the $110,485 issue amount in period 1 (January 1 to June 30, 2019). The objective of this amortization method is to reduce this carrying amount to the face value of $100,000 over the life of the bonds; the decrease is shown in column E of the table.

In this case, the market interest rate of 8% is expressed as an annual rate. Because BDCC makes semi-annual interest payments, the six-month rate is 4% (half of the 8% annual rate), which is the rate used in column B for each semi-annual period. (For convenience, all column B calculations are rounded to the nearest dollar.)

The calculation in column D provides the premium amortization amount for each period. In period 1, for example, the difference between the $4,419 market rate interest expense (column B) and the $6,000 actual bond contract interest paid (column C) determines the premium amortization of $1,581 (column B – column C). Columns E and A show the decreasing carrying amount of the bonds during their three-year life.

The advantage of the effective interest method is that it calculates interest expense at a constant 4% each period. Interest expense (column B) decreases each period. From a theoretical point of view, it is preferable to show a financing interest expense that decreases (column B) as the amount of bonds outstanding decreases (column A). This produces a constant rate of borrowing.

Recording Interest Payments and Premium Amortization

Journal entries to record interest payments and amortization of the premium are made every June 30 and December 31 in the same manner as for straight-line amortization shown in section C. The actual interest paid to bondholders amounts to $6,000 each semi-annual period; the amount of premium amortization for each period is taken from column D of the amortization table. These are the entries for June 30, 2019.

	Payment of interest:			*Amortization of premium:*		
Jun. 30	Interest Expense	6,000		Bond Premium	1,581	
	Cash		6,000	Interest Expense		1,581
	To record semi-annual bond interest.			*To record amortization of bond premium.*		

The entries for each remaining period are similar; only the amounts used for premium amortization differ, as shown in column D of the amortization table. After posting the June 30 entries, the following balances result:

Bonds Payable	
	100,000

Premium on Bonds	
	10,485
1,581	
	8,904

Bond Int. Expense	
6,000	
	1,581
4,419	

The bond carrying amount at June 30 is $108,904 ($100,000 + 8,904). This is the amount that appeared in column E of the amortization table.

$4,419 is the balance that was calculated in column B of the amortization table.

Note that the effective interest rate based on the income statement interest expense and the opening bond carrying value shown on the balance sheet is 4% ($4,419/110,485, rounded).

Calculating Interest Expense and Discount Amortization

The following amortization table is prepared for the BDCC issue of $100,000 face value bonds at a discount for $90,754. The calculation begins with the $90,754 carrying amount in column A. The objective is to increase this carrying amount to the face value of $100,000 over the three-year life of the bond at a constant interest rate; this increase appears in column E.

The annual market interest rate in this case is 16%. Half this rate — 8% — is used in the column B calculations, since interest payments are made semi-annually. (For convenience, all column B calculations are rounded to the nearest dollar.) The calculation in column D provides the amortization amount. In period 1, for example, the difference between the $7,260 market rate interest expense (column B) and the $6,000 actual bond contract interest paid (column C) determines the discount amortization of $1,260 (column B – column C).

Issue of $100,000 Bonds Payable for $90,754
Amortization Table
Using Market Interest Rate of 16%

		A	B	C	D	E
Year	*Six-month period ending*	*Beginning bond carrying amount*	*Using 8% market rate to calculate six-month interest expense* ([½ of 16% = 8%] x A)	*Actual cash interest paid*	(B - C) *Periodic discount amortization*	(A .- D) *Ending bond carrying amount*
2019	Jun. 30	$90,754	(8% x $90,754) = $7,260	$6,000	$1,260	$ 92,014
	Dec. 31	92,014	(8% x 92,014) = 7,361	6,000	1,361	93,375
2020	Jun. 30	93,375	(8% x 93,375) = 7,470	6,000	1,470	94,845
	Dec. 31	94,845	(8% x 94,845) = 7,588	6,000	1,588	96,433
2021	Jun. 30	96,433	(8% x 96,433) = 7,715	6,000	1,715	98,148
	Dec. 31	98,148	(8% x 98,148) = 7,852	6,000	1,852	100,000

Columns E and A show the increasing carrying amount of the bonds during their three-year life. The effective interest method calculates interest expense at a constant 8% of each period's bond carrying amount. To achieve this, interest expense (column B) increases each period as the bond carrying amount increases.

Recording Interest Payments and Discount Amortization

Journal entries to record interest payments and amortization are made each June 30 and December 31 in the same manner as for the straight-line method (shown in section C). The actual interest paid to bondholders amounts to $6,000 each semi-annual period; the amount of discount amortization is taken directly from column D of the amortization table. These are the entries for period 1, January 1 to June 30

	Payment of interest:			*Amortization of discount:*		
Jun. 30	Interest Expense	6,000		Interest Expense	1,260	
	Cash		6,000	Bond Discount		1,260
	To record semi-annual bond interest.			*To record amortization of bond discount.*		

The entries for each remaining period are similar; only the amounts used for discount amortization differ, as shown in column D of the amortization table. After the posting of the June 30 entries, the following balances result:

Bonds Payable	
	100,000

Discount on Bonds	
9,246	
	1,260
7,986	

Bond Int. Expense	
6,000	
1,260	
7,260	

The bond carrying amount at June 30 is $92,014 ($100,000 – 7,986). This is the amount that appeared in column E of the amortization table.

$7,260 is the balance that was calculated in column B of the amortization table.

Comparison of the Effective Interest Method with the Straight-Line Method

A comparison of the two amortization methods can be made using the data applicable to the issue of BDCC's bonds at a discount; $100,000 face value bonds are issued for $90,754, resulting in a discount of $9,246 ($100,000 - $90,754). Under the straight-line method, this $9,246 discount is amortized in equal amounts over the 3-year life of the bonds. The discount is calculated for 6 -month periods, because amortization is recorded at the time that semi-annual interest payments are made. To recap: the straight-line method amortization is calculated as follows:

Discount	$9,246 (a)
Number of 6 -month periods remaining	6 (b)
Amortization (a/b)	$1,541

As explained in section C of this chapter, amortization of a discount increases interest expense. Therefore, the $1,541 is added to the $6,000 interest payment to calculate the $7,541 interest expense applicable to each 6 -month period. Under the straight-line method, the effective interest rate varies from period to period.

Under the effective interest method, the amortization of the $9,246 discount each period varies, but the effective interest rate is a constant 4%. Note that the total interest expense of $45,246 for the three-year period is the same under both methods.

	Effective Interest Method				Straight-Line Method		
Year	*Six-month period ending*	*Bond carrying amount (A)*	*Interest expense (B)*	*(B/A) %*	*Bond carrying amount (A)*	*Interest expense (B)*	*(B/A) %*
2019	Jun. 30	$90,754	$ 7,260	8	$90,754	$ 7,541	8.3
	Dec. 31	92,014	7,361	8	92,295	7,541	8.2
2020	Jun. 30	93,375	7,470	8	93,836	7,541	8.7
	Dec. 31	94,845	7,588	8	95,377	7,541	9.0
2021	Jun. 30	96,433	7,715	8	96,918	7,541	7.8
	Dec. 31	98,148	7,852	8	98,459	7,541	7.7
			$45,246			$45,246	

Under this method, the interest percentage is constant.

Under this method, the interest percentage varies.

This comparison involved the issue of bonds at a discount. A comparison for bonds issued at a premium would indicate a similar difference in the calculation of a periodic financing charge. Under the straight-line method, however, the percentage of financing charge would increase in the case of a premium, rather than decrease as shown here.

Summary of Chapter 10 Learning Objectives

LO1 – Describe the nature of bonds and the rights of bondholders.

A bond is a debt security that necessitates periodic interest payments during its life as well as a future repayment of the borrowed amount. A bond indenture is the contract that binds the corporation to the bondholders; it specifies the terms with which the corporation must comply and may restrict further borrowing by the corporation. A bondholder has the rights to receive the face value of the bond at a specified maturity date in the future; to receive periodic interest payments at a specified per cent of the bond’s face value; and in some cases, to have the corporation pledge assets to protect the bondholder’s investment.

LO2 – Describe how bonds, premiums, and discounts are recorded in the accounting records and disclosed on the balance sheet.

If the bond contract interest rate is the same as the prevailing market interest rate, the bond will sell “at par”. If the bond contract interest rate is higher than the prevailing market interest rate, the bond will sell at a premium. If the bond contract interest rate is lower than the prevailing market interest rate, the bond will sell at a discount. Premiums and discounts are recorded separately from the bonds payable in the accounting records.

LO3 – Describe and calculate how bond premiums and discounts are amortized.

Premiums and discounts are amortized over the remaining life of the bonds. Under GAAP, an unamortized premium (discount) is added to (deducted from) the face value of the bond so that the liability is recorded at its carrying amount on the balance sheet.

LO4 – (Appendices) Describe and calculate the effective interest method of amortization and explain how this differs from the straight-line amortization method.

Under the straight-line amortization method, any premium or discount is written off in equal amounts over the remaining life of the bond. Under the effective interest method, the price of a bond is determined by combining the present value of the face value to be paid at maturity and interest payments made during the bond’s life. Amortization under the effective interest method is calculated by applying the market rate of interest to the carrying amount of the bonds. The difference between this interest and the actual bond contract interest paid is the amortization applicable to the current period. The effective interest method produces a constant interest rate equal to the market rate of interest on the date the bonds were issued.

A S S I G N M E N T   M A T E R I A L S

Concept Self-check

1. What is a bond? a bond indenture? Why might a trustee be used to administer a bond indenture?
2. List and explain some bondholder rights.
3. What is the significance of stockholder approval before an issue of bonds?
4. How are different bond issues reported in the financial statements of a corporation?
5. Three main categories of bond terms are identified in this chapter. Identify these categories and list the major terms of each category.
6. What are three reasons why bonds might be redeemed before their maturity date?
7. Why would investors pay a premium for a corporate bond? Why would a corporation issue its bonds at a discount? Explain, using the relationship between the bond contract interest rate and the prevailing market interest rate.
8. How is an unamortized bond premium or discount disclosed in accordance with GAAP?
9. If the bond contract interest rate is greater than that required in the market on the date of issue, what is the effect on the selling price of the bond? Why?
10. What are two different methods used to amortize premiums and discounts? Explain.
11. How is the interest paid to bondholders calculated? How does this practice affect the sale of bonds between interest dates?
12. How is the amortization of bond premium recorded in the accounting records? the amortization of bond discount?
13. (Appendix 1) Distinguish between future value and present value. What is the time value of money? Why is it important?
14. (Appendix 1) How is the actual price of a bond determined? Give an example.
15. (Appendix 2) Explain how the amortization under the effective interest method is calculated. Use an example.

16. (Appendix 2) From a theoretical point of view, why is the effective interest method of amortization more acceptable than the straight-line method? Evaluate the usefulness of the effective interest method from a practical point of view.

Comprehension Problems

Note: Answer problems regarding present value calculations and the effective interest method of amortization only if the appendices were studied in your course. Recall as well that "issuing a $100,000 bond at 105", for example, means that the bond is sold for $100,000 x 105% = $105,000.

CP 10–1

Required: Complete the following by responding either *premium* or *discount*.

1. If the market rate of interest is 15% and the bond interest rate is 10%, the bonds will sell at a _______________.
2. If a bond's interest rate is 10% and the market rate of interest is 8%, the bonds will sell at a _______________.
3. In computing the carrying amount of a bond, unamortized _______________ is subtracted from the face value of the bond.
4. In computing the carrying amount of a bond, unamortized _______________ is added to the face value of the bond.
5. If a bond sells at a _______________, an amount in excess of the face value of the bond is received on the date of issuance.
6. If a bond sells at a _______________, an amount less than the face value of the bond is received on the date of issuance.

CP 10–2

On January 1, 2019, the date of bond authorization, Nevada Inc. issued a 3-year, $100,000, 12-per cent bond at 94. Semi-annual interest is payable on June 30 and December 31.

Required:

1. Prepare journal entries to record the following transactions:
   a. The issuance of the bonds
   b. The interest payment on June 30, 2019
   c. The amortization of the discount on June 30, 2019 (use the straight-line method of amortization).
2. Calculate the amount of interest paid in cash during 2019 and the amount of interest expense that will appear in the 2019 income statement.
3. Prepare a partial balance sheet at December 31, 2019 showing how the bonds payable and the discount on the bonds should be shown on the balance sheet.
4. Prepare the journal entry to record the retirement of the bonds on December 31, 2021.
5. Prepare the journal entry on January 1, 2020, assuming the bonds were called at 102.

CP 10–3

On January 1, 2019, the date of bond authorization, Sydney Corp. issued 3-year, $200,000, 12-per cent bonds at 112. Semi-annual interest is payable on June 30 and December 31.

Required:

1. Prepare the journal entries to record the following transactions:
   a. The issuance of the bonds
   b. The interest payment on June 30, 2019
   c. The amortization of the premium on June 30, 2019 (use the straight-line method of amortization).
2. Calculate the amount of interest paid in cash during 2019 and the amount of interest expense that will appear in the 2019 income statement. Why are these amounts different?
3. Prepare a partial balance sheet at December 31, 2019 showing how the bonds payable and the premium on bonds should be shown on the balance sheet.
4. Prepare the journal entry on January 1, 2022 when the bonds were called at 106.

CP 10–4

On January 1, 2019, the date of bond authorization, Paquette Inc. issued 3-year, 12-per cent bonds. Semi-annual interest is payable on June 30 and December 31. Paquette uses the straight-line method of amortization. The following journal entry records the first payment of interest:

2019			
June 30	Interest Expense	17,000	
	Cash		16,500
	Discount on Bonds		500

Required: Reconstruct the journal entry made to record the issuance of bonds on January 1, 2019.

CP 10–5

Gaudette Inc. issued 3-year, 12-per cent bonds on January 1, 2019, the date of bond authorization. Semi-annual interest is payable on June 30 and December 31. Gaudette uses the straight-line method of amortization. The following journal entry records the payment of interest on December 31, 2019:

2019			
Dec. 31	Interest Expense	17,900	
	Premium on Bonds	100	
	Cash		18,000

Required: Reconstruct the entry made to record the issuance of bonds on January 1, 2019.

CP 10–6

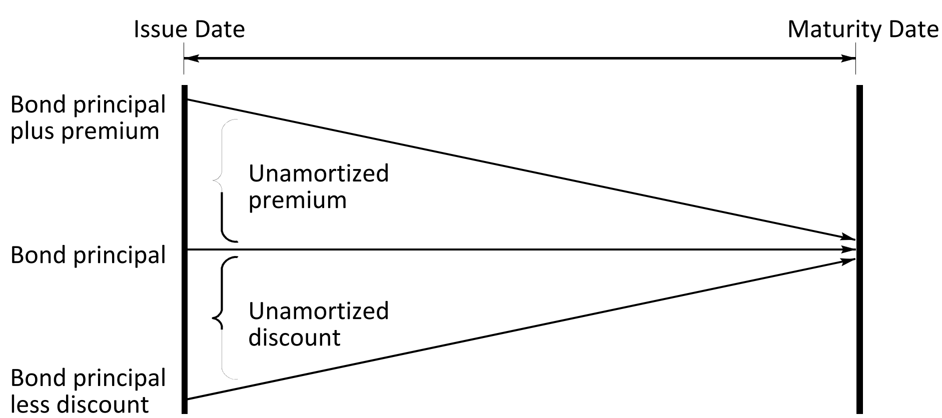
Leong Corporation was authorized to issue $500,000 face value bonds on January 1, 2019. The corporation issued $100,000 of face value bonds on that date. The bonds will mature on December 31, 2022. Interest is paid semi-annually on June 30 and December 31 each year. The bond interest rate per the terms of the indenture is 12% per year.

Required: Answer the questions for each of the following cases.
Case A: The bonds were issued at face value.
Case B: The bonds were issued for $112,000.
Case C: The bonds were issued for $88,000.

1. How much cash does Leong receive for the bonds?
2. How much annual interest must the corporation pay? On what amount does the corporation pay?
3. Prepare the journal entry to record the sale of the bonds.
4. Record the entries applicable to interest and straight-line amortization for June 30, 2019 and for December 31, 2019.

CP 10–7

The following diagram shows how the carrying amount of bonds payable changes over time for bonds issued at a premium, at par, and at a discount.



Required:
1. Explain the change in carrying amount of the bonds, in terms of the difference between the periodic interest expense recorded on the corporation's income statement and the cash interest paid to investors.
2. Does the diagram illustrate the straight-line or effective interest method of bond premium and discount amortization? How can you tell?

CP 10–8 (Appendix)

Night Owl Distributors Ltd. was authorized to issue $500,000 of 12% bonds on January 1, 2019. On this date, the corporation issued $200,000 of bonds for $210,152. The market rate of interest was 10%. Interest is paid semi-annually on June 30 and December 31.

Required:
1. Calculate the amount of interest paid every interest payment date.
2. Complete the amortization table below using the effective interest method of amortization.

Issuance of $200,000 Bonds Payable for $210,152
Amortization Table
Using Market Interest Rate of 10%

		A	B	C	D	E
Year	*Period ending*	*Beginning bond carrying amount*	*Using 10% market rate to calculate six-month interest expense* ([½ of 10% = 5%] x A)	*Cash interest paid*	(B - C) *Periodic premium amortization*	(A - D) *Ending bond carrying amount*
2019	Jun. 30	$210,152	(5% x $210,152) = $10,507			
	Dec. 31		(5% x) =			
2020	Jun. 30		(5% x) =			
	Dec. 31		(5% x) =			
2021	Jun. 30		(5% x) =			
	Dec. 31		(5% x) =			

3. Using the following table, calculate the interest percentage under the effective interest method of amortization for each six-month period.

		A	*B*	
Year	*Six-month period ending*	*Beginning bond carrying amount*	*Using 10% market rate to calculate six-month interest expense ([½ of 10% = 5%] x A)*	*Interest %*
2019	Jun. 30	$210,152	(5% x $210,152 =) $10,507	
	Dec. 31		(5% x =)	______
2020	Jun. 30		(5% x =)	
	Dec. 31		(5% x =)	______
2021	Jun. 30		(5% x =)	
	Dec. 31		(5% x =)	______

4. Comment on the interest percentage that results in each period. Do you think that this should remain constant from period to period? Why or why not?

Problems

P 10–1

Round Corporation was authorized to issue $300,000 of bonds. On January 1, 2019, the corporation issued $150,000 of bonds for $147,000. Details of the bond indenture are as follows:

Date of authorization	*Term*	*Interest rate*	*Interest payment dates*
January 1, 2019	3 years	12%	Semi-annually on June 30 and December 31

Required:

1. Calculate
   a. The amount of interest paid every interest payment date
   b. The amount of amortization to be recorded at each interest payment date (use the straight-line method of amortization).
2. Calculate actual interest expense for each six-month period.

3. Prepare the journal entries to record the interest and amortization at June 30, 2019.
4. Prepare a partial balance sheet showing the bond liability and discount on December 31, 2019 and 2020 assuming the bonds will be redeemed on December 31, 2021.

P 10–2

Consider the following information:

2019

Jun. 1 Zenith Manufacturing Company Limited received authorization to issue $8,000,000 3-year, 12-per cent bonds. The interest is to be paid semi-annually June 1 and December 1 of each year.

Jun. 1 Issued $4,000,000 of bonds for $4,142,800 cash.

2020

Sep. 1 Issued another $4,000,000 of bonds at 97.76 plus accrued interest.

The year-end of Zenith is December 31.

Required: Prepare the journal entries to record:

1. The issue of the bonds on June 1, 2019;
2. The payment of bond interest expense on December 1, 2019;
3. The accrual of bond interest expense and recording of amortization at year-end on December 31, 2019;
4. The payment of bond interest expense on June 1, 2020;
5. The issue of bonds on September 1, 2020; and
6. The final interest payment, premium and discount amortization, and retirement of the bonds at maturity, June 1, 2022.

P 10–3

On the date of bond authorization, Esther Corporation issued $100,000 of callable bonds. Bond indenture information included the following:

Date of authorization	*Term*	*Interest rate*	*Interest payment dates*
January 1, 2019	3 years	12%	Semi-annually on June 30 and December 31

Required: Consider these three cases. Case A: the bonds are issued at face value. Case B: the bonds are issued for $103,000. Case C: the bonds are issued for $94,000. For each case:

1. Calculate
   a. The amount of interest paid every interest payment date
   b. The amount of amortization to be recorded at each interest payment date as applicable (Use the straight-line method of amortization.)
2. Prepare journal entries to record
   a. The issue of bonds on January 1, 2019
   b. The payment of interest on June 30, 2019
   c. The amortization on June 30, 2019
   d. The payment of interest on December 31, 2019
   e. The amortization on December 31, 2019
   f. The payment of interest on December 31, 2021
   g. The amortization on December 31, 2021
   h. The redemption of the bonds at maturity, January 1, 2022.
3. Calculate the amount of interest expense shown in the income statement at December 31, 2019. Is this amount the same as cash interest paid by Esther? Why or why not?
4. Assume now that on December 31, 2020, the corporation exercised a call feature included in the bond indenture and retired $50,000 of face value bonds issued January 1, 2019. The bonds were called at 102. Prepare the December 31, 2020 journal entry to record the exercise of the call option. Assume interest has been paid and the discount or premium amortized for the period ended December 31, 2020.

P 10–4

Otter Products Inc. was authorized to issue $1,000,000 of bonds. On January 1, 2019, Otter issued $300,000 of bonds for $272,263. Terms of the bond indenture included the following:

Date of authorization	*Term*	*Interest rate*	*Interest payment dates*
January 1, 2019	3 years	12%	Semi-annually on June 30 and December 31

Required:

1. Calculate
   a. The amount of interest paid every interest payment date
   b. The amount of amortization to be recorded at each interest payment date (use the straight-line method).
2. Prepare an amortization table showing interest expense, and beginning and ending bond carrying amounts at the end of each period over the three years. Use the following format:

Issue of $300,000 Bonds Payable for $272,263
Amortization Table
(straight-line)

		A	*B*	*C*	*D*	*E*
Year	*Six-month period ending*	*Beginning bond carrying amount*	*(C + D) Periodic interest expense*	*Actual cash interest paid*	*Periodic discount amort.*	*(A + D) Ending bond carrying amount*
2019	Jun. 30					
	Dec. 31					
2020	Jun. 30					
	Dec. 31					
2021	Jun. 30					
	Dec. 31					

3. Calculate the actual interest rate under the straight-line method of amortization for each six-month period. Round all percentage calculations to one decimal place. Use the following format:

Calculation of Actual Interest Rate

		A	*B*	
Year	*Six month period ending*	*Bond carrying amount*	*Six-month interest expense*	*% (B/A)*
2019	Jun. 30			
	Dec. 31			
2020	Jun. 30			
	Dec. 31			
2021	Jun. 30			
	Dec. 31			

4. Comment on the interest rate that results in each period.
5. Prepare a partial balance sheet at December 31, 2019 and 2020 assuming the bonds will be redeemed on December 31, 2021.

P 10–5

Selected accounts from three trial balances of the Lake Corporation at December 31 are presented below:

	Adjusted		*Unadjusted*
	2019	*2020*	*2021*
Debits			
Interest Expense	$22,100	$44,200	$43,800
Credits			
9% Bonds Payable	500,000	500,000	500,000
Premium on Bonds	23,600	21,200	20,000

The 9% bonds were authorized on July 1, 2019. Interest is paid semi-annually on June 30 and December 31. The bonds were issued on November 1, 2019. Any premium or discount is amortized on a straight-line basis, and amortization is recorded each time the interest expense is recorded.

Required:

1. Compute the following:
   a. original issue price as of November 1, 2019
   b. maturity date.
2. Reconstruct the journal entry to record the issuance of the bonds on November 1, 2019.
3. Prepare any required adjusting entries as of December 31, 2021.
4. Calculate the carrying value of the bonds on December 31, 2021.

P 10–6

A 3-year $1,000,000, 10% bond issue was authorized for Mega Corporation on April 1, 2019. Interest is payable on March 31 and September 30. The year-end of the Corporation is December 31.

Required: Consider the following independent cases:

1. The Mega Corporation issued the bonds on April 1, 2019 at 97. Prepare the journal entries required on April 1, 2019, September 30, 2019, and December 31, 2019. Assume straight-line amortization.
2. The bonds are issued at 106 on April 1, 2019. Prepare the journal entries to record the sale of the bonds on April 1, 2019 and entries required on September 30, 2019 and December 31, 2019.
3. The bonds are not issued until December 1, 2020 at 103 plus accrued interest. Prepare the journal entries on December 1, 2020 and December 31, 2020 (year-end). Assume straight-line amortization.

P 10–7 (Appendices)

On January 1, 2019, Pete's Planes Inc. was authorized to issue 5-year, $500,000, 12% bonds. Interest was payable on June 30 and December 31. All the bonds were issued on January 1, 2019.

Required: Answer the questions for each of these independent cases.
Case A: the bonds were issued when the market rate of interest was 12%.
Case B: the bonds were issued when the market rate of interest was 16%
Case C: the bonds were issued when the market rate of interest was 8%

1. Calculate
   a. the amount of each semi-annual cash interest payment on the issued bonds;
   b. the issue price of the bonds, consisting of the present value of the bond face value and the present value of the 10 semi-annual interest payments to be made during the 5-year period (for convenience, round all calculations to the nearest dollar);
   c. the amount of amortization applicable to each interest payment date up to and including December 31, 2021; and
   d. the carrying amount of the bonds at December 31, 2021.
2. Prepare journal entries to record the 2021 transactions.

P 10–8 (Appendix)

Beacon Products Inc. was authorized to issue $1,000,000 of bonds as follows:

Date of authorization	*Term*	*Interest rate*	*Interest payment dates*
January 1, 2019	3 years	12%	Semi-annually on June 30 and December 31

On January 1, 2019, Beacon issued $300,000 of bonds for $272,263. On this date, the market rate of interest was 16%.

Required:

1. Calculate the amount of cash received from the bond issue on January 1, 2019.
2. Prepare an amortization table. Use the effective interest method of amortization.
3. Calculate the effective interest rate for each six-month period.
4. Comment on the results in each period. Do you think the results are appropriate? Why or why not?

CHAPTER ELEVEN

Equity Financing

Corporations sometimes finance a large portion of their operations by issuing equity in the form of stock. This chapter discusses in detail the nature of the corporate form of organization, the different types of stock used to obtain funds for business activities, and how these transactions are recorded. It also expands on the concept of dividends.

Chapter 11 Learning Objectives

LO1 – Identify and explain characteristics of the corporate form of organization and classes of stock.

LO2 – Evaluate relative financing effects of bonds, common stock, and preferred stock.

LO3 – Record and disclose preferred and common stock transactions including stock splits.

LO4 – Record and disclose cash dividends.

LO5 – Calculate and explain the book value per share ratio.

LO6 – (Appendix 1) Record and disclose stock dividends.

LO7 – (Appendix 2) Explain and record restrictions on retained earnings.

A. The Corporate Structure

LO1 – Identify and explain characteristics of the corporate form of organization and classes of stock.

The accounting equation expresses the relationship between assets owned by a corporation and the claims against those assets by creditors and stockholders. Accounting for equity in a corporation requires a distinction between the two main sources of stockholders' equity: capital stock and retained earnings**.** Their relationship to the accounting equation is shown in Figure 11-1.

ASSETS = LIABILITIES + STOCKHOLDERS' EQUITY

CAPITAL STOCK	RETAINED EARNINGS
This is the amount stockholders have paid to purchase ownership interests in a company	This is the total net income earned by a company over its life that has not been distributed to stockholders as dividends.

Figure 11–1 Capital Stock Versus Retained Earnings

Corporate Characteristics

A unique characteristic of corporations is that they are legally separate from their owners, who are called stockholders. Each unit of ownership of a corporation is called a **stock** or a **share**. If a corporation issues 1,000 shares of stock and you own 100 of them, you own 10% of the company. Corporations can be **privately-held** or **publicly-held**. A privately-held corporation's stock is not issued for sale to the general public. A publicly-held corporation offers its stock for sale to the general public, on a stock market like the New York Stock Exchange (NYSE) or the National Association of Securities Dealers Automated Quotation System (Nasdaq).

A corporation has some of the same rights and obligations as individuals. For instance, it pays income taxes on its earnings, can enter into legal contracts, can own property, and can sue and be sued. A corporation also has distinctive features. It is separately regulated by law, has an indefinite life, its owners have limited liability, and it can usually acquire capital more easily than an individual. These features are discussed below.

Creation by law

A corporation is usually formed under state laws. The company selects a state in which to incorporate and then submits articles of incorporation to that state government. This document lists the **classes** or types of stock that the company will issue as well as the total number of shares of each class that can be issued, known as the **authorized** stock.

When approved, the government issues a **certificate of incorporation** or **corporate charter** to the company. Investors then purchase stock from the corporation. The stockholders meet and elect a **board of directors**. The board formulates corporate policy and broadly directs the affairs of the corporation. This includes the appointment of a person in charge of day-to-day operations, often called a president, chief executive officer, or similar title. This person in turn has authority over the employees of the corporation.

A stockholder or group of stockholders who control more than 50% of the voting stock of a corporation are able to elect a majority of the board of directors and thus direct the affairs of the company. In a large public corporation with many stockholders, minority stockholders with similar ideas about how the company should be run sometimes delegate their votes to one person who will vote on their behalf by signing a **proxy statement**. This increases their relative voting power, as many other stockholders may not participate in stockholders' meetings.

Stockholders usually meet annually to vote for a board of directors. The board meets regularly, perhaps monthly or quarterly, to review the operations of the corporation and to set policies for future operations. The board may decide to distribute some assets of the corporation as dividends to stockholders. It may also decide that some percentage of the assets of the corporation legally available for dividends should be made unavailable; in this case, a **restriction** on retained earnings is created. Accounting for such restrictions is discussed in an appendix of this chapter.

Wherever it is incorporated, a company is generally subject to the following regulations:

1. It must provide timely financial information to investors.
2. It must file required reports with the government.
3. It cannot distribute profits arbitrarily but must treat all shares of the same stock class alike.
4. It is subject to special taxes and fees.

Despite these requirements, a corporation's advantages usually outweigh its disadvantages when compared to other forms of business such as a proprietorship or partnership. These features of a corporation are described further below. Proprietorships and partnerships are discussed in more detail in a later chapter.

Indefinite life

A corporation has an existence separate from that of its owners. Individual stockholders may die, but the corporate entity continues. The life of a corporation comes to an end only when it is dissolved, becomes bankrupt, or has its charter revoked for failing to follow laws and regulations.

Limited liability

The corporation's owners are liable only for the amount that they have invested in the corporation. If the corporation fails, its assets are used to pay creditors. If insufficient assets exist to pay all debts, there is no further liability on the part of stockholders. This situation is in direct contrast to a proprietorship or a partnership. In these forms of organization, creditors have full recourse to the personal assets of the proprietor or partners if the business is unable to fulfil its financial obligations. For the protection of creditors, the limited liability of a corporation must be disclosed in its name. The words "Limited," "Incorporated," "Limited Liability Company", or "Corporation" (or the abbreviations Ltd., Inc., LLC, or Corp.) are often used as the last word of the name of a company to indicate this corporate form.

Ease of acquiring capital

Issuing stock allows many individuals to participate in the financing of a corporation. Both small and large investors are able to participate because of the relatively small cost of a share of stock, and the ease with which ownership can be transferred—stock is simply purchased or sold. Large amounts of capital can be raised by a corporation because the risks and rewards of ownership can be spread among many investors.

A corporation only receives money when shares of stock are first issued. Once stock is issued, it can be bought and sold a number of times by various investors. These subsequent transactions between investors do not affect the corporation's balance sheet.

Income taxes on earnings

Because corporations are considered separate legal entities, they pay income taxes on their earnings. To encourage risk-taking and entrepreneurial activity, certain types of corporations may be taxed at rates that are lower than other corporations and individual stockholders' income tax rates. This can encourage research and development activity or small-company start-ups, for instance.

Classes of Stock

There are many types of stock, with differences related to voting rights, dividend rights, liquidation rights, and other preferential features. The rights of each stockholder depend on the class or type of stock held.

Every corporation issues **common stock**. The rights and privileges usually attached to common stock are:

- The right to participate in the management of the corporation by voting at stockholders' meetings (this participation includes voting to elect a board of directors; each stock normally corresponds to one vote).
- The right to receive dividends when they are declared by the corporation's board of directors.
- The right to receive assets upon liquidation of the corporation.
- The right to appoint auditors through the board of directors.

For other classes of stock, some or all of these rights are usually restricted. The articles of incorporation may also grant the stockholders the **pre-emptive** right to maintain their proportionate interests in the corporation if additional stock is issued.

If the company is successful, common stockholders may receive dividend payments. As well, the value of common stock may increase. Common stockholders can submit a proposal to raise any matter at an annual meeting and have this proposal circulated to other stockholders at the corporation's expense. If the corporation intends to make fundamental changes in its business, these stockholders can often require the corporation to buy their stock at market value. In addition, stockholders can apply to the courts for an appropriate remedy if they believe their interests have been unfairly disregarded by the corporation.

Some corporations issue different classes of stock in order to appeal to as large a group of investors as possible. This permits different risks to be assumed by different classes of stockholders in the same company. For instance, a corporation may issue common stock but divide these into different classes like class A and class B common stock. When dividends are declared, they might only be paid to holders of class A stock.

Stockholders who hold **preferred stock** are entitled to receive dividends before common stockholders. This stock usually does not have voting privileges. Preferred stockholders typically assume less risk than common stockholders. In return, they receive only a limited (but more predictable) amount of dividends. Issuing preferred stock allows a corporation to raise additional capital without requiring existing stockholders to give up control. Other characteristics of preferred stock and dividend payments are discussed later in this chapter.

The stock of a corporation can have a different status at different points in time. They can be **unissued** or **issued**, issued and **outstanding**, or issued and reacquired by the corporation (called **treasury stock**). The meaning of these terms is summarized in Figure 11-2:

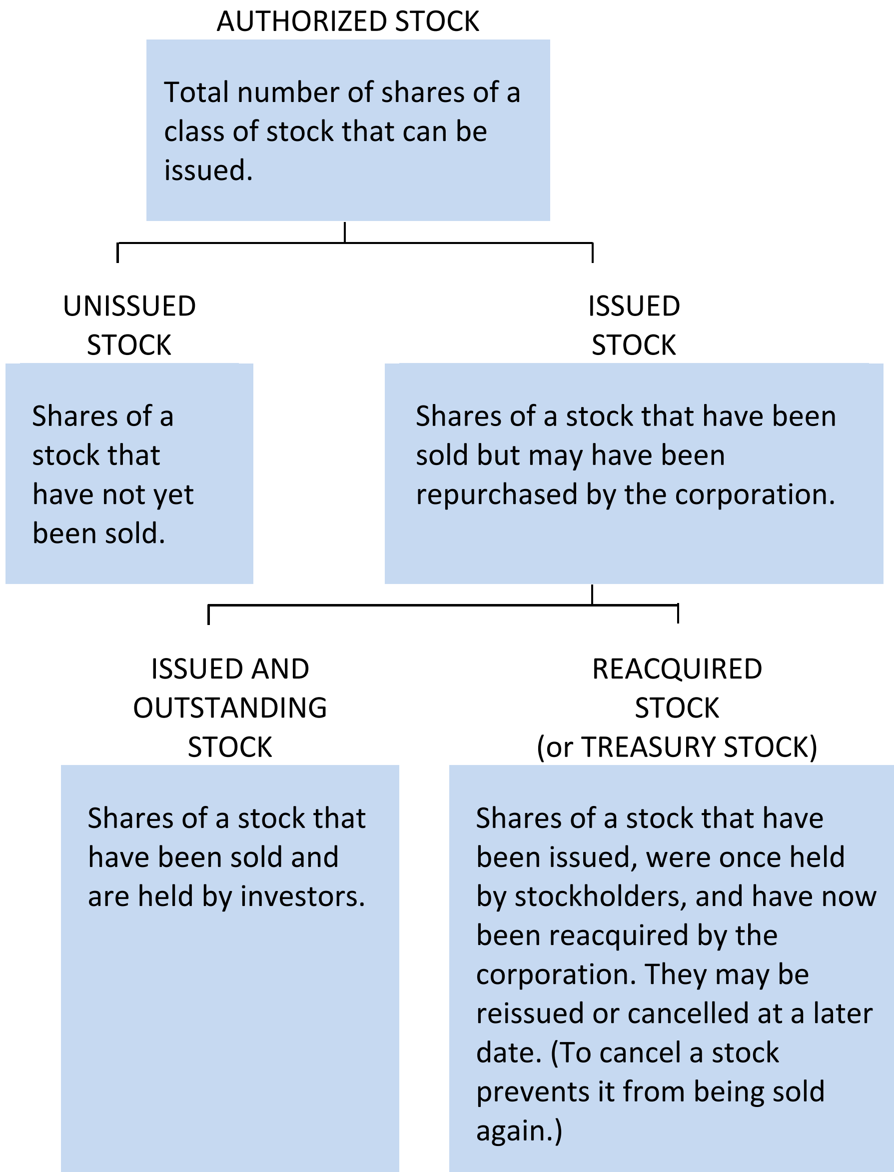


Figure 11–2 Status of Stock

B. The Debt Versus Equity Financing Decision

LO2 – Evaluate relative financing effects of bonds, common stock, and preferred stock.

Many factors influence management in its choice between the issue of debt and the issue of capital stock. One of the most important considerations is the potential effect of each of these financing methods on the present stockholders.

Consider the example of Old World Corporation, which has 100,000 shares of common stock outstanding, is profitable, and growing steadily. Assume Old World requires $30 million in cash to finance a new plant.

Management is currently reviewing three financing options:

1. Borrow $30 million due in three years at an interest rate of 12%.
2. Issue 300,000 shares of preferred stock at $100 each (dividend $8 per stock paid annually)
3. Issue an additional 200,000 shares of common stock at $150 each.

Management estimates that the new plant should result in income before interest and income taxes of $6 million. The income tax rate is 50%. Management has prepared the following analysis to compare and evaluate each financing option.

	Plan 1	*Plan 2*	*Plan 3*
	Issue debt	*Issue preferred stock*	*Issue common stock*
Income before interest and income taxes	$ 6,000,000	$ 6,000,000	$ 6,000,000
Less: Interest expense ($30M x 12%)	(3,600,000)	-0-	-0-
Income before income taxes	$ 2,400,000	$ 6,000,000	$ 6,000,000
Less: Income taxes (50%)	(1,200,000)	(3,000,000)	(3,000,000)
Net income	1,200,000	3,000,000	3,000,000
Less: Preferred dividends (300,000 x $8)	-0-	(2,400,000)	-0-
Net income available to common stockholders	$ 1,200,000	$ 600,000	$ 3,000,000
Number of shares of common stock outstanding	100,000	100,000	300,000
Earnings per share of common stock	$ 12	$ 6	$ 10

Plan 1, the issue of debt, has several advantages for existing common stockholders.

Advantage 1: Earnings per share of common stock

If the additional long-term financing were acquired through the issue of debt, the corporate earnings per share (EPS) on common stock would be $12. This EPS is greater than the EPS earned through financing with either preferred stock or additional common stock. On this basis alone, the issue of debt is more financially attractive to existing common stockholders.

Advantage 2: Control of the corporation

Creditors have no vote in the affairs of the corporation. If additional common stock were issued, there might be a loss of corporate control by existing stockholders because ownership would be distributed over a larger number of stockholders, or concentrated in the hands of one or a few new owners. In the Old World case, issuing common stock would increase the number of outstanding shares threefold from 100,000 to 300,000.

Advantage 3: Income taxes expense

Interest expense paid on debt is deductible from income for income tax purposes. Dividend payments are distributions of retained earnings, and are thus paid out of after-tax income. As a result, dividends are not deductible for tax purposes. With a 50% income tax rate, the after-tax interest expense to the corporation is only 6% (12% x 50%). The effective interest rate on shares of preferred stock in this example is somewhat higher, at 8% ($8/$100).

Debt Financing Disadvantages

There are also some disadvantages to long-term financing with debt that must be carefully reviewed by management and the board of directors. The most serious disadvantage is the possibility that the corporation might earn less than $6 million before interest expense and income taxes. The interest expense is a fixed amount. It must be paid to creditors at specified times, unlike dividends. If actual income before interest and income taxes decreased by only $400,000, net income under plan 1 would fall to $1,000,000. Earnings per stock would then be the same as that of plan 3 ($10 per share of common stock).

Another disadvantage is the fact that debt must be repaid at maturity, whether or not the corporation is financially able to do so. Stock normally does not have to be repaid.

C. Recording Stock Transactions

LO3 – Record and disclose preferred and common stock transactions including stock splits.

The amount of a company's stock may be recorded in different ways on the balance sheet depending on whether the stock is par value or no-par value. **Par value** stock is the amount stated in the corporate charter below which a share of a stock cannot be sold upon initial offering. **No-par value** or **stated value** stock are shares to which the directors assign a specified value when they are issued. For example, "Common stock, stated value $1" reported on the balance sheet means the common stock is no-par value. Each share has been assigned a value of $1, and this is the amount for which they have been issued.

Par Value Stock

Assume Bear Necessities Corporation issues 200 shares of $2 par value common stock on January 9, 2019 when the market price is $8 per share. The entry to record this would be:

2019			
Jan. 9	Cash	1,600	
	Common Stock ($2 par)		400
	Paid-in Capital in Excess of Par, C/S		1,200
	To record the issuance of 200 shares of $2 par value common stock at $8 per stock.		
	("C/S" = common stock)		

The Cash account is debited for the full amount received from the sale ($8 x 200 shares = $1,600). The Common Stock account is credited for the total par value ($2 x 200 shares = $400). The Paid-in Capital in Excess of Par Value, Common Stock account is credited for the difference. These accounts appear in the stockholder's equity section of the company's balance sheet as:

Stockholders' Equity

Paid-in capital		
Common stock	$ 400	
Paid-in capital in excess of par, common stock	1,200	
Total paid-in capital		1,600
Retained earnings		480,000
Total stockholders' equity		$481,600

Par value stock is relatively uncommon. For simplicity, we will assume all shares are no-par value in this text.

No-par value stock

To demonstrate the issuance and financial statement presentation of stock, assume that New World Corporation is authorized to issue capital stock consisting of an unlimited number of voting, no-par value common stock and 100,000 non-voting, no-par value preferred stock. The directors state a value of $10 for each share of common stock and $34 for each share of preferred stock.

Transaction 1: On January 1, 2019, New World sells 1,000 shares of common stock for $10 each, or $10,000 cash.

New World would record the following entry:

2019			
Jan. 1	Cash	10,000	
	Common Stock		10,000
	To record the issuance of 1,000 shares of common stock at stated value of $10 each.		

Transaction 2: On February 1, 2019, 2,500 shares of preferred stock are issued to the owner of land and buildings. These assets have a fair value of $35,000 and $50,000, respectively. The journal entry to record this transaction is:

2019			
Jan. 1	Land	35,000	
	Building	50,000	
	Preferred Stock		85,000
	To record the issuance of 2,500 shares of preferred stock at stated value of $34 each, in exchange for land and buildings.		

Usually, one or more individuals decide to form a corporation. Before the corporation is created, they may use their own funds to pay for legal and government fees, travel and promotional costs, and so on. When the corporation is legally formed, it is not unusual for the corporation to issue stock to these organizers to compensate them for these amounts. These start-up expenditures are referred to as **organization costs**. They are usually expensed unless they are a large amount, in which case they are capitalized.

Transaction 3: On March 1, 2019, 500 shares of common stock are issued to the organizers of New World to pay for their services, valued at $5,000. The journal entry to record this transaction is:

2019			
Jan. 1	Organization Expense	5,000	
	Common Stock		5,000
	To record the issuance of 500 shares of common stock at stated value of $10 each, in exchange for organization efforts.		

Assuming no further stock transactions, and net income of $480,000 earned during the first year of operations, the stockholders' equity section of the New World Corporation balance sheet would show the following at December 31, 2019:

Stockholders' Equity	
Common stock (Note X)	$ 100,000
Retained earnings	480,000
Total stockholders' equity	$580,000

The relevant note to the financial statements would state:

Note X

The authorized capital stock of New World Corporation consists of an unlimited number of no par-value common stock and 100,000 no par-value, non-voting preferred stock. Preferred stock take precedence when dividends are declared and upon repayment of capital. Each share of common stock represents one vote at stockholders' meetings of New World Corporation.

During the year, 1,500 shares of common stock were issued to founding stockholders for a stated value of $10 each. This represented 100% of total common stock issued. 2,500 shares of preferred stock were issued for a stated value of $34 each in consideration for land and buildings used in the company's operations. This represented 100% of total preferred stock issued. Information related to number of shares outstanding is as follows:

	Common stock	*Preferred stock*	*Total stock*
Stock outstanding at January 1, 2019	-0-	-0-	-0-
Stock issued during 2019	1,500	8,500	10,000
Stock outstanding at December 31, 2019	1,500	8,500	10,000

The statement of changes in equity would show:

	Capital stock			Retained earnings	Total equity
	Common stock	Preferred stock	Total		
Balance at Jan. 1, 2019	$ -0-	$ -0-	$ -0-	$ -0-	$ -0-
Stock issued	15,000	85,000	95,000		100,000
Net income				480,000	480,000
Balance at Dec. 31, 2019	$15,000	$85,000	$95,000	$480,000	$580,000

Transaction 4: Corporate legislation permits a company to reacquire some of its stock, provided that the purchase does not cause insolvency. A company can repurchase and then cancel the repurchased stock. When repurchased stock is cancelled, it is no longer issued and no longer outstanding. A company can also repurchase stock and hold it in treasury. Treasury stock are shares that are issued but not outstanding. A company may re-issue treasury stock to employees as incentives or bonuses, for instance.

Assume that New World Corporation decides to repurchase 200 shares of common stock on December 1, 2020 and hold them in treasury. Assume that the price of each share is the average issue price of each share of outstanding common stock, or $10. The journal entry to record the repurchase is:

2020			
Dec. 1	Treasury stock	2,000	
	Cash		2,000
	To record the repurchase of 200 shares of common stock at $10 each, to be held in treasury.		

Assuming 2020 net income of $200,000 and no further transactions, the stockholders' equity section of the New World Corporation balance sheet would show the following at December 31, 2020:

Stockholders' Equity

	2020	*2019*
Capital stock (Note X)	$100,000	$100,000
Retained earnings	680,000	480,000
Treasury stock	(2,000)	-0-
Total stockholders' equity	$778,000	$580,000

The relevant note to the financial statements would state:

Note X

The authorized capital stock of New World Corporation consists of an unlimited number of no par-value common stock and 100,000 no par-value, non-voting preferred stock. Preferred stock take precedence when dividends are declared and upon repayment of capital. Each share of common stock represents one vote at stockholders' meetings of New World Corporation.

During the year, 200 shares of common stock with a stated value of $10 per stock were repurchased by the corporation and are held as treasury stock. This represents 13.3% of common stock issued as of December 31, 2020. Information related to number of stock outstanding is as follows (bolded for illustration purposes):

Information is disclosed for the current and prior year when comparative financial statements are prepared.

	Common stock	*Preferred stock*	*Treas. stock*
Stock outstanding at January 1, 2019	-0-	-0-	-0-
Stock issued during 2019	1,500	8,500	-0-
Stock outstanding at December 31, 2019	1,500	8,500	-0-
Stock reacquired and held as treasury stock during 2020	**(200)**	**-0-**	**200**
Stock outstanding at December 31, 2020	1,300	2,500	200

The statement of changes in equity would show (bolded for illustrative purposes):

	Capital stock			*Retained earnings*	*Other*	*Total equity*
	Common stock	*Preferred stock*	*Total*		*Treas. stock*	
Balance at Jan. 1, 2019	$ -0-	$ -0-	$ -0-	$ -0-	$ -0-	$ -0-
Stock issued	15,000	85,000	95,000			100,000
2019 net income				480,000		480,000
Balance at Dec. 31, 2019	15,000	85,000	95,000	480,000	$ -0-	580,000
Stock reacquired and held as treasury stock during 2020					**(2,000)**	**(2,000)**
2020 net income				200,000		200,000
Balance at Dec. 31, 2020	$15,000	$85,000	95,000	$680,000	**$ (2,000)**	$778,000

The repurchase of stock does not affect the issued amount ($15,000 + $85,000) but the number of shares of stock outstanding decreases by 200.

Stock Splits

A corporation may find its stock is selling at a high price on a stock exchange, perhaps (psychologically) putting it beyond the reach of many investors. To increase the marketability of a corporation's stock, management may opt for a **stock split**. A stock split increases the number of stock issued and lowers the cost of each share of stock. Shares of the originally-issued stock are exchanged for a larger number of new shares.

Assume that on December 1, 2021 New World Corporation declares a 3-for-1 common stock split. This results in three new shares of common stock replacing each currently-issued share of common stock. The number of issued shares of common stock has now tripled. The market price of each share of stock will decrease to about one-third of its former market price because the underlying value of the company does not change. Since there is no change in the dollar amount of common stock, no debit-credit entry is required to record the stock split. Instead, a memorandum entry would be recorded in the general ledger indicating the new number of shares of stock issued and outstanding, as follows:

GENERAL LEDGER

Common Stock Acct. No. 320

Date 2021		Description	PR	Debit	Credit		Balance
Jan.	1	Memorandum: Because of a 3-for-1 split, the issued and outstanding common stock increased respectively from 1,500 and 1,300, to 4,500 and 3,900 shares of stock.					

The dollar amount shown on the balance sheet and statement of changes in equity will not change. The only change is an increase in the number of issued common stock. After the stock split, the stockholders' equity section of the New World Corporation balance sheet and statement of changes in equity would be unchanged.

This would be added to the usual note to the financial statements:

The effect of the stock split on the treasury stock is reported.

On December 1, 2021 the company declared a 3:1 stock split on shares of common stock. As a result, the company now holds 600 shares of issued common stock as treasury shares.

The effect of this on outstanding shares was as follows:

	Before stock split	*After stock split*
Number of shares of common stock outstanding	1,300	3,900
Stated value per outstanding share	$10	$3.33
Total stated value of outstanding common stock	$13,000	$13,000

The total stated value is not affected by the stock split.

D. Cash Dividends

LO4 – Record and disclose cash dividends.

Both creditors and stockholders are interested in the amount of assets that can be distributed as dividends. Legally, dividends are limited to the amount of retained earnings on hand unless a corporation is dissolved. Stockholders are prevented from withdrawing their initial investment as this would shift all risk to the creditors. This restriction protects creditors. For example, assume total assets are $40,000; total liabilities $39,000; and total stockholders' equity $1,000, consisting of common stock with a stated value of $900 and $100 of retained earnings. The maximum dividends that could be declared in this situation is $100.

Dividend Policy

Sometimes the board of directors may choose not to declare any dividends. There may be financial conditions in the corporation that make the payment impractical.

Consideration 1: There may not be adequate cash

Corporations regularly reinvest their earnings in assets in order to make more profits. This may be more efficient than borrowing more money and reliance on creditor financing can be reduced. As a result, there may not be enough cash on hand to declare and pay a cash dividend. The assets of the corporation would be tied up in long-term assets.

Consideration 2: A policy of the corporation may preclude dividend payments

Directors of some corporations make a decision to pay no dividends. Instead, they reinvest the retained earnings in the business. A public statement to this effect is usually made to alert investors. Stockholders still generally benefit because the market price for the corporation's shares should rise as business increases. This type of dividend policy is often found in growth-oriented corporations.

Consideration 3: No legal requirement that dividends have to be paid

The board of directors may decide that no dividends should be paid because of a perceived need for the company to hold more cash or other liquid assets in times of uncertainty. Legally, there is no requirement to pay dividends. If stockholders are dissatisfied, they can attempt to elect a new board of directors or sell their stock.

Consideration 4: Dividends may be issued in stock of the corporation rather than in cash

Stock dividends may be issued to conserve cash or to increase the number of shares to be traded on the stock market. Stock dividends are discussed in Appendix 1 of this chapter.

Dividend Declaration

Dividends can be paid only if they have been officially declared by the board of directors. The board must pass a formal resolution authorizing the dividend payment. Notices of the dividend are then published. Once a dividend declaration has been made public, the dividend becomes a liability and must be paid. An example of a dividend notice by Nouveau Corporation is shown in Figure 11-3.

Nouveau Corporation
Dividend Notice

On May 25, 2019 the board of directors of Nouveau Corporation declared a cash dividend of $0.50 on each share of common stock outstanding (3,900 shares). The dividend will be paid on June 26, 2019 to stockholders of record on June 7, 2019.

By order of the board
[signed]
Lee Smith
Secretary
May 25, 2019

Figure 11–3 An Example of a Dividend Notice

There are three dates associated with a decision to pay dividends. Usually dividends are declared on one date, the **date of declaration** (May 25, 2019 in this case); they are payable to stockholders who own shares as of a second date, the **date of record** (June 7, 2019); and the dividend is paid on a third date, the **date of payment** (June 26, 2019).

Date of Declaration

The dividend declaration provides an official notice of the dividend. It specifies the amount of the dividend as well as which stockholders will receive the dividend. The liability for the dividend is recorded in the books of the corporation at its declaration date.

The following entry would be made in the general ledger of Nouveau Corporation on May 25, 2019, the date of declaration:

2019			
May 25	Cash Dividends Declared – Common Stock	1,950	
	Dividends Payable		1,950
	To record declaration of a cash dividend of $0.50 per share of common stock; 3,900 x $0.50 = $1,950.		

Date of Record

Stockholders who own stock on the date of record will receive the dividend even if they have sold the stock before the dividend is actually paid. No journal entry is made in the accounting records at the date of record.

Date of Payment

When the dividend is paid it is recorded as:

2019			
Jun. 26	Dividends Payable	1,950	
	Cash		1,950
	To record payment of dividend.		

Preferred Stockholder Dividends

Preferred stock is usually offered to attract investors who have lower tolerance for risk than common stockholders. For instance, preferred stockholders are normally entitled to dividends before any dividends are distributed to common stockholders, though the amounts per share may be lower than those of common stock. Also, shares in most preferred stock specifically state what amount of dividends their holders can expect each year. For example, owners of $8 preferred share would be paid a dividend of $8 per year for each share of preferred stock held. These dividends are often paid even if the corporation experiences a net loss in a particular year. Preferred stockholders are usually content with a smaller but more predictable share of a corporation's profits.

Preferred stock may also have other dividend preferences, depending on what rights have been attached to preferred stock at the date of incorporation. Two additional preferences can be

- the accumulation of undeclared dividends from one year to the next — referred to as **cumulative dividends**.
- the participation of preferred stock with common stock in dividend distributions beyond the usual preferred dividends — referred to as a **participating** feature of preferred stock.

Cumulative Dividend Preferences

Cumulative preferred stock require that any unpaid dividends accumulate from one year to the next and are payable from future earnings when a dividend is eventually declared by a corporation. These accumulated dividends must be paid before any dividends are paid on shares of common stock. The unpaid dividends are called **dividends in arrears**. Dividends in arrears are not recorded as a liability on the balance sheet of the company until they have been declared by the board of directors. However, disclosure of dividends in arrears must be made in a note to the financial statements.

If a preferred stock is **non-cumulative**, a dividend not declared by the board of directors in any one year is never paid to stockholders.

Participating Dividend Preferences

A **participating** feature is sometimes added to preferred stock to make this class more attractive to investors. Under certain circumstances, this feature permits the preferred stock to receive a portion of the earnings of the corporation in excess of a stipulated rate. The extent of this participation can be **limited** (partially participating) or **unlimited** (fully participating). Non–participating preferred stock do not receive a stock of additional dividends.

The relationship among these preferred stock characteristics is shown in Figure 11–4 below:

PREFERRED STOCK DIVIDENDS

These usually have to be paid before dividends are paid to common stockholders.

ARREARS OF DIVIDENDS

This feature deals with dividends that have not been declared in previous years.

AMOUNT OF DIVIDENDS

This feature deals with the amount of dividends to which preferred stock is entitled.

CUMULATIVE

1. Dividends in arrears must be declared and paid before any dividends on shares of common stock.
2. Dividends in arrears are not a liability of the corporation until they have been declared.

NON-CUMULATIVE

Dividends not declared in previous years *lapse* – that is, they do not have to be paid in future years.

PARTICIPATING

Preferred stock is entitled to participate in dividends with common stock after common stock has received a certain dividend percentage.

NON-PARTICIPATING

Preferred stock is only entitled to a fixed dividend rate, regardless of the amount of dividends declared for shares of common stock.

FULLY PARTICIPATING

Preferred stock is entitled to receive the same amount of additional dividends per share as common stock.

PARTIALLY PARTICIPATING

Preferred stock is entitled to only a portion of additional dividends per share as common stock.

Figure 11–4 The Relationships Among Dividend Types

Assume that Bernard Williams Inc. declared dividends totaling $92,000 when the stockholders' equity section of its balance sheet disclosed the following information:

Stockholders' Equity	
Capital stock	
Preferred stock, $10 stated value, $8 dividends, cumulative, non-voting, non-participating	
Authorized—3,000 shares	$200,000
Issued and outstanding—2,000 shares	
Common stock, $1 stated value, voting	
Authorized—350,000 shares	300,000
Issued and outstanding—300,000 shares	
Total stockholders' equity	$500,000

The preferred stock is entitled to $16,000 dividends per year (2,000 shares x $8). Assume a note to the financial statements indicates that there are two years of preferred dividends in arrears ($32,000). Because the stock has a cumulative preference, preferred stockholders are also entitled this amount. If a $92,000 cash dividend is declared, the dividend distribution would be calculated as:

Stockholder preference to dividends		*Dividend distribution*		
		To preferred	*To common*	*Balance*
	Total dividends declared			$92,000
1st preference	Arrears ($16,000 x 2 years)	$ 32,000	$ -0-	60,000
2nd preference	Current year – preferred	16,000	-0-	44,000
	Balance to common	-0-	44,000	-0-
	Total	$ 48,000	$ 44,000	

The cumulative preference has resulted in the payment to preferred stockholders of three years of dividends. Because the preferred stock is non-participating, the remainder of the $92,000 dividend ($44,000) is paid solely to common stockholders.

E. Book Value

LO5 – Calculate and explain the book value per share ratio.

The **book value** of a share is the amount of net assets represented by one share of a class of stock. When referring to common stock, book value represents the amount of net assets not claimable by creditors and preferred stockholders. When referring to preferred stock, book value represents the amount that preferred stockholders would receive if the corporation were liquidated.

Book value per share of preferred stock =

$$\frac{\text{Total stated capital for preferred stock plus dividends in arrears}}{\text{Number of outstanding shares of preferred stock}}$$

Book value per share of common stock =

$$\frac{\text{Total equity less (stated capital for preferred stock plus dividends in arrears)}}{\text{Number of shares of common stock outstanding}}$$

Calculation of the Book Value

The calculation of the book value of shares of preferred and common stock can be illustrated using the following data:

Stockholders' Equity

Capital stock	
Preferred stock	
Authorized—5,000 shares	
Issued and outstanding—1,000 shares	$ 10,000
Common stock	
Authorized—200,000 shares	
Issued and outstanding—60,000 shares	20,000
Total contributed capital	120,000
Retained earnings	105,000
Total stockholders' equity	$135,000

Note: There are $5,000 dividends in arrears on shares of preferred stock.

Book value is calculated as:

Preferred stock		*Common stock*	
Dividends in arrears	$ 5,000	Total stockholders' equity	$135,000
Plus: Stated capital	10,000	*Less:* Preferred claims (a)	15,000
Balance (a)	$15,000	Balance (c)	$120,000
Shares outstanding (b)	1,000	Shares outstanding (d)	60,000
Book value per share (a/b)	$15	Book value per share (c/d)	$2

Comparison of book value with market value provides insight into overall investor evaluation of the corporation. For instance, if the book value of one share of common stock of Corporation A is $20 and it is traded on a public stock exchange for $40 (market value), each share is said to be trading for "two times book value." If one share of common stock of competitor Corporation B is trading for three times book value, investors are indicating that the future profit prospects for corporation B are higher than those for Corporation A. They are willing to pay proportionately more for stock of Corporation B than Corporation A, relative to the underlying book values.

Some stock regularly sell for less than book value on various stock exchanges. This does not necessarily mean they are a bargain investment. The market price of a share of stock is also related to such factors as general economic outlook, not just perceived potential of the company to generate earnings.

Appendix 1: Stock Dividends

LO6 – Record and disclose stock dividends.

A **stock dividend** is a dividend payable to stockholders in shares of stock of a corporation, rather than in cash. In this way, the declaring corporation is able to retain cash in the business and reduce the need to finance its activities through borrowing. If the stock dividend is small, say less than 25% of existing shares outstanding, the prior day's ending market price for one share of the company's common stock is used to calculate the total amount of the stock dividend. In all cases in this text, the stock dividend will be assumed to be less than 25% of existing shares. As a result of recording the stock dividend at market rates, the stated value per share may change if this differs from market value at the date of the share dividend.

Accounting for Stock Dividends

Assume that the Sherbrooke Corporation declares a 10% stock dividend to common stockholders. The dividend is declared on July 15, 2019 and will be issued to stockholders on August 5, 2019. At the time of the dividend declaration, the stockholders' equity of the corporation consisted of the following:

Stockholders' Equity	
Common stock, stated value $5	
Authorized — 20,000 shares	
Issued and outstanding — 5,000 shares	$ 25,000
Retained earnings	200,000
Total stockholders' equity	$225,000

Assume that just prior to the date of dividend declaration, the shares of common stock of the corporation are trading on the stock exchange at $4.

In this case, the stock dividend is expressed as a percentage of the outstanding common stock. The dividend amounts to 500 shares of stock (5,000 outstanding shares x 10%). This means that an individual investor owning 1,000 shares receives 100 new shares when the dividend is issued.

This is usually based on the value at the close of the market on the day prior to the declaration of the dividend. In our example, the amount transferred from retained earnings to common stock is $2,000 (500 x $4 market value).

The $2,000 transfer to common stock means that this amount becomes a part of stated capital and the assets represented by the $2,000 are no longer available for the payment of future dividends.

After the transfer has been recorded, stockholders' equity appears as shown in Figure 11–5 below.

STOCKHOLDERS' EQUITY

COMMON STOCK		RETAINED EARNINGS
$25,000	Balance before stock dividend	$200,000
+ 2,000	Stock dividend transfer	(2,000)
$27,000	Balance after stock dividend	$198,000

Only the composition of stockholders' equity has changed. Total stockholders' equity = $225,000 as before ($198,000 + 27,000).

The $2,000 is a transfer on paper only.

Figure 11–5 Effect of a Stock Dividend on Stockholders' Equity

This transfer reduces retained earnings and increases common shares by the same $2,000 amount. Total stockholders' equity remains unchanged. However, the stated capital per share is now reduced to $4.91 ($27,000/5,500 shares).

A stock dividend is also different from the distribution of a cash dividend, which reduces both retained earnings and cash and results in a *lower* amount of total stockholders' equity.

Two journal entries at different dates are required to record the stock dividend. The original dividend declaration would be recorded as follows:

2019			
July 15	Stock Dividends Declared – Common Shares	2,000	
	Stock Dividends to be Issued		2,000
	To record the declaration of a 10% common stock dividend (5,000 x 10% x $4)		

The effect of this entry is to transfer $2,000 from retained earnings to capital stock. No assets are paid by the corporation when the additional shares are issued as a stock dividend, and therefore *the total stockholders' equity remains unchanged at* $225,000.

When the stock dividend is actually issued, the following entry would be made:

2019			
Aug. 5	Stock Dividends to be Issued	2,000	
	Common Stock		2,000
	To record the issuance of the common stock dividend.		

At the December 31 year-end of the corporation, the Stock Dividend Declared account would be closed to the Retained Earnings account in the same way a Cash Dividend account is closed. The closing entry for a stock dividend would be:

2019			
Dec. 31	Retained Earnings	2,000	
	Stock Dividends Declared – Common Stock		2,000
	To close the Stock Dividends Declared account.		

Assume that the retained earnings of $200,000 include $20,000 of net income earned in the 2019 year. The statement of changes in equity at December 31, 2019 would show (bolded for illustrative purposes):

	Common stock	*Retained earnings*	*Total equity*
Balance at beginning of year	$25,000	$180,000	$205,000
Net income		20,000	20,000
Common stock dividend declared	2,000	**(2,000)**	
Balance at end of tear	$27,000	$198,000	$225,000

Is There Any Change in the Investor's Percentage of Corporate Ownership?

Since a stock dividend is issued to all stockholders of a particular class, each stockholder has a larger number of stock. However, ownership percentage of the company remains the same for each stockholder, as illustrated in the following example.

Assume that there are five stockholders in Sherbrooke Corporation, each of whom owns 1,000 shares of stock before the stock dividend. Each of these stockholders receives a 10 per cent stock dividend, that is, 100 new shares.

Corporation ownership before and after the stock dividends is as follows:

	Corporate ownership			
	Before stock dividend		*After stock dividend*	
Stockholder	Stock	Per cent	Stock	Per cent
A	1,000	20%	1,100	20%
B	1,000	20%	1,100	20%
C	1,000	20%	1,100	20%
D	1,000	20%	1,100	20%
E	1,000	20%	1,100	20%
	5,000	100%	5,500	100%

Each stockholder has received 100 new shares of common stock but ownership percentages of the company remain at 20 per cent per stockholder. Since total stockholders' equity does not change, the proportion owned by each is still $25,000 ($125,000 total stockholders' equity x 20%).

Appendix 2: Retained Earnings

LO7 – Explain and record restrictions on retained earnings.

Retained earnings represent the net income earned by a company over its life that has not been distributed as dividends to stockholders.

Retained earnings can be either **restricted** or **unrestricted** with respect to dividend distributions, as follows:

RETAINED EARNINGS

Retained earnings represent the net income accumulated by a corporation that has not been distributed as dividends to stockholders.

RESTRICTED RETAINED EARNINGS

This amount represents assets that the board of directors has made unavailable for dividends. These earnings are to be kept in the company for a special purpose.

UNRESTRICTED RETAINED EARNINGS

This represents the amount of net income that has been earned in the company and is available for distribution to stockholders as dividends. Rarely are all retained earnings paid out as dividends.

Figure 11–6 Restricted and Unrestricted Retained Earnings

Assume that New World Corporation has retained earnings of $800,000 at December 31, 2020. The board of directors passes a resolution at the 2020 year-end to restrict $70,000 of retained earnings for a plant expansion.

The full cycle of the restriction within retained earnings is shown in Figure 11–7.

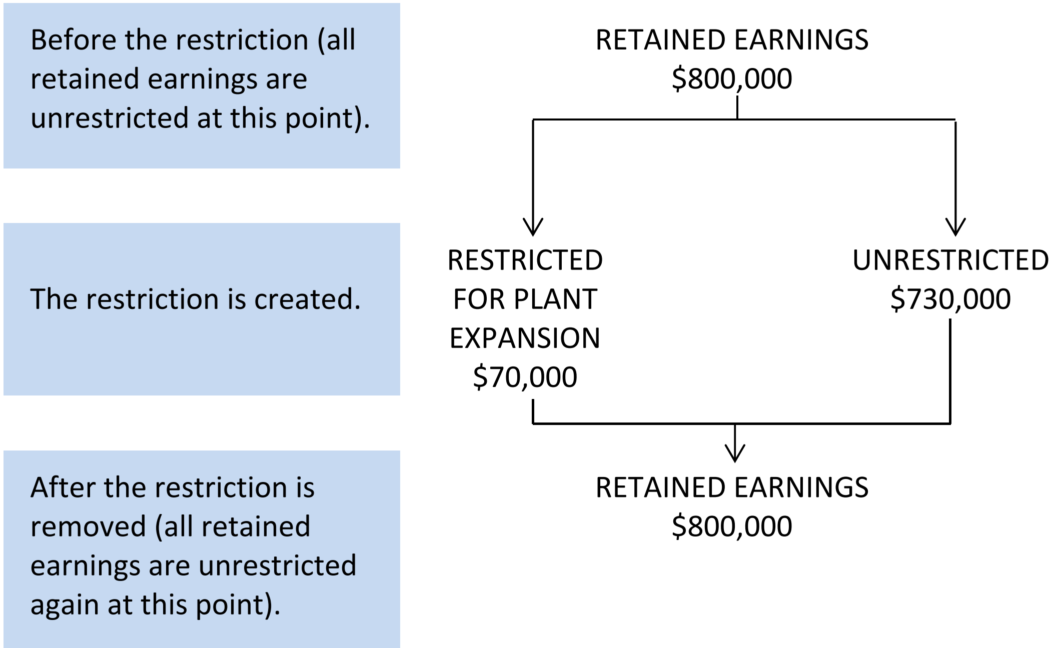


Figure 11–7 Restriction for Plant Expansion: Creation and Removal

As can be seen, the creation of a restriction on retained earnings divides the $800,000 amount into a restricted component of $70,000 and an unrestricted component of $730,000.

The creation of a restriction on retained earnings indicates management's intention to use assets for a particular purpose. It is reported on the financial statements so that investors and creditors are informed that these assets are unavailable for dividends. These restrictions do not in any way alter the total amount of retained earnings or stockholders' equity.

The journal entry to record the creation of the above $70,000 restriction for plant expansion would be:

2020			
Dec. 31	Retained Earnings	70,000	
	Retained Earnings – Restriction for Plant Expansion		70,000
	To record the restriction on retained earnings.		

This restriction records a portion of these earnings in an account specifically designated to indicate its purpose—plant expansion. The restricted amount is still part of retained earnings.

It is classified as retained earnings in the stockholders' equity section of the balance sheet at December 31, 2020 as follows:

Stockholders' Equity

	2020	*2019*
Common stock	$ 98,000	$ 98,000
Retained earnings (Note Y)	800,000	760,000
Total stockholders' equity	$898,000	$858,000

The relevant note to the financial statements would state:

Note Y

On December 31, 2020 the board of directors authorized a $70,000 restriction on the retained earnings of the company for plant expansion.

The statement of changes in equity would show (bolded for illustrative purposes):

	Capital stock			*Retained earnings*			*Total equity*
	Common stock	*Preferred stock*	*Total*	*Unrestricted*	*Restricted*	*Total*	
Balance at Jan. 1, 2019	$ 13,000	$ 85,000	$ 98,000	$680,000	$ -0-	$680,000	$778,000
2019 net income				80,000		80,000	80,000
Balance at Dec. 31, 2019	13,000	85,000	98,000	760,000	-0-		858,000
2020 net income				40,000		40,000	40,000
Restriction for plant addition (Note Y)				**(70,000)**	**70,000**		
Balance at Dec. 31, 2020	$ 13,000	$ 85,000	$ 98,000	$730,000	70,000	$800,000	$898,000

It is important to understand that recording a restriction for plant expansion does not set up some kind of cash fund for the expansion. It merely ensures that investors are aware that all the retained earnings of the corporation are not eligible to be paid out as dividends while the restriction is in place and that the assets represented by the restriction will be used for another purpose in the meantime.

When the special restriction account has served its purpose and the requirement for which it was set up no longer exists, the amount in the restricted account is returned to the unrestricted retained earnings account. The entry setting up the restriction is reversed. The construction of the plant is recorded in the normal manner.

Assume that the plant expansion costs $70,000 and is paid in cash on August 31, 2021. The construction and payment is recorded as follows.

2021			
Aug. 31	Plant	70,000	
	Cash		70,000
	To record the payment for plant expansion.		

This journal entry records the actual plant expenditure. It also shows that restricted retained earnings are *not* used to pay for the plant. The expenditure is paid with the asset cash. At August 31, 2021, the entry to reverse the original journal entry and eliminate the restricted amount for plant expansion is made:

2021			
Aug. 31	Retained Earnings – Restriction for Plant Expansion	70,000	
	Retained Earnings		70,000
	To record expiry of the restriction on retained earnings.		

The restricted account is reversed when the plant has been built because dividends are no longer reduced by the need for a plant expansion.

Summary of Chapter 11 Learning Objectives

LO1 – Identify and explain characteristics of the corporate form of organization and classes of stock.

A corporation is a legal entity that is separate from its owners, known as stockholders. The board of directors is responsible for corporate policy and broad direction of the corporation, including hiring the person in charge of day-to-day operations. A corporation has an indefinite life, its stockholders have limited liability, it can acquire capital more easily than a sole proprietorship or partnership, and it pays income taxes on its earnings since it is a separate legal entity. A corporation can issue common and preferred stock. Common stock usually has voting rights while preferred stock usually does not. Preferred stock is listed before common stock in the stockholders' equity section of the balance sheet. Preferred stockholders are entitled to receive dividends before common stockholders. Authorized stock is the total number of shares of stock that can be issued or sold. Shares that have been issued can be repurchased by the corporation and either held in treasury for subsequent sale or distribution (to employees as bonuses, for instance), or cancelled. Outstanding shares are stock that have been issued and are held by external stockholders. Stock repurchased by a corporation is not considered outstanding.

LO2 – Evaluate relative financing effects of bonds, common stock, and preferred stock.

One of the most important considerations between the issue of debt or capital stock is the potential effect of each of these financing methods on the present common stockholders. These include effects on earnings per share, control of the corporation, and income taxes expense. Differences between projected and actual results can result in wrong decisions.

LO3 – Record and disclose preferred and common stock transactions including stock splits.

Common and preferred stock can be issued for cash or other assets. Immaterial organization costs are expensed when incurred and organizers sometimes accept stock in lieu of cash for their work organizing the corporation. When more than one type of stock has been issued, the stockholders' equity section of the balance sheet must include a Contributed Capital section showing these different classes. When a corporation's shares of stock are selling at a high price, a stock split may be declared to increase marketability of the shares. There is no journal entry for a stock split. Instead, a memorandum entry detailing the split is entered into the records. A stock split increases the number of shares of issued stock but does not change any of the dollar amounts on the financial statements.

LO4 – Record and disclose cash dividends.

Cash dividends are a distribution of earnings to the stockholders and are declared by the board of directors. On the declaration date, cash dividends declared (or retained earnings) is debited and dividends payable is credited. On the date of record, no journal entry is recorded. Stockholders who hold shares on the date of record are eligible to receive the declared dividend. On the date of payment, dividends payable is debited and cash is credited. Preferred stock are either cumulative or non-cumulative. Cumulative preferred stock accumulate undeclared dividends from one year to the next. These unpaid dividends are called dividends in arrears. When dividends are subsequently declared, dividends in arrears must be paid to preferred stockholders before anything is paid to the other stockholders. Non-cumulative preferred stock do not accumulate undeclared dividends.

LO5 – Calculate and explain the book value per share ratio.

The book value of a share is the amount of net assets (as shown on the balance sheet) represented by one share of a type of stock. Book value per share of common stock is the amount of net assets not claimed by creditors and preferred stockholders. Book value per share of preferred stock is the net assets that each share held by preferred stockholders would receive if the corporation were liquidated, including accumulated dividends from past years, if applicable.

LO6 – (Appendix 1) Record and disclose stock dividends.

Stock dividends distribute additional shares to owners and are declared by the board of directors. On the declaration date, stock dividends declared (or retained earnings) is debited and common stock dividends distributable, a capital stock account, is credited. When the stock dividend is distributed to stockholders, the Common Stock Dividends Distributable account is debited and common stock is credited. Stock dividends cause an increase in the number of stock issued and outstanding but do not affect account balances. Stock dividends simply transfer an amount from retained earnings to capital stock within the stockholders' equity section of the balance sheet.

LO7 – (Appendix 2) Explain and record restrictions on retained earnings.

Retained earnings can be restricted by the board of directors for certain purposes, like a plant expansion. These restricted amounts are unavailable for dividends. Restrictions do not affect the total amount of retained earnings or total stockholders' equity. A restriction does not set aside cash to fund the activity. To set up a restriction, the Retained Earnings account is debited and an account (for example, Retained Earnings – Restriction for Plant Expansion) is credited. When the expansion is complete, the entry is merely reversed.

A S S I G N M E N T   M A T E R I A L S

Concept Self-check

1. What are some advantages of the corporate form of organization?
2. What is meant by *limited liability* of a corporation?
3. What rights are attached to common stock? Where are these rights indicated?
4. Describe a typical incorporation process.
5. What is a board of directors and whom does it represent? Are the directors involved in the daily management of the entity?
6. Describe:
   a. two main classes of stock that can be issued by a corporation; and
   b. the different terms relating to the status of a corporation's stock.
7. In what ways can stock be "preferred"? In which ways is it similar to common stock? Different from common stock?
8. Describe the accounting treatment of reacquired stock.
9. Why do corporations sometimes opt for a stock split?
10. Assume a 2-for-1 stock split occurs. Explain
    a. the effect on the total number of issued and outstanding shares of a stock; and
    b. the effect on stated capital (assume no-par value shares).
11. Identify the major components of the stockholders' equity section of a balance sheet. Why are these components distinguished?
12. What are the main issues a board of directors considers when making a dividend declaration decision?
13. Even if a corporation is making a substantial net income each year, why might the board of directors decide to not pay any cash dividends?
14. Distinguish among the date of dividend declaration, the date of record, and the date of payment.
15. Explain the different dividend preferences that may be attached to preferred stock. Why would preferred stock have these preferences over common stock? Does it mean that purchasing preferred stock is better than purchasing common stock?
16. What are dividends in arrears? Are they a liability of the corporation?
17. What does the book value of a class of shares represent? How is it calculated?

18. A corporate entity has both preferred and common classes of stock. How is the book value of a share of common stock calculated in this case? What is meant by the liquidation value of preferred stock?
19. Of what value is the calculation of book value per share?
20. If the market price of a share of a stock is less than its book value; is it a bargain? Why or why not?
21. (Appendix 1) What is the difference in accounting between cash dividends and stock dividends? Give a sample journal entry for each.
22. (Appendix 1) How does a stock dividend differ from a stock split?
23. (Appendix 1) Does a stock dividend change an investor's percentage of corporate ownership? Explain, using an example.
24. (Appendix 2) What is the difference between restricted and unrestricted retained earnings? Why would some retained earnings be restricted? Prepare the journal entries used to make a restriction.
25. (Appendix 2) How can retained earnings be said to be reinvested in a corporation?

Comprehension Problems

CP 11–1

The following captions are sub–totals appearing in the stockholders' equity section of the balance sheet for Hudson Day Corporation:

a. Total capital stock
b. Total retained earnings

Required: For each event listed below, indicate, in the format provided, whether the amount of each subtotal is increased (↑) or decreased (↓). Indicate with an 'x' if there is no change to a particular subtotal. Consider each event to be unrelated to the others.

		Total capital stock	*Retained earnings*
1.	Company is incorporated.	X	X
2.	Issued shares of common stock with a stated value of $1.		
3.	Split the common stock 2 for 1.		
4.	Recorded net income for the year.		
5.	Reacquired some shares of common stock previously outstanding.		
6.	Declared a cash dividend.		
7.	Paid a cash dividend.		
8.	(Appendix 1) Declared a stock dividend.		
9.	(Appendix 2) Created a restriction on retained earnings.		

CP 11-2

Bagan Corporation, a profitable growth company with 200,000 shares of common stock outstanding, is in need of approximately $40 million in new funds to finance required expansion. Currently, there are no other equities outstanding. Management has three options open:

a. Sell $40 million of 12-per cent bonds at face value.
b. Sell shares of 10% preferred stock: 400,000 shares at $100 each (dividend $10 per share).
c. Sell another 200,000 shares of common stock at $200 each.

Operating income (before interest and income taxes) on completion of the expansion is expected to average $12 million per year; the income tax rate is 50%.

Required:

1. Complete the schedule below and calculate the earnings per share of common stock.

	12% bonds	*Preferred stock*	*Common stock*
Income before interest and income taxes	$12,000,000	$12,000,000	$12,000,000
Less: Interest expense			
Income before taxes			
Less: Income taxes at 50%			
Net income			
Less: Preferred dividends			
Net income available to common stockholders			
Number of common shares outstanding			
Earnings per share of common stock			

2. Which financing option is most advantageous to the common stockholders? Why?

CP 11–3

Essential Financial Service Corp. was incorporated on January 1, 2019 to prepare business plans for small enterprises seeking bank financing.

Required: Prepare journal entries to record the following transactions on January 2, 2019:

1. Received an incorporation charter authorizing the issuance of an unlimited number of shares of no par-value, voting, common stock and 10,000 shares of 4%, no-par value, non-voting preferred stock.
2. Issued in exchange for incorporation costs incurred by stockholders 10,000 shares of common stock at stated value of $1 each.
3. Issued for cash 1,000 shares of preferred stock at stated value of $3 each.

CP 11–4

A tract of land valued at $50,000 has been given to a corporation on July 31, 2019 in exchange for 1,000 shares of no-par value preferred stock.

Required:

1. Prepare the journal entry to record the transaction.
2. Where would the transaction be classified in the balance sheet?

CP 11–5

The stockholders’ equity section of Gannon Oilfield Corporation’s balance sheet at December 31, 2019 is shown below.

Capital stock	
Preferred stock	
Authorized—100 shares, no-par value	
Issued and outstanding—64 shares, no-par value	$3,456
Common stock	
Authorized—2,000 shares, no-par value	
Issued and outstanding—800 shares	1,680
Retained earnings	600
Total stockholders’ equity	$5,736

Required:

1. What is the stated value for each issued share of preferred stock?
2. What is the stated value for each issued share of common stock?
3. What is the total stated capital of the company?

CP 11–6

The general ledger accounts of Human Services Corp. had the following amounts recorded during December 2019:

Cash	
30,000	5,000
15,000	8,000
7,000	6,000
4,000	

Land	
10,000	4,000

Building	
12,000	
8,000	

Incorp. Costs	
14,000	

Preferred Stock	
6,000	15,000
	14,000

Common Stock	
5,000	30,000
	22,000
	7,000

Required: Reconstruct the transactions that occurred during December and prepare the journal entries to record these transactions, including descriptions. The transactions and related journal entries do not need to be listed in a particular order.

CP 11–7

Strada Controls Inc. has 100,000 shares of common stock outstanding on January 1, 2019. On May 25, 2019, the board of directors declared a semi-annual cash dividend of $1 per share of common stock. The dividend will be paid on June 26, 2019 to stockholders of record on June 7, 2019.

Required: Prepare journal entries for
1. the declaration of the dividend;
2. the date of record; and
2. the payment of the dividend.

CP 11–8

Landers Flynn Inc. has 1,000 shares of $5 cumulative preferred stock outstanding. Dividends were not paid last year. The corporation also has 5,000 shares of common stock outstanding. Landers Flynn declared a $14,000 cash dividend to be paid in the current year.

Required: Calculate the amount of dividends received by
1. the preferred stockholders;
2. the common stockholders.

CP 11–9

The following information is extracted from the stockholders' equity section of the balance sheet of Gibson Clothing Inc. at December 31, 2019:

Capital stock	
Preferred stock, stated value $10, non-cumulative	
Issued and outstanding — 5,000 shares	$ 20,000
Common stock, stated value $2	
Issued and outstanding — 20,000 shares	40,000
Total contributed capital	60,000
Retained earnings	150,000
Total stockholders' equity	$210,000

Additional information:
a. There are $2,000 of dividends in arrears on the preferred stock.
b. The liquidation value of the preferred stock is $25,000.
Required: Calculate the book value of preferred and common stock.

CP 11–10

The stockholders' equity section of Pembina Valley Manufacturing Limited's balance sheet at December 31, 2019 is shown below.

Capital stock	
Preferred stock, non-cumulative	
Authorized — 500 shares	
Issued and outstanding — 300 shares	$ 300
Common stock	
Authorized — 100 shares	
Issued and outstanding — 20 shares	500
Total contributed capital	800
Retained earnings	192
Total stockholders' equity	$992

Note: There is $30 of dividends in arrears on the preferred stock. The liquidation value of preferred stock is $300.

Required:

1. Calculate the book value per stock of
   a. the preferred stock; and
   b. the common stock.
2. Assume that the common stock was split 2 for 1 on January 2, 2020 and that there was no change in any other account at that time. Calculate the new book value of common stock immediately following the stock split.

CP 11–11

The following note appeared on the balance sheet of Sabre Rigging Limited:

> As of December 31, 2019, dividends on the cumulative preferred stock were in arrears for three years to the extent of $15 per stock or $15,000 in total.

Required:

1. Does the amount of the arrears appear as a liability on the December 31, 2019 balance sheet? Explain your answer.
2. Why might the dividends be in arrears?
3. The comptroller of Sabre Rigging projects net income for the 2020 fiscal year of $35,000. When the company last paid dividends, the directors allocated 50 per cent of current year's net income for

dividends. If dividends on shares of preferred stock are resumed at the end of 2020 and the established policy of 50 per cent is continued, how much will be available for dividends to the common stockholders if the profit projection is realized?

CP 11–12 (Appendix 1)

The stockholders' equity section of Lakeview Homes Corporation's balance sheet at December 31, 2019 is reproduced below:

Stockholders' Equity	
Common stock	
Authorized 10,000 voting shares	
Issued 5,000 shares, stated value $4	$ 20,000
Retained earnings	100,000
Total stockholders' equity	$120,000

On January 15, 2019, Lakeview Homes declared a 10 per cent stock dividend to holders of common stock. At this date, shares of the common stock of the corporation were trading on the stock exchange at $10 each. The stock dividend was issued February 15, 2019

Required: Prepare the journal entries to record the stock dividend.

CP 11–13 (Appendix 1)

Arrow Streaming Corporation has 10,000 shares of common stock outstanding at January 1, 2019 with a total stated value of $100,000. On April 1, Arrow Streaming declared a 10 per cent stock dividend, payable on April 15 to stockholders of record on April 10. The market value of one share of Arrow's common stock on March 31 was $15. On June 1, the company declared a $2 cash dividend per stock to common stockholders of record on June 10, and paid the dividend on June 30. Assume the year-end of the corporation is December 31.

Required: Prepare journal entries for the above transactions, including closing entries.

CP 11–14 (Appendix 1)

Blitz Power Tongs Inc. received a corporate charter that authorized it to issue an unlimited number of shares of no-par value common stock. The following transactions were completed during 2019:

Jan.	5	Issued 30 shares of common stock for a total of $150 cash.
	12	Exchanged 50 shares of common stock for assets listed at their fair values: machinery — $100; building — $100; land — $50.
Feb.	28	Declared a 10% stock dividend. Market value is $7 per share of common stock. Net income to date is $60.
Mar.	15	Issued the stock dividend.
Dec.	31	Closed the 2019 net income of $200 from the Income Summary account in the general ledger to the Retained Earnings account.
Dec.	31	Declared a $1 per share cash dividend.

Required

1. Prepare journal entries for the 2019 transactions, including closing entries.
2. Prepare the stockholders' equity section of the balance sheet at
   a. January 31, 2019
   b. February 28, 2019
   c. December 31, 2019.

CP 11–15 (Appendix 2)

Acme Corporation has $100,000 of common stock outstanding and $200,000 of retained earnings at December 31, 2019. The board of directors passes a resolution at that date to restrict $80,000 of retained earnings for a plant expansion.

Required:

1. Record the restriction in journal entry form.
2. Show the stockholders' equity section of the balance sheet and appropriate note disclosure at December 31, 2019.
3. Record the construction of the building when completed on June 30, 2020 for a cost of $90,000, paid in cash.
4. Record the journal entry to record the lifting of the restriction on July 31, 2020.

CP 11–16 (Appendices 1 and 2)

Stetson Auto Inc. was incorporated on January 1, 2019 and commenced operations at that date. A total of $2,000 common stock dividends were declared and paid on October 31, 2019. The following information was taken from the company's records at December 31, 2019:

Common stock, stated value $1	
Issued and outstanding—10,000 shares	$ 10,000
Restriction—plant addition	150,000
Revenues (total for 2019)	2,575,000
Expenses (total for 2019)	2,000,000
Cash dividends declared	23,000

Required: Prepare the stockholders' equity section of Stetson Auto's balance sheet at December 31, 2019 and the statement of changes in stockholders' equity for the year then ended.

Problems

P 11–1

The board of directors of Megalopolis Inc. has approved management's recommendation to expand the production facilities. The firm currently manufactures only heavy machinery, but plans are being developed for diversifying the corporation's activities through the production of smaller and more versatile equipment. The directors are considering the following financing methods raise $2 million of additional capital:

a. Sell $2 million of 12% bonds at face value.
b. Sell $8 preferred stock: 20,000 shares of stock at $100 each (no other shares of preferred stock are outstanding).
c. Sell another 50,000 shares of common stock at $40 each (currently 40,000 shares of common stock are outstanding).

Income before interest and income taxes is expected to average $1,000,000 per year following the expansion; the income tax rate is 50%.

Required:

1. Calculate the earnings per share of common stock for each alternative.
2. As representatives of common stockholders, which financing method most likely meets the board of directors' needs?
3. What other factors should the board of directors consider?

P 11–2

Crystal Clear Electronics Inc. was incorporated on January 1, 2019 and was authorized under its charter to issue the following stock — 20,000 cumulative, non-voting, 5% preferred stock, stated value $5, and an unlimited number of no par-value, voting common stock, stated value $1.

Required:

1. Prepare journal entries to record the following 2019 transactions:
    a. Issued 3,000 shares of preferred stock for cash on January 2.
    b. Issued 2,000 shares of common stock on January 2 in return for legal services related to incorporation.
    c. Issued 5,000 shares of preferred stock for cash on January 12.
    d. Issued 1,000 shares of common stock for cash on August 1.
    e. Issued shares of preferred stock for land valued at $25,000 on December 15.
    f. Declared a cash dividend of $3,000.
2. Prepare the stockholders' equity section of the balance sheet at December 31, 2019 and the related note to the financial statements. Assume net income for the year was $10,000.
3. On December 15, 2020, the shares of common stock were split 2 for 1. On December 31, a cash dividend of $4,000 was declared. Assuming no other transactions occurred during 2020, prepare the statement of changes in equity for the years ended December 31, 2019 and 2020. Assume net income for 2020 was $20,000.

P 11–3

Following is the stockholders' equity section of Critter Contracting Inc. shown before and after a stock split on April 15, 2019.

Before split		**After split**	
Stockholders' Equity		*Stockholders' Equity*	
Common stock		Common stock	
Authorized — 5,000 shares		Authorized— ? shares	
Issued and outstanding—		Issued and outstanding —	
1,000 shares	$100,000	? shares	$?

On April 15, the board of directors authorized a 5 for 1 stock split.

Required:

1. Complete the stockholders' equity section of the balance sheet after the split.
2. Record a memorandum indicating the new number of shares.
3. If the market value per stock was $40 before the split, what would be the approximate market value after the split? Why?

P 11–4

Relevant financial information for Gearing Gravel Limited at January 1, 2019 is as follows:

Capital stock	
5% Preferred stock, non-cumulative, non-voting	
Authorized — 1,000 shares	
Issued and outstanding — 10 shares, stated value $5,000	$ 50,000
Common stock, voting	
Authorized — unlimited	
Issued and outstanding — 200 shares, stated value $50	10,000
Total contributed capital	60,000
Retained earnings	100,000
Total stockholders' equity	$160,000

During the year, total cash dividends of $3,000 were declared. Net income for the year amounted to $20,000. 100 shares of common stock were issued on February 28, 2019 for $5,000. 20 shares of common stock were reacquired on December 31 for $1,000 and held as treasury stock.

Required: Prepare the statement of changes in equity for the year ended December 31, 2019 and the related note to the financial statements.

P 11–5

Required: For each event listed below, indicate, in the format provided, whether the amount of each sub–total is increased (↑) or decreased (↓). Indicate with an 'x' if there is no change to a particular subtotal. Consider each event to be unrelated to the others, unless otherwise indicated.

	Assets	*Liabilities*	*Stockholders' Equity*
1. Commons stock was issued for cash.	↑	X	↓
2. Declared a cash dividend.			
3. Common stock split 3:1.			
4. Calculated book value of common stock.			
5. Paid cash dividend related to item 2 above.			
6. (Appendix 2) Recorded a restriction of retained earnings.			

P 11–6

The following information relates to River Valley Produce Limited as at December 31, 2019:

Stockholders' Equity		
Capital stock		
Preferred stock, $8, stated value $100, non-voting		
Authorized — 1,000 shares		
Issued and outstanding — 150 shares	$15,000	
Common stock, stated value $5, voting		
Authorized — 10,000 shares		
Issued and outstanding — 4,800 shares	24,000	
Total contributed capital		$ 39,000
Retained earnings		40,000
Total stockholders' equity		$79,000

The following transactions occurred during 2020:

a. Reacquired 400 shares of common stock at $10 each; held as treasury stock.
b. Split the common stock 2 for 1.
c. Issued an additional 200 shares of common stock for $3 cash each.
d. Transferred net income of $19,500 from the Income Summary account in the general ledger to the Retained Earnings account.
e. The board authorized a $5,000 of retained earnings to be restricted for plant expansion.*

*complete only if Appendix 2 is covered

Required:

1. Prepare journal entries for the 2020 transactions.
2. Prepare the statement of changes in equity for the year ended December 31, 2020.
3. What amount of is available for distribution to stockholders as of December 31, 2020?

P 11–7

The following is the stockholders' equity section of the balance sheet of Tridon Construction Limited at December 31, 2019.

Stockholders' Equity	
Common Stock, voting	
Authorized — 500 shares	
Issued and outstanding — 300 shares	$3,070
Retained earnings	500
Total stockholders' equity	$3,570

Required:

1. What is the stated value per share of common stock? the book value per share of common stock?
2. On December 31, 2019 the Tridon Construction shares of common stock traded at $24. Why is the market value different from the book value of commons stock?

P 11–8 (Appendix 1)

The stockholders' equity section of the balance sheet of TWR Contracting Inc. at December 31, 2019 showed the following amounts:

Stockholders' Equity	
Capital stock	
Preferred stock, $10 stated value, non-voting, cumulative, non-participating	
Issued and outstanding — 40 shares	$ 400
Common stock, voting	
Issued and outstanding — 2,000 shares	2,000
Total contributed capital	2,400
Retained earnings	900
Total stockholders' equity	$3,300

The following transactions occurred during 2020:

Feb.	15	Declared the regular $0.30 per share semi-annual cash dividend on its preferred stock and a $0.05 per share cash dividend on the common stock to holders of record March 5, payable April 1.
Apr.	1	Paid the dividends declared on February 15.
May	1	Declared a 10 per cent stock dividend to common stockholders of record May 15 to be issued June 15,

2018. The market value of the common stock at May 1 was $2 per stock.

June	15	Issued the dividends declared on May 1.
Aug.	15	Declared the regular semi–annual cash dividend on shares of preferred stock and a cash dividend of $0.05 on the common stock to holders of record August 31, payable October 1.
Oct.	1	Paid the dividends declared on August 15.
Dec.	15	Declared a 10 per cent common stock dividend to common stockholders of record December 20 to be issued on January 15, 2021. The market value of the common stock at December 15 was $3 per stock.
Dec.	31	Net income for the year ended December 31, 2020 was $1,400.

Required:

1. Prepare journal entries to record the 2020 transactions, including closing entries. Show calculations. Descriptions are not necessary.
2. Prepare the statement of changes in equity for the year ended December 31, 2020.

P 11–9 (Appendices 1 and 2)

At December 31, 2019, the stockholders' equity section of the balance sheet for the Apex Auto Corporation totalled $2,000,000. Following are the balances of various general ledger accounts at that date.

Preferred stock, $.40, cumulative	Issued 50,000 shares	$500,000
Common stock	Issued 50,000 shares	750,000
Retained earnings—unrestricted		750,000

The following transactions occurred during 2020.

Mar.	20	A cash dividend of $0.20 per preferred stock was declared, payable April 1 to stockholders of record on March 25.
Apr.	1	Payment of previously declared dividend on shares of preferred stock was made.
June	15	The regular semi-annual cash dividend on shares of common stock of $0.40 per stock was declared, payable July 10 to stockholders of record on July 1.
July	10	Payment of the previously-declared dividend on shares of common stock was made.
Aug.	1	10,000 shares of common stock were issued for $200,000 cash.

Nov.	15	The board of directors met and restricted an additional $75,000 for the plant extension.*
Dec.	15	The regular semi-annual dividend of $0.40 per share of common stock was declared payable December 31, 2020.
Dec.	31	A cash dividend totaling $25,000 was paid.

*complete only if Appendix 2 is covered

Required:

1. What amount of cash dividends would be distributed to common stockholders on December 31, 2020?
2. Prepare journal entries for the 2020 transactions. Ignore closing entries. Descriptions are not necessary.
3. Prepare the statement of changes in equity for the year ended December 31, 2020 assuming net income for the year amounted to $165,000.

CHAPTER TWELVE

Proprietorships and Partnerships

To this point, the corporate form of business organization has been studied. This chapter will discuss the nature of proprietorships and partnerships, and how to account for various types of transactions within these entities. US generally accepted accounting principles do not apply to proprietorships and partnerships. Specific accounting conventions may be prescribed by legislation in various political jurisdictions.

Chapter 12 Learning Objectives

LO1 – Describe the characteristics of a proprietorship.

LO2 – Describe how the financial statements of a proprietorship are different from those of a corporation.

LO3 – Describe the characteristics of a partnership.

LO4 – Account for a partnership's profits and losses and prepare a statement of partner's capital.

LO5 – Account for the admission or withdrawal of partners from a partnership.

LO6 – Account for the liquidation of a partnership.

A. Proprietorships

LO1 - Describe the characteristics of a proprietorship.

A **proprietorship** is a business owned by one person. It is not a separate legal entity like a corporation. This means that the business and the owner are considered to be the same. For example the profits of a proprietorship are taxed as part of the owner's personal income tax return. Also, a corporation has limited liability. Creditors cannot normally access the personal assets of stockholders to satisfy debts. On the other hand, a proprietorship has **unlimited liability**. If the business cannot pay its debts, the owner is responsible for these even if the business' debts are greater than the owner's personal resources. Another difference: a corporation has unlimited life. Shares of stock can be bought or sold, or inherited by others. A proprietorship ceases to exist when the owner dies.

Investing in a Proprietorship

When the stockholders invest in a corporation, shares of common stock are issued. A typical journal entry would be:

2019			
Jan. 1	Cash	10,000	
	Common Stock		10,000
	To record the issuance of 1,000 shares of common stock at $10 per share.		

The shares represent how much of the corporation is owned by each stockholder. In a proprietorship, there is only one owner, and the proprietorship and owner are not considered to be separate legal entities. As a result, there is no need to keep track of capital stock and retained earnings in separate accounts as in a corporation. When an owner invests in a proprietorship, a typical journal entry would be:

2019			
Jan. 1	Cash	10,000	
	Proprietor's Capital		10,000
	To record a cash contribution by the owner.		

When a corporation earns net income, it is closed to the Retained Earnings at the end of each fiscal year. When a proprietorship earns net income, the income statement accounts are closed to the same **Proprietor's Capital** account.

Distribution of Income in a Proprietorship—Withdrawals

A corporation distributes a portion of income earned to stockholders in the form of dividends. In a proprietorship, the owner distributes a portion of the business's income in the form of **withdrawals** and these are recorded as debits to the Proprietor's Withdrawals account. At year-end, this account is closed to Proprietor's Capital account. A typical journal entry to record a cash withdrawal would be:

2019			
Jan. 31	Proprietor's Withdrawals	1,000	
	Cash		1,000
	To record a cash withdrawal by the owner.		

Closing Entries for a Proprietorship

In effect, all transactions with the proprietor are recorded in one account – Proprietor's Capital. Because of this, the four closing entries for a proprietorship are slightly different from those of a corporation:

Figure 12–1 compares the closing entries for a proprietorship and a corporation, assuming revenue of $10,000, expenses of $6,000, and withdrawals/dividends of $1,000 for the year ended December 31, 2019.

	Corporation			Proprietorship		
2019	(1)			(1)		
Dec. 31	Revenue	10,000		Revenue	10,000	
	Income Summary		10,000	Income Summary		10,000
	To close revenue to the Income Summary.			To close revenue to the Income Summary.		
	(2)			(2)		
Dec. 31	Income Summary	6,000		Income Summary	6,000	
	Expenses		6,000	Expenses		6,000
	To close expenses to the Income Summary.			To close expenses to the Income Summary.		
	(3)			(3)		
Dec. 31	Income Summary	4,000		Income Summary	4,000	
	Retained Earnings		4,000	Proprietor's Capital		4,000
	To close the Income Summary to Retained Earnings.			To close the Income Summary to Proprietor's Capital.		

	(4)				(4)		
Dec. 31	Retained Earnings	1,000			Proprietor's Capital	1,000	
	Dividends		1,000		Prop. Withdrawals		1,000
	To close dividends to Retained Earnings.				To close withdrawals to Proprietor's Capital.		

Figure 12–1 Comparing Closing Entries for a Proprietorship and Corporation

Financial Statements of a Proprietorship

LO2 – Describe how the financial statements of a proprietorship are different from those of a corporation.

The financial statements for a proprietorship are much the same as those of a corporation. One difference is that the income statement of a proprietorship does not include income taxes expense (since its profits are included in the owner's personal income tax return). As well, no salaries expense paid the proprietor is recorded on a proprietorship's income statement, since the proprietor receives all the net income of the business. This is the owner's remuneration.

The effects of these differences are shown in Figure 12–2, Assume a slight variation on the information presented above: revenue of \$10,000, salaries to owner of \$2,000, income taxes expense of \$500, other expenses of \$3,500. The 2019 income statement s (bolded for illustrative purposes) would show:

ABC **Corporation** Income Statement For the Year Ended December 31, 2019		
Revenue		\$10,000
Salaries	**\$2,000**	
Other expenses	3,500	5,500
Income before income taxes		4,500
Income taxes		**500**
Net income		\$ 4,000

ABC **Proprietorship** Income Statement For the Year Ended December 31, 2019	
Revenue	\$10,000
Other expenses	3,500
Net income	\$ 6,500

Figure 12–2 Comparing the Income Statement of a Corporation and a Proprietorship

Net incomes are different because salaries expense and income taxes expense are included in the corporation's income statement , but excluded from the proprietorship's income statement . Rather, these two expenditures are considerd to be proprietor withdrawals, and are included in the statement of proprietor's capital. This is illustrated below.

The statement of changes in equity for each of a proprietorship and corporation includes the same elements: beginning equity, additional investments by the stockholders/owner, net income, distribution of income to the stockholders/owner, and the ending equity. However, the proprietorship statement combines all the equity items in one account, the Proprietor's Capital account. In a corporation, stockholders' equity is divided between capital stock and retained earnings. These differences are illustrated in Figure 12–3. Assume the same information as above. In addition, assume that no opening equity balances, stock issued/proprietor's contributions of $5,000 for the year, and cash dividends/withdrawals of $1,000. The statements of changes in equity (bolded for illustrative purposes) would show:

ABC Corporation **Statement of Changes in Equity** For the Year Ended December 31, 2019			
	Common stock	*Retained earning*	*Total equity*
Bal. at Jan. 1, 2019	$ -0-	$ -0-	$ -0-
Stock issued	5,000		5,000
Net income		**4,000**	4,000
Dividends		**(1,000)**	(1,000)
Bal. at Dec. 31, 2019	$ 5,000	$ 3,000	$ 8,000

ABC Proprietorship **Statement of Proprietor's Capital** For the Year Ended December 31, 2019	
Bal. at Jan. 1, 2019	$ -0-
Contributions	5,000
Net income	**6,500**
Withdrawals	**(3,500)**
Bal. at Dec. 31, 2019	$ 8,000

Figure 12–3 Comparing the Statement of Changes in Equity for a Corporation and a Proprietorship

Although net income differs, ending total equity ($8,000) is the same in both cases. Salaries and income taxes expenses omitted on the proprietorship income statement are instead added to the proprietor withdrawals. These differences offset each other.

The balance sheet for each of a proprietorship and corporation includes the same elements: assets, liabilities, and equity. Only the equity section of the statement differs. In a proprietorship, all the equity items are combined in one account, the owner's capital account. In a corporation, equity is divided between capital stock and retained earnings. These differences are illustrated in Figure 12–4. Asset and liability amounts are all assumed. (Items are bolded for illustrative purposes.)

ABC Corporation Balance Sheet At December 31, 2019		
Assets		
Current		
Cash		$ 9,500
Accounts receivable		8,500
Total assets		$18,000
Liabilities		
Current		
Accounts payable		$10,000
Stockholders' Equity		
Capital stock	$5,000	
Retained earnings	3,000	8,000
Total liabilities and **stockholders' equity**		$18,000

ABC Proprietorship Balance Sheet At December 31, 2019	
Assets	
Current	
Cash	$9,500
Accounts receivable	8,500
Total assets	$18,000
Liabilities	
Current	
Accounts payable	$10,000
Proprietor's Capital	
AB Carr, capital	8,000
Total liabilities and **proprietor's capital**	$18,000

Figure 12–4 Comparing the Balance Sheet of a Corporation and a Proprietorship

B. Partnerships

LO3 - Describe the characteristics of a partnership.

A partnership is an unincorporated business owned by more than one person. Partners should have a **partnership agreement** that stipulates such things as each partner's rights and duties, the sharing of net income, limits on withdrawals, and means to terminate the partnership. Like a proprietorship, a partnership is not a separate legal entity. For example, each partner's share of the partnership profits is included as income on the partner's personal income tax return. Also like a proprietorship, partnerships have unlimited liability.[1] Each partner is personally liable for debts that the partnership cannot pay. In the event that a partner is unable to pay a proportionate share of partnership debts, the other partners can required by creditors to pay these.

Also like a proprietorship, a partnership has a limited life. For example, an existing partnership is dissolved when a new partner is admitted, or an existing partner withdraws or dies. Partner dissolution does not

[1] Limited liability partnerships (LLP) are permitted in certain jurisdictions. The details of this type of business organization are beyond the scope of this text.

necessarily mean that normal operations cease. Usually the same business continues under a new partnership agreement. Accounting for partnership capital therefore involves issues related to the formation and dissolution of partnerships and to the allocation of the profits and losses to the individual partners.

Partnerships also have a number of unique characteristics. These include mutual agency, co-ownership of assets, and sharing of profit and losses. As a result, accounting for partners' capital differs from accounting for stockholders' equity and proprietor's capital. These characteristics are described below.

Mutual Agency

Unless otherwise stated in the partnership agreement, each partner is able to make decisions that are legally binding, not only on the partnership, but also on the other partners. This is known as **mutual agency**. The only exception involves activities that fall outside the normal activities of the partnership. For example, a partnership formed to sell used cars would not normally include the buying and selling of footwear; in this case, partners would not be legally bound to footwear contracts signed by only one of the partners.

Co–Ownership of Assets

Unless the partnership agreement specifies otherwise, all assets contributed to the partnership by individual partners are **co-owned** by all partners. Each partner, therefore, has a claim against all partnership assets up to the amount of his/her capital balance. Therefore, partnership assets are often sold on liquidation to facilitate their distribution to partners in the form of cash.

Sharing of Profits and Losses

The partnership agreement usually stipulates the manner in which profits and losses will be shared. If no such provision is specified, then partners share all profits and losses equally. Accounting issues related to the division of profits and losses are discussed below.

Advantages of a Partnership

A partnership has several advantages over other forms of business organizations. It can be easily formed, without the legal process and costs involved in incorporation. A partnership is less subject to government supervision; there are usually fewer government regulations and less paper work regarding partnerships than corporations. Because a partnership is not a legal entity, it is not subject to corporate income tax; individual partners file personal income tax returns, which include their allocation of partnership profits. Since a partnership includes at least two individuals, it has access to more capital and expertise than does a proprietorship.

Disadvantages of a Partnership

Partners have to answer to other partners for their actions and each has mutual agency and unlimited liability. Therefore, individual partners are legally liable for the financial debt arising from actions of other partners. A partnership is dissolved on the death or withdrawal of a partner, although the business may continue with new partners. This arrangement is more cumbersome than the selling of shares of stock in a corporation. Shares can usually be transferred easily among investors. Also, a corporation usually has access to a larger amount of capital, since its stock can be issued to a wider range investors, particularly those who want to be involved with running the business. Corporate tax rates can be more favourable than personal tax rates.

Partnership Accounting

Before considering the differences in record keeping for incorporated and unincorporated businesses, we will examine the differences in the balance sheet reporting for each type of organization. The example below shows the owners' equity section of the balance sheet for three businesses that have identical financial positions. Although the asset and liability presentation is the same, the presentation of the equity section differs in each case, as follows:

a. Corporation

Stockholders' Equity	
Common stock	$10,000
Retained earnings	5,000
Total stockholders' equity	$15,000

b. Proprietorship

Proprietor's Capital	
Jane Jones, capital	$15,000

c. Partnership

Partners' Capital	
Jane Jones, capital	$7,500
Jack Brown, capital	7,500
Total partners' capital	$15,000

As discussed before, the stockholders' equity section of a corporation's balance sheet is divided into two categories – capital stock and retained earnings. The first category represents the owner's investments in stock of the company. The second category is the accumulated earnings of the corporation less any dividends paid to owners from commencement of operations.

For a partnership, and similar to that of a proprietorship, each owners' equity is shown as individual **Partner's Capital** accounts. The capital account reflects each partner's capital contributions to the business, the partner's share of accumulated earnings, and any withdrawals by the particular partner.

Business transactions for a partnership are recorded in the same manner as those for a proprietorship. Distributions are recorded in a **Partner's Withdrawals** account. Individual capital and withdrawal accounts are maintained for each partner in the general ledger. The withdrawals account balance is closed to each partner's capital account at the end of the accounting time period.

Partnership Capital Accounts

Each partner has an individual account that is credited with capital contributions to the partnership. The following entry records a $5,000 cash contribution by partner A.

Cash	5,000	
A, Capital		5,000
To record investment by A.		

If non–cash assets are contributed, then the appropriate asset account is debited instead of cash.

Partner withdrawals of assets from the partnership are recorded in each partner's withdrawals account. If partner

A withdraws $1,000 cash, for example, the following entry is recorded:

A, Withdrawals	1,000	
Cash		1,000
To record withdrawals by A.		

At year-end, each partner's withdrawals account is closed to their capital account. The following closing entry would close partner A's withdrawals account, assuming no further withdrawals have been made.

Each withdrawals account is closed directly to the capital account of the applicable partner.

A, Capital	1,000	
A, Withdrawals		1,000
To close partner A withdrawals to A's capital account.		

If a partner withdraws any asset, including cash for personal use, the withdrawals account is debited for the cost of the asset and the appropriate asset account is credited for the same amount. For example, if partner A takes a dress from the business with a cost of $20 and a selling price of $100, the journal entry will be:

A, Withdrawals	20	
Inventory		20
To record dress taken from inventory by partner A.		

If an owner uses the business's funds to pay personal debts, the withdrawals account is again debited. For example, if partner B writes a check drawn on the partnerships' bank account for $35 to pay for his child's swimming lessons, the journal entry will be:

B, Withdrawals	35	
Cash		35
To record personal expenditure by partner B.		

C. Allocation of Partnership Profits and Losses

LO4 – Account for a partnership's profits and losses and prepare a statement of partner's capital.

Recall that individual revenue and expense accounts are closed to the Income Summary general ledger account at the end of each fiscal year. In a partnership, and similar to a proprietorship, the Income Summary is then closed directly to each partner's capital account in the general ledger at the fiscal year-end in accordance with an agreed-upon formula.

For example, if a partnership earned $15,000 and the partnership agreement states that profits and losses are to be split evenly between partner A and partner B, the closing entry would be:

Income Summary	15,000	
A, Capital		7,500
B, Capital		7,500
To close Income Summary to partners' capital accounts.		

Profits and losses are allocated according to a formula. This is usually specified in the partnership agreement. The formula may consider three factors: a return to each partner for the amount of capital invested in the partnership, a payment to each partner for services rendered, and a further division of any remaining profit (or loss) according to a specified profit and loss sharing ratio.

Division Using a Fixed Ratio

The division of profits and losses according to a fixed ratio is appropriate when each partner makes an equal contribution to the business. Ideally, each partner would have an equal amount of capital invested in the partnership and would devote an equal amount of time and effort in the business. However, usually the amount of capital differs, and time and effort devoted to the business is unequal. The initial calculation of a fixed ratio inclusion in the partnership agreement considers these factors. Partners can agree to share profits in any manner – for example, in a fixed ratio, such as 3:2. A ratio of '3:2' means that 60 per cent (3/5) of the partnership income is allocated to partner A and 40 per cent (2/5) is allocated to Partner B. Assuming that A and B share profits in the ratio of 3:2, a $15,000 profit would be divided and recorded by the following entry:

Income Summary	15,000	
A, Capital (3/5 x 15,000)		9,000
B, Capital (2/5 x 15,000)		6,000
To record division of partnership profits.		

Partnership losses are allocated in the same manner. Assume that partners A and B share profits and losses at a fixed ration of 4:5. In this case, a $9,000 loss would be divided as follows:

A, Capital (4/9 x 9,000)	4,000	
B, Capital (5/9 x 9,000)	5,000	
Income Summary		9,000
To record division of partnership loss.		

Division Using Salary and Interest Allocations

Since the time and effort devoted by individual partners to the business is often unequal and the amount of capital balance varies among partners, other allocation method may be used. Profits and losses can be allocated by **interest on partners' capital balances** and **salaries to partners** to each partner, in accordance with individual contributions. Any remaining profits and losses can be divided through the profit and loss sharing ratio. It is important to understand that the salary and interest allocations are not deducted as expenses on the income statement; *salary* and *interest* used here refer only to individual factors used in dividing profits and losses among partners.

To illustrate: Before beginning their partnership, A and B agreed that 12 per cent interest would be allocated to their capital balances and that A deserved more compensation because of his valuable technical skills. Accordingly, allocation of profit was also to be based on salaries of $7,000 to A and $5,000 to B. They also agreed that any remaining profit and loss should be shared in the ratio of 3:2.

Assume A and B have each contributed $10,000 to the partnership, and that net income for the year is $15,000. The net income would be allocated as follows:

	A	*B*	*Total*
Amount of profit to be allocated to partners			$15,000
Salary allocation	7,000	5,000	(12,000)
Balance			3,000
Interest allocation:			
A: $10,000 x 12%	$ 1,200		
B: $10,000 x 12%		$ 1,200	(2,400)
Balance			600
Balance allocated in profit and loss sharing ratio:			
A: $600 x 3/5	360		
B: $600 x 2/5		240	(600)
Balance			–0–
Allocated to partners	$ 8,560	$ 6,440	

The following entry records this profit allocation between A and B:

Income Summary	15,000	
A, Capital		8,560
B, Capital		6,440
To record division of profit per partnership agreement and schedule.		

If the $15,000 partnership income had been inadequate to cover the salary and interest allocated to A and B, the difference would have been allocated in the profit and loss sharing ratio. Assuming that partnership net income had amounted to $9,000, the following calculation of amounts allocated to the partners would be made:

	A	*B*	*Total*
Amount of loss to be allocated to partners			($9,000)
Salary allocation	$ 7,000	$ 5,000	(12,000)
Balance			(3,000)
Interest allocation:			
A: $10,000 x 12%	1,200		
B: $10,000 x 12%		1,200	(2,400)
Balance			(5,400)
Balance allocated in profit and loss sharing ratio:			
A: ($5,400) x 3/5	(3,240)		
B: ($5,400) x 2/5		(2,160)	5,400
Balance			–0–
Allocated to partners	$ 4,960	$ 4,040	

The journal entry to allocate the loss would be:

Income Summary	9,000	
A, Capital		4,960
B, Capital		4,040
To record division of loss per partnership agreement and schedule.		

Partnership Financial Statements

Like a proprietorship, the income statement of a partnership or proprietorship is similar to that of a corporation, except that there is no income taxes expense. Income taxes are paid personally by partners on all sources of income, including their amounts of partnership income allocated each year. A partnership income statement also does not record any salaries expense paid to partners. "Salaries" consist of the allocation of net income or loss each year to the respective partner, as described above.

Similar to a proprietorship's statement of equity, a **statement of partners' capital** shows each partner's contributions to the business, net income (or loss) allocations, and withdrawals during the year.

Assume that for the year ended December 31, 2019, partners A and B each had opening capital balances of $10,000. Each contributed $5,000 to the partnership during the fiscal year. Net income for the year equalled $15,000, allocated as A: $8,560; B: 6,400. Partner A withdrew $10,000 during the year; partner B withdrew $15,000. The statement of partners' capital for A and B Partnership would appear as follows:

A and B Partnership
Statement of Partners' Capital
For the Year Ended December 31, 2019

	A	*B*	*Total*
Bal. at Jan. 1, 2019	$ 5,000	$ 5,000	$10,000
Contributions	5,000	5,000	10,000
Net income	8,560	6,440	15,000
Withdrawals	(10,000)	(15,000)	(25,000)
Bal. at Dec. 31, 2019	$ 8,560	$ 1,440	$10,000

The balance sheet of a partnership can show the equity of each partner if there are only a few. For instance, the partners' capital section of A and B Partnership could appear as follows on the balance sheet:

Partners' Capital	
A, capital	$ 8,560
B, capital	1,440
Total partners' capital	$10,000

If there are many partners, only a total capital amount could be shown ($10,000 in this case), with details of each partner's capital account disclosed in the statement of partners' capital.

D. Admission and Withdrawal of Partners

LO5 – Account for the admission or withdrawal of partners from a partnership.

The admission of a new partner results in the creation of a new partnership. Although the business of the former partnership can continue, the former partnership ceases to exist. Since the liability, agency, and profit sharing arrangements may be altered, a new partnership agreement is required.

Assume the following balance sheet information.

A and B Partnership
Balance Sheet
At December 31, 2019

Assets		*Liabilities*		
Cash	$ 5,000	Accounts payable		$ 7,000
Other assets	22,000			
		Partners' Capital		
		A, capital	$10,000	
		B, capital	10,000	20,000
	$27,000			$27,000

New partner C wants to enter the A and B partnership. C can be admitted either by purchasing an existing partner's interest or by contributing assets to the partnership.

Purchase of an Existing Partner's Interest

Assume C is going to purchase B's interest in A and B Partnership, and B will leave. The purchase of an existing partner's interest in a partnership is a private transaction between the new partner and the applicable existing partner. The new partner C makes a payment to the existing partner B, who in turn transfers the partnership interest. This type of purchase does not affect the assets of the partnership. Only an entry recording the change in ownership is made in the partnership books. The following entry illustrates the recording of C's purchase of B's interest.

B, Capital	10,000	
C, Capital		10,000
To record transfer of B's partnership interest to C.		

The balance sheet of the partnership would show the following:

A and C Partnership
Balance Sheet
At December 31, 2019

Assets		*Liabilities*		
Cash	$ 5,000	Accounts payable		$ 7,000
Other assets	22,000			
		Partners' capital		
		A, capital	$10,000	
		C, capital	10,000	20,000
	$27,000			$27,000

The amount paid by C to B is not reflected in the partnership records. Assume now that C purchased only ½ of B's interest. In this case, only half of B's interest would be transferred to C by the following entry:

B, Capital	5,000	
C, Capital		5,000
To record transfer of half B's partnership interest to C.		

The balance sheet of the partnership would show the following:

Assets		*Liabilities*		
Cash	$ 5,000	Accounts payable		$ 7,000
Other assets	22,000			
		Partners' Capital		
		A, capital	$10,000	
		B, capital	5,000	
		C, capital	5,000	20,000
	$27,000			$27,000

Investment in the Partnership

Rather than purchase an existing partner's interest, the new partner could contribute cash or other assets in return for a partnership interest. This method differs from the purchase of an existing partner's interest; in this case, both the assets and equity of the partnership are increased. Assume that C contributes assets at their fair value of $10,000 (referred to as *other assets* for illustrative purposes) to the partnership for a one-third interest in the partnership capital after his contribution.

This investment is recorded as follows:

Other Assets	10,000	
C, Capital		10,000
To record C's investment in the partnership.		

Following the investment, the balance sheet would appear as follows:

Assets		*Liabilities*		
Cash	$ 5,000	Accounts payable		$ 7,000
Other assets ($22,000 + 10,000)	32,000			
		Partners' Capital		
		A, capital	$10,000	
		B, capital	10,000	
		C, capital	10,000	30,000
	$37,000			$37,000

In some cases, C may receive more or less than a $10,000 capital balance because a **bonus** may be given either to the new partner or to the existing partners.

The partnership may want to add a new partner who can bring certain technical skills, management abilities, or some other desirable business strengths. To entice a desirable individual, a bonus may be offered in excess of the amount invested by the new partner. In this case, the existing partners allocate a portion of their capital to C.

Bonus to the New Partner

Assume instead that C invests assets at their fair value of $4,000 into the partnership for a one-third ownership interest. The new total capital amounts to $24,000 ($10,000 + 10,000 + 4,000); of this amount, $8,000 ($24,000 x 1/3) belongs to C. In this case, an equal amount of capital must be contributed by A and B to C to make up the difference between what C contributes and C's capital balance. A bonus is used to accomplish this. Assuming that A and B share profits equally, the new partner's entry is recorded as follows:

Other Assets	4,000	
A, Capital	2,000	
B, Capital	2,000	
C, Capital		8,000
To record payment of bonus to partner C on admission.		

The partnership balance sheet following the recording of C's investment would appear as follows:

Assets		*Liabilities*		
Cash	$ 5,000	Accounts payable		$ 7,000
Other assets				
($22,000 + 4,000)	26,000			
		Partners' Capital		
		A, capital	$8,000	
		B, capital	8,000	
		C, capital	8,000	24,000
	$31,000			$31,000

Bonus to Existing Partners

If the partnership business is particularly successful and profitable, the existing partners may require the new partner to pay them a bonus as an admission requirement. Assume that C invests assets at their fair value of $13,000 in the partnership for a one-third ownership interest. The new total capital amounts to $33,000 ($10,000 + 10,000 + 13,000); of this amount, $11,000 ($33,000 x 1/3) belongs to C.

The bonus to existing partners is recorded as follows:

Other Assets	13,000	
A, Capital		1,000
B, Capital		1,000
C, Capital		11,000

To record admission of partner C and payment of bonus to existing partners.

The $13,000 invested by C results in only an $11,000 capital balance for C. A and B receive a $1,000 increase in each of their capital balances as a result of C's $13,000 investment in the partnership.

The partnership balance sheet, following the recording of C's investment, would appear as follows:

Assets		*Liabilities*		
Cash	$ 5,000	Accounts payable		$ 7,000
Other assets				
($22,000 + 13,000)	35,000			
		Partners' Capital		
		A, capital	$11,000	
		B, capital	11,000	
		C, capital	11,000	33,000
	$40,000			$40,000

Withdrawal of an Existing Partner

It is common for an existing partner to withdraw from a partnership. Settlement of the exiting partner's ownership interest is made in accordance with provisions of the partnership agreement.

The withdrawal of a partner can be accounted for as a sale to a new partner, as a sale to one or more of the existing partners, or through a payment of partnership assets to the withdrawing partner. The following balance sheet of A, B, and C Partnership will be used to illustrate the concepts in this section:

A, B, and C Partnership
Balance Sheet
At December 31, 2019

Assets		*Liabilities*		
Cash	$ 5,000	Accounts payable		$ 7,000
Other assets	32,000			
		Partners' Capital		
		A, capital	$10,000	
		B, capital	10,000	
		C, capital	10,000	30,000
	$37,000			$37,000

Sale to a New Partner

This method is similar to the purchase of an existing partner's interest. Assume C sells a partnership interest to D. Payment for the ownership interest is a private transaction, though the existing partners must approve the new arrangement. There is no change in either the assets or the capital of the partnership as a result of this transaction. However, the following journal entry would be made:

C, Capital	10,000	
D, Capital		10,000
To record transfer of C's partnership interest to D.		

The balance sheet would show the following:

A, B, and D Partnership
Balance Sheet
At December 31, 2019

Assets		*Liabilities*		
Cash	$ 5,000	Accounts payable		$ 7,000
Other assets	32,000			
		Partners' Capital		
		A, capital	$10,000	
		B, capital	10,000	
		D, capital	10,000	30,000
	$37,000			$37,000

Sale to the Remaining Partners

An alternate method is for the withdrawing partner to the ownership interest to the remaining partner(s). This transaction is also private. The assets and the total equity of the partnership are not altered. An entry is made to record the change in the partnership books. If C wants to withdraw, and A and B both purchase C's interest, the following entry would be recorded:

C, Capital	10,000	
A, Capital		5,000
B, Capital		5,000
To record transfer of C's partnership interest to A and B.		

Although more or less than $10,000 may have been paid personally by A and B to C, the entry to transfer C's ownership is based on the capital balance of the partnership.

The balance sheet would show the following:

Assets		*Liabilities*		
Cash	$ 5,000	Accounts payable		$ 7,000
Other assets	32,000			
		Partners' Capital		
		A, capital	$15,000	
		B, capital	15,000	30,000
	$37,000			$37,000

Payment from Partnership Assets

A third method involves a payment to the withdrawing partner for the amount of her capital balance. Assuming the payment is made in cash, the following entry would be prepared:

C, Capital	10,000	
Cash		10,000
To record C's withdrawal from the partnership.		

The balance sheet would now show:

Assets		*Liabilities*		
Other assets	$ 32,000	Bank overdraft	$5,000	
		Accounts payable	7,000	$ 12,000
		Partners' Capital		
		A, capital	$10,000	
		B, capital	10,000	20,000
	$32,000			$32,000

Note that this transaction results in a $5,000 bank overdraft. The remaining partners will have to contribute more cash, or the partnership will have to sell of its assets for cash, or obtain a bank loan to cover the cash deficiency.

Often, the withdrawing partner may receive either more or less than the recorded capital balance. The difference can result from undervalued or overvalued partnership assets, anticipated future profitable operations in excess of normal returns to which the exiting partner is entitled, or to settle inter–personal conflicts among partners. As a result, the partners calculate an agreed amount that is due to C; the difference is treated as a bonus to either the withdrawing partner or the remaining partners. For instance, if C is paid $12,000, or $2,000 more than her capital balance, the capital balances of both A and B would each be reduced by $1,000.

C, Capital	10,000	
A, Capital	1,000	
B, Capital	1,000	
Cash		12,000
To record C's withdrawal from the partnership.		

In this case, the two remaining partners are assumed to share the difference equally. C, therefore, receives a total of $12,000, represented by the $10,000 capital balance and a bonus of $2,000, which is paid equally by A and B.

If C is paid $3,000 less than his capital balance, the capital balances of both A and B would be increased by $1,500.

C, Capital	10,000	
A, Capital		1,500
B, Capital		1,500
Cash		7,000
To record C's withdrawal from the partnership.		

C receives $7,000 in cash; the $3,000 difference, shared equally by A and B, increases their capital balances.

E. Liquidation of a Partnership

LO6 – Account for the liquidation of a partnership.

The **liquidation** of a partnership results in a termination of the partnership business. Its assets are sold, debts are paid, and any remaining cash or unsold assets are distributed to the partners in settlement of their capital balances. The amount of cash available to partners depends on the amount of proceeds from the sale of partnership assets after liabilities have been paid. The following partnership post–closing balance sheet at December 31, 2019 will be used to illustrate the accounting for the liquidation of A, B, and C Partnership.

A, B, and C Partnership
Balance Sheet
At December 31, 2019

Assets		*Liabilities*		
Cash	$ 5,000	Accounts payable		$ 7,000
Other assets	32,000			
		Partners' Capital		
		A, capital	$10,000	
		B, capital	10,000	
		C, capital	10,000	30,000
	$37,000			$37,000

For purposes of this section, profits and losses are assumed to be shared in a ratio of 5:3:2 (A: 50%; B: 30%; C: 20%). All the following transactions take place on January 1, 2020.

Gain on Sale of Assets

Each partner's share of gains realized on the sale of assets is recorded as an increase in his/her capital account. If the other assets are sold for $42,000, the following entry is prepared to record the gain.

Cash	42,000	
Gain on Sale of Assets		10,000
Other Assets		32,000
To record the gain on sale of other assets.		

The $10,000 gain is then divided among the partners in their 5:3:2 profit and loss sharing ratio:

Gain on Sale of Assets	10,000	
A, Capital		5,000
B, Capital		3,000
C, Capital		2,000
To record the division of the gain from sale of other assets.		

The liabilities are then paid; the journal entry to record the payment follows.

Accounts Payable	7,000	
Cash		7,000
To record payment of liabilities.		

At this point, the balance sheet would show:

Assets		*Partners' Capital*	
Cash	$40,000	A, capital	$15,000
		B, capital	13,000
		C, capital	12,000
	$40,000		$40,000

The following entry is prepared to record payment of the three capital account balances and complete the liquidation of the partnership:

A, Capital	15,000	
B, Capital	13,000	
C, Capital	12,000	
Cash		40,000
To record payment of capital accounts.		

Note that all capital account balances are zero following the distribution of cash.

Loss on Sale of Assets

In the case of a loss on sale of assets, losses resulting from the conversion of assets to cash are also allocated to partners in their profit and loss sharing ratio. The discussion that follows assumes the partners' capital balances are sufficient to absorb the applicable share of the loss.

Adequate Amount of Capital Balances

Assume that the sale of the $32,000 of other assets in the example given earlier realizes only $22,000. The following entry records the sale:

Cash	22,000	
Loss on Sale of Assets	10,000	
Other Assets		32,000
To record loss on sale of assets.		

The $10,000 loss is then allocated to each partner in accordance with the 5:3:2 profit and loss sharing ratio.

A, Capital	5,000	
B, Capital	3,000	
C, Capital	2,000	
Loss on Sale of Assets		10,000
To record the division of loss from sale of assets.		

The payment of liabilities is then recorded.

Accounts Payable	7,000	
Cash		7,000
To record payment of accounts payable.		

The partnership balance sheet would show:

Assets		*Partners' Capital*	
Cash	$20,000	A, capital	$ 5,000
		B, capital	7,000
		C, capital	8,000
	$20,000		$20,000

The following entry records the final distribution of cash to the partners:

A, Capital	5,000	
B, Capital	7,000	
C, Capital	8,000	
Cash		20,000
To record payment of capital accounts.		

Note that the balance in each capital account is again zero following the distribution of cash, and the liquidation is complete.

Inadequate Amount of Capital Balances

The sale of partnership assets may result in a debit balance in one partner's capital account following allocation of the loss. Assume that sale of the previous $32,000–worth of other assets realizes only $8,000.

The following entry records the sale:

Cash	8,000	
Loss on Sale of Assets	24,000	
Other Assets		32,000
To record loss on sale of assets.		

This $24,000 loss is next allocated to each partner in accordance with the 5:3:2 profit and loss sharing ratio.

A, Capital	12,000	
B, Capital	7,200	
C, Capital	4,800	
Loss on Sale of Assets		24,000
To record the division of loss from sale of assets.		

The payment of liabilities is then recorded.

Accounts Payable	7,000	
Cash		7 000
To record payment of accounts payable.		

The partnership balance sheet now appears as follows:

Assets		*Partners' Capital (Deficiency)*	
Cash	$ 6,000	A, deficiency	$(2,000)
		B, capital	2,800
		C, capital	5,200
	$ 6,000		$ 6,000

Partner A has a deficiency (debit balance) in his capital account. A would be expected to contribute $2,000 cash to the partnership to make up this debit balance. If A does not contribute this amount, then this $2,000 debit balance is allocated to the remaining partners in their agreed profit and loss sharing ratio, in this case 3:2. The following entry illustrates the allocation of A's debit balance to B and C.

B, Capital	1,200	
C, Capital	800	
A, Capital		2,000
To record allocation of A's debit balance.		

At this point, the partnership balance sheet shows:

Assets		*Partners' Capital*	
Cash	$ 6,000	B, capital	$ 1,600
		C, capital	4,400
	$ 6,000		$ 6,000

The distribution of cash to B and C would be recorded by the following entry, and the liquidation would be complete:

B, Capital	1,600	
C, Capital	4,400	
Cash		6,000
To record payment of capital accounts.		

Statement of Partnership Liquidation

A **statement of partnership liquidation** can be prepared to show the progress of the liquidation over a period of time. The prior information involving the sale of $32,000 of other assets for $8,000, allocation of loss to the partners, payment of liabilities, allocation of A's debit balance to B and C, and final distribution of cash, are summarized in the following statement.

A, B, and C
Statement of Partnership Liquidation
For the Day Ending January 1, 2020

	Cash	*Other assets*	*Accounts payable*	*Partners' capital* *A*	*B*	*C*
Opening balance	$5,000	$32,000	$7,000	$10,000	$10,000	$10,000
Sale of other assets	8,000	(32,000)				
Allocation of loss ($24,000)				(12,000)	(7,200)	(4,800)
Balances	13,000	$ –0–	7,000	(2,000)	2,800	5,200
Payment of liabilities	(7,000)		(7,000)			
Balances	6,000		$ –0–			
Allocation of A's debit balance				2,000		
B: 3/5 x $2,000					(1,200)	
C: 2/5 x $2,000						(800)
Balances				$ –0–	1,600	4,400
Distribution of cash	(6,000)				(1,600)	(4,400)
Balances	$ –0–				$ –0–	$ –0–

Summary of Chapter 12 Learning Objectives

LO1 – Describe the characteristics of a proprietorship.

A proprietorship is a business owned by one person. It is not a separate legal entity, which means that the business and the owner are considered to be the same. The profits of a proprietorship are reported on the owner's personal income tax return. A proprietorship has unlimited liability. If the business cannot pay its debts, the owner would be responsible even if the business's debts were greater than the owner's personal resources. A proprietorship has limited life. It ceases to exist upon the proprietor's death, for instance.

LO2 – Describe how the financial statements of a proprietorship are different from those of a corporation.

A proprietorship's income statement does not show items like salaries paid to the proprietor or income taxes expense, since the business and owner are the same legal entity. A proprietorship's statement of equity and balance sheet do not distinguish between capital stock and retained earnings. All contributions, withdrawals, and net income or losses are recorded in the Proprietor's Capital account.

LO3 – Describe the characteristics of a partnership.

A partnership is a business owned by more than one person. Like a proprietorship, a partnership is not a separate legal entity. It also has unlimited liability and a limited life. The partnership ceases when a partner joins or leaves the firm, or upon the death of a partner. Unlike a proprietorship, partners are subject to mutual agency. Each partner is an authorized agent of the partnership. A partner can commit the partnership to a contract. The closing entries for a partnership are the same as those for a proprietorship except there is more than one capital account and more than one withdrawals account. The closing of the income summary to each partner's capital account is based on the allocation of net income, which should be detailed in the partnership agreement.

LO4 – Account for a partnership's profits and losses and prepare a statement of partner's capital.

Profits and losses are allocated according to a formula. This is usually specified in the partnership agreement. The formula may consider three factors: a return to each partner for the amount of capital invested in the partnership, a payment to each partner for services rendered, and a further division of any remaining profit (or loss) according to a specified profit and loss sharing ratio. Individual revenue and expense accounts are closed to the Income Summary general ledger account at the end of each fiscal year. The Income Summary is then closed directly to each partner's capital account in the general ledger at the fiscal year-end.

LO5 – Account for the admission or withdrawal or partners from a partnership.

The admission of a new partner results in the creation of a new partnership. New partners can be admitted either by purchasing an existing partner's interest or by contributing assets to the partnership. A bonus may be paid to the new partner, or by the new partner to existing partners. The withdrawal of a partner can be accounted for as a sale to a new partner, as a sale to one or more of the existing partners, or through a payment of partnership assets to the withdrawing partner.

LO6 – Account for the liquidation of a partnership.

The liquidation of a partnership results in a termination of the partnership business. Its assets are sold, debts are paid, and any remaining cash or unsold assets are distributed to the partners in settlement of their capital balances.

ASSIGNMENT MATERIALS

Concept Self-Check

1. What are some of the characteristics of a proprietorship that are different from those of a corporation?
2. What is the journal entry to record the investment of cash by the owner into a proprietorship?
3. How are the closing entries for a proprietorship different than those recorded for a corporation?
4. Why is there only one equity account on a sole proprietorship's balance sheet and multiple accounts in the equity section of a corporate balance sheet?
5. Define a partnership and briefly explain five characteristics.
6. What are the advantages and disadvantages of partnerships?
7. How does accounting for a partnership differ from that for a corporation?
8. How can partnership profits and losses be divided among partners?
9. Why are salary and interest bases used as a means to allocate profits and losses in a partnership?
10. How are partners' capital balances disclosed in the balance sheet?
11. What is a partnership bonus? How is it calculated when a new partner is admitted?
12. Distinguish between the sale of a withdrawing partner's interest to a new partner and sale of an interest to his/her existing partner(s).
13. Explain how a deficiency (debit balance) in one partner's capital account is handled if that partner is unable to contribute additional assets to cover it.

Comprehension Problems

CP 12–1

You are given the following data for the proprietorship of R. Black.

R. Black Proprietorship
Trial Balance
December 31, 2019

	Debit	*Credit*
Cash	$ 10,000	
Accounts receivable	20,000	
Merchandise inventory	30,000	
Accounts payable		$ 25.000
R. Black, capital		5,000
R. Black, withdrawals	7,000	
Sales		166,000
Cost of goods sold	100,000	
Rent expense	24,000	
Income taxes expense	5,000	
Totals	$196,000	$196,000

Black contributed $5,000 capital during the year.

Required:

1. Prepare an income statement for the year.
2. Prepare a statement of proprietor's capital for the year in the following format:

R. Black Proprietorship
Statement of Proprietor's Capital
For the Year Ended December 31, 2019

Balance at Jan. 1, 2019	$
Contributions	
Net income	
Withdrawals	
Balance at Dec. 31, 2019	$

3. Prepare a balance sheet at December 31, 2019.
4. Prepare closing entries at year-end.

CP 12–2

Refer to CP 12–1. Assume that the proprietorship is instead a corporation named R. Black Ltd., with 1,000 shares of common stock issued on January 1, 2019 for a stated value of $5 per share. Assume there are no opening retained earnings and consider withdrawals to be dividends. Assume income taxes expense applies to corporate earnings.

Required:

1. Prepare an income statement for the year ended December 31, 2019.
2. Prepare a statement of changes in equity.
3. Prepare a balance sheet at December 31, 2019.
4. Prepare closing entries at year-end.

CP 12–3

Assume the following information just prior to the admission of new partner **I**:

Assets		*Liabilities*		
Cash	$ 5,000	Accounts payable		$ 8,000
Accounts receivable	43,000			
		Partners' Capital		
		G, Capital	$30,000	
		H, Capital	10,000	40,000
	$48,000			$48,000

Required: Prepare journal entries to record the following unrelated scenarios:

5. New partner I purchases partners G's partnership interest for $40,000.
6. New partner I receives a cash bonus of $2,000 and a one-tenth ownership share, allocated equally from the partnership interests of G and H.
7. New partner I contributes land with a fair value of $100,000. Relative ownership interests after this transaction are:

Partner	*Ownership interest*
G	20%
H	5%
I	75%
	100%

CP 12–4

Assume the following information just prior to the withdrawal of Partner X:

Assets		*Liabilities*		
Cash	$20,000	Accounts payable		$ 5,000
Inventory	50,000			
		Partners' Capital		
		X, Capital	$10,000	
		Y, Capital	20,000	
		Z, Capital	35,000	65,000
	$70,000			$70,000

Required: Prepare journal entries to record the following unrelated scenarios:

1. Partner X sells his interest to new partner T for $25,000.
2. Partner X sells his interest to partner Y for $30,000.
3. Partner X sells his interest and is paid a share of partnership net assets as follows

Cash	$ 5,000
Inventory	5,000
Accounts payable	(2,000)
	$ 8,000

Partner Y receives a 60% share of the partnership interest of X. Partner Z receives 40%.

CP 12–5

The following balance sheet is for the partnership of Able, Brown, and Crown at November 1, 2019.

Assets		*Liabilities*		
Cash	$ 20,000	Accounts payable		$ 50,000
Other assets	180,000			
		Partners' Capital		
		Able, capital	$37,000	
		Brown, capital	65,000	
		Crown , capital	48,000	150,000
	$200,000			$200,000

The profit and loss sharing ratio is Able 40%; Brown: 40%, and Crown: 20%. The partnership is dissolved and liquidated during November by selling the other assets for $100,000 and paying off the creditors.

Required:

1. Prepare a schedule of partnership liquidation for the month ending November 30, 2019. Assume any capital deficiency is absorbed by the other partners.
2. Prepare the journal entries to record the dissolution.

Problems

P 12–1

You are given the following data for the partnership of B. White and C. Green.

B. White and C. Green Partnership
Trial Balance
December 31, 2019

	Debit	*Credit*
Cash	$ 41,000	
Accounts receivable	68,400	
Merchandise inventory	27,000	
Accounts payable		$ 45,800
B. White, capital		30,000
B. White, withdrawals	7,000	
C. Green, capital		20,000
C. Green, withdrawals	5,000	
Sales		322,000
Cost of goods sold	160,500	
Rent expense	36,000	
Advertising expense	27,200	
Delivery expense	9,600	
Office expense	12,800	
Utilities expense	23,300	
Totals	$417,800	$417,800

Each partner contributed $10,000 capital during the year; the opening credit balance in each capital account was White $20,000 and Green $10,000. The partners share profits and losses equally.

Required:

1. Prepare an income statement for the year.
2. Prepare a statement of partners' capital for the year in the following format:

Statement of Partners' Capital
For the Year Ended December 31, 2019

	White	*Green*	*Total*
Balance at Jan. 1, 2019	$	$	$
Contributions			
Net income			
Withdrawals			
Balance at Dec. 31, 2019	$	$	$

3. Prepare a balance sheet at December 31, 2019.
4. Prepare closing entries at year-end.

P 12–2

Refer to P 12–1.

Required: Prepare the equivalent statement of partners' capital at December 31, 2019 assuming that the partnership is instead:

1. A proprietorship owned by B. White. (Combine C. Green balances and transactions with those of B. White.)
2. A corporation named BW and CG Ltd. with 100 shares of common stock issued to each of B. White and C. Green for a stated value of $1 per share. Assume opening retained earnings equal $29,800 and that 20,000 shares of common stock were issued during 2019 for a stated value of $1 per share.

P 12–3

Refer to P 12–1.

Required: Prepare the journal entry to allocate net income to each of the partners assuming the following unrelated scenarios:

1. Net income is allocated in a fixed ratio of 5:3 (White: Green).
2. Net income is allocated by first paying each partner 10% interest on opening capital balances, then allocating salaries of $30,000 for White and $10,000 for Green, then splitting the remaining unallocated net income in a fixed ratio of 3:2 (White:Green).

P 12–4

On January 1, 2019, Bog, Cog, and Fog had capital balances of $60,000, $100,000, and $20,000 respectively in their partnership. In 2019 the partnership reported net income of $40,000. None of the partners withdrew any assets in 2019. The partnership agreed to share profits and losses as follows:

a. A *monthly* salary allowance of $2,000, $2,500, and $4,000 to Bog, Cog and Fog respectively.
b. An annual interest allowance of 10 per cent to each partner based on her capital balance at the beginning of the year.
c. Any remaining balance to be shared in a 5:3:2 ratio (Bog:Cog:Fog).

Required:

1. Prepare a schedule to allocate the 2019 net income to partners.
2. Assume all the income statement accounts for 2019 have been closed to the income summary account. Prepare the entry to record the division of the 2019 net income.

P 12–5

Bo and Diddley have decided to establish a partnership. Bo contributes $50,000 in cash; Diddley contributes $100,000 cash. They are evaluating two plans for a profit and loss sharing agreement:

Plan A Bo to receive a salary of $15,000 per year, the balance to be divided between Bo and Diddley according to their opening capital balance ratios.

Plan B Bo to receive a salary of $12,000 per year; Bo and Diddley to receive 8 per cent interest per year each on their opening capital balances, and the balance of profit or loss to be split equally.

Required:

1. Calculate the division under each plan in the following schedule, assuming: (a) a profit of $60,000 per year, and (b) a loss of $30,000 per year.

Profit and loss sharing plan	*Division with profit of $60,000*		*Division with loss of $30,000*	
	Bo	Diddley	Bo	Diddley
Plan A:				
Salary				
Balance				
Total				
Plan B:				
Salary				
Interest				
Balance				
Total				

2. Comment on the advantages and disadvantages of each plan.

P 12–6

Good, Hood, and Food are partners, sharing profits equally. They decide to admit Mood for an equal partnership (25%). The balances of the partners' capital accounts are:

Good, capital	$30,000
Hood, capital	26,000
Food, capital	19,000
	$75,000

Required: Prepare journal entries to record admission of Mood, using the bonus method:

1. assuming the bonus is paid to the new partner; Mood invests $15,000 cash;
2. assuming the bonus is paid to existing partners; Mood invests $45,000 cash; the remaining partners benefit equally from the bonus.

P 12–7

The balance sheet of A, B, and C Partnership is shown below. The partnership has decided to liquidate. The general ledger shows the following balances on March 1, 2019:

Cash	$ 10,000
Other assets	125,000
Accounts payable	10,000
A, capital	25,000
B, capital	37,500
C, capital	62,500

Proceeds from the sale of non-cash assets during March were $42,500.

Required:

1. Prepare a statement of partnership liquidation for the month ending March 31, 2019. Assume profits and losses are shared equally and that any capital deficiency is absorbed by the other partners.
2. Prepare the journal entries to record the dissolution. Dates are not required.

CHAPTER THIRTEEN
Financial Statement Analysis

Financial statements can be used by stockholders, creditors, and other interested parties to analyze a corporation's liquidity, profitability, and financial structure compared to prior years and other similar corporations. As part of this analysis, financial evaluation tools are used. Some of these tools are discussed in this chapter.

Chapter 13 Learning Objectives

LO1 – Describe ratio analysis, and explain how liquidity, profitability, leverage, and market ratios are used to analyze and compare financial statements.

LO2 – Describe horizontal and vertical trend analysis, and explain how they are used to analyze financial statements.

LO3 – (Appendix) Describe the Scott formula and explain how it is used to analyze financial statements.

A. Introduction to Ratio Analysis

LO1 - Describe ratio analysis, and explain how liquidity, profitability, leverage, and market ratios are used to analyze and compare financial statements.

A common way to evaluate financial statements is through **ratio analysis***.* As noted in a previous chapter, a *ratio* is a relationship between two numbers of the same kind. For example, if there are two apples and three oranges, the ratio of the number of apples to the number of oranges is 2:3 (read as "two to three"). A **financial ratio** is a measure of the relative magnitude of two selected numerical values taken from a corporation's financial statements. For instance, the gross profit ratio expresses the numerical relationship between gross profit and sales. If a corporation has a gross profit ratio of 0.25:1, this means that for every $1 of sales, the corporation earns $0.25 on average to cover expenses other than cost of goods sold. Another way of stating this is to say that the gross profit ratio is 25%.[1]

Financial ratios are effective tools for measuring the financial performance of a corporation because they provide a common basis for evaluation—for instance, the amount of gross profit generated by each dollar of sales for different corporations. Numbers that appear on financial statements need to be evaluated in context. It is their relationship to other numbers and the relative changes of these numbers that provide some insight into the financial health of a business.

One of the main purposes of ratio analysis is to highlight areas that require further analysis and investigation. Ratio analysis alone will not provide a definitive financial evaluation. It is used as one analytic tool, which, when combined with informed judgment, offers insight into the financial performance of a business.

For example, one business may have a completely different product mix than another corporation even though both operate in the same broad industry. To determine how well one corporation is doing relative to others, or to identify whether key indicators are changing, ratios are often compared to **industry averages**. To determine trends in one corporation's performance, ratios are often compared to past years' ratios of the same corporation.

To perform a comprehensive analysis, qualitative information about the corporation as well as ratios should be considered. For example,

[1] Any ratio in the form X:1 can be expressed as a percentage by multiplying both the numerator and denominator by 100. For example, a 0.25:1 ratio would equal 25% [(0.25 x 100)/(1 x 100) = 25/100 = 25%]

although a business may have sold hundreds of refrigerators last year and all of the key financial indicators suggest growth, qualitative information from trade publications and consumer reports may indicate that the trend will be towards the use of significantly different technologies in refrigerators in the next few years. If the corporation does not have the capacity or necessary equipment to produce these new appliances, the present positive financial indicators may not accurately reflect the likely future financial performance of the corporation.

An examination of qualitative factors provides valuable insights and contributes to the comprehensive analysis of a corporation. An important source of qualitative information is also found in the notes to the financial statements, which are an integral part of the corporation’s financial statements, and in other information like trade publications, industry statistics, and other information that may be filed with regulatory authorities.

In this chapter, financial ratios will be used to provide insights into the financial performance of Big Dog Carworks Corp. (BDCC). The ratios will focus on financial information contained within the income statement, statement of changes in equity, and balance sheet of BDCC for the three years 2021, 2022, and 2023. This information is shown on the following pages. Note that figures in these statements are reported in thousands of dollars (000s).

Big Dog Carworks Corp.
Balance Sheet
At December 31
(In thousands of dollars)

Assets			
	2023	*2022*	*2021*
Current			
Cash	$ 20	$ 30	$ 50
Marketable investments	36	31	37
Accounts receivable	544	420	257
Inventories	833	503	361
	1,433	984	705
Non-current			
Plant assets, net	1,053	1,128	712
Total assets	$2,486	$2,112	$1,417
Liabilities			
Current			
Borrowings	$ 825	$ 570	$ 100
Accounts payable	382	295	219
Income taxes payable	48	52	50
	1,255	917	369
Stockholders' Equity			
Common stock	1,063	1,063	963
Retained earnings	168	132	85
	1,231	1,195	1,048
Total liabilities and stockholders' equity	$2,486	$2,112	$1,417

Figure 13–1 BDCC Financial Statements

Big Dog Carworks Corp.
Income Statement
For the Year Ended December 31
(In thousands of dollars)

	2023	*2022*	*2021*
Sales (net)	$3,200	$2,800	$2,340
Cost of goods sold	2,500	2,150	1,800
Gross profit	700	650	540
Operating expenses			
Selling and marketing	212	183	154
Administration	188	193	182
	400	376	336
Income from operations	300	274	204
Finance costs			
Interest	89	61	-0-
Income before income taxes	211	213	204
Income taxes	95	96	92
Net income	$ 116	$ 117	$ 112

Big Dog Carworks Corp.
Statement of Changes in Equity
For the Year Ended December 31
($000s)

	2023			*2022*	*2021*
	Common stock	*Retained earnings*	*Total equity*	*Total equity*	*Total equity*
Balance, Jan. 1	$1,063	$132	$1,195	$1,148	$ 143
Stock issued					953
Net income		116	116	117	112
Dividends declared		(80)	(80)	(70)	(60)
Balance, Dec. 31	$1,063	$168	$1,231	$1,195	$1,148

Figure 13–1 BDCC Financial Statements (continued)

Assume that 100,000 shares of common stock are outstanding at the end of 2021, 2022, and 2023.

There are four major types of financial ratios: a) *liquidity ratios* that measure the ability of a corporation to satisfy demands for cash as they arise in the near-term (such as payment of current liabilities); b) *profitability ratios* that measure various levels of return on sales, total assets employed, and stockholder investment; c) *leverage ratios* that measure the financial structure of a corporation, its amount of relative debt, and its ability to cover interest expense; and d) *market ratios* that measure financial returns to stockholders, and perceptions of the stock market about the corporation's value.

B. Liquidity Ratios: Analyzing Short-term Cash Needs

Liquidity is the ability of a corporation to satisfy demands for cash as they arise in the near-term (such as payment of current liabilities). Initial insights into the financial performance of BDCC can be derived from an analysis of relative amounts of current and non-current borrowings. This analysis is addressed in this section.

Current (Short-term) versus Non-current (Long-term) Debt

Short-term and long-term financing strategies both have their advantages. The advantage of some current debt (repayable within one year of the balance sheet date) is that it often does not require interest payments to creditors. For example, accounts payable may not require payment of interest if they are satisfied within the first 30 days they are outstanding. As well, certain debt like trade accounts payable may be unsecured. Current debt also has its disadvantages; payment is required within at least one year, and often sooner. Interest rates on current debt are often higher than on non-current debt. An increase in the proportion of current debt is more risky because it must be renewed and therefore renegotiated more frequently.

The advantages of non-current debt are that payment may be made over an extended period of time. Risk may be somewhat reduced through the use of a formal contractual agreement that is often lacking with current debt. The disadvantages of non-current debt are that interest payments must be made at specified times and the amounts owing may be secured by assets of the corporation.

Analyzing Financial Structure

As a general rule, non-current financing should be used to finance non-current assets.

Note that in BDCC's case, plant assets amount to $1,053,000 at December 31, 2023 yet the firm has no non-current liabilities. This is unusual.

An analysis of the corporation's balance sheet reveals the following:

In thousands of dollars	*2023*	*2022*	*2021*
Current liabilities	$1,255	$917	$369
Non-current liabilities	-0-	-0-	-0-

2023 information indicates that BDCC's management relies solely on short-term creditor financing, part of which is $382,000 of accounts payable that may bear no interest and $825,000 of borrowings that also need to be repaid within one year. The risk is that management will likely need to replace current liabilities with new liabilities. If creditors become unwilling to do this, the ability of BDCC to pay its short-term creditors may be compromised. As a result, the corporation may experience a **liquidity crisis** —the inability to pay its current liabilities as they come due.

Even though a corporation may be earning net income each year (as in BDCC's case), it may still be unable to pay its current liabilities as needed because of a shortage of cash. There can be many negative consequences:

Current liabilities

- Creditors can refuse to provide any further goods or services on account.
- Creditors can sue for payment.
- Creditors can put the corporation into receivership or bankruptcy.

Non-current liabilities

- Non-current creditors can refuse to lend additional cash.
- Creditors can demand repayment of their non-current debts, under some circumstances.

Stockholders' equity

- Stockholders may be unwilling to invest in additional capital stock of the corporation.
- Stockholders risk the loss of their investments if the corporation declares bankruptcy.

There are several ratios that can be used to analyze the liquidity of a corporation.

Working Capital

Working capital is the difference between a corporation's current assets and current liabilities at a point in time. BDCC's working capital calculation is as follows:

In thousands of dollars	*2023*	*2022*	*2021*
Current assets			
Cash	$ 20	$ 30	$ 50
Marketable investments	36	31	37
Accounts receivable	544	420	257
Inventories	833	503	361
Total current assets (a)	1,433	984	705
Current liabilities			
Borrowings	825	570	100
Accounts payable	382	295	219
Income taxes payable	48	52	50
Total current liabilities (b)	1,255	917	369
Working capital (a-b)	$ 178	$ 67	$336

In the schedule above, working capital amounts to $178,000 at December 31, 2023. Between 2021 and 2023, working capital decreased by $158,000 ($336,000 – 178,000). BDCC is less liquid in 2023 than in 2021, though its liquidity position has improved since 2022 when it was only $67,000.

In addition to calculating an absolute amount of working capital, ratio analysis can also be used. The advantage of a ratio is that it is usually easier to interpret.

Current Ratio

Is BDCC able to repay short-term creditors? The **current ratio** can help answer this question. It expresses working capital as a proportion of current assets to current liabilities and is calculated as:

$$\frac{\text{Current assets}}{\text{Current liabilities}}$$

The relevant BDCC financial data required to calculate this ratio is taken from the balance sheet, as follows:

In thousands of dollars		*2023*	*2022*	*2021*
Current assets	(a)	$1,433	$ 984	$ 705
Current liabilities	(b)	1,255	917	369
Current ratio	(a/b)	1.14:1	1.07:1	1.91:1

This ratio indicates how many current asset dollars are available to pay current liabilities at a point in time. The expression "1.14:1" is read, "1.14 to 1." In this case it means that at December 31, 2023, $1.14 of current assets exist to pay each $1 of current liabilities. This ratio is difficult to interpret in isolation. There are two types of additional information that could help. First, what is the trend within BDCC over the last three years? The ratio declined between 2021 and 2022 (from 1.91 to 1.07), then recovered slightly between the end of 2022 and 2023 (from 1.07 to 1.14). The overall decline may be a cause for concern, as it indicates that in 2023 BDCC had fewer current assets to satisfy current liabilities as they became due.

A second interpretation aid would be to compare BDCC's current ratio to a similar corporation or that of BDCC's industry as a whole. Information is available from various trade publications and business analysts' websites that assemble financial ratio information for a wide range of industries.

Some analysts consider that a corporation should maintain a 2:1 current ratio, depending on the industry in which the firm operates. The reasoning is that, if there were $2 of current assets to pay each $1 of current liabilities, the corporation should still be able to pay its current liabilities as they become due, even in the event of a business downturn. However, no one current ratio is applicable to all entities; other factors—such as the composition of current assets—must also be considered to arrive at an acceptable ratio. This is illustrated below.

Composition of Specific Items in Current Assets

In the following example, both Corporation A and Corporation B have a 2:1 current ratio. Are the corporations equally able to repay their short-term creditors?

		Corp. A	*Corp. B*
Current assets			
Cash		$ 1,000	$10,000
Accounts receivable		2,000	20,000
Inventories		37,000	10,000
Total current assets	(a)	$40,000	$40,000
Current liabilities	(b)	$20,000	$20,000
Current ratio	(a/b)	2:1	2:1

The corporations have the same dollar amounts of current assets and current liabilities. However, they have different current debt-paying abilities because Corporation B has more liquid current assets than does Corporation A. Corporation B has less inventory ($10,000 vs. $37,000) and more in cash and accounts receivable. If Corporation A needed more cash to pay short-term creditors quickly, it would have to sell inventory, likely at a lower-than-normal gross profit. So, Corporation B is in a better position to repay short-term creditors.

Since the current ratio doesn't consider the components of current assets, it is only a rough indicator of a corporation's ability to pay its debts as they become due. This weakness of the current ratio is partly remedied by the ratio discussed below.

Acid-Test Ratio

A more rigid test of liquidity is provided by the **acid-test ratio**; also called the **quick ratio**. To calculate this ratio, current assets are separated into *quick* current assets and *non-quick* current assets.

Quick Current Assets

Cash Marketable investments Accounts receivable	These current assets are considered to be readily convertible into cash.

Non-quick current assets

Inventories Prepaid expenses	Cash cannot be obtained either at all or easily from these current assets.

Inventory and prepaid expenses cannot be converted into cash in a short period of time, if at all. Therefore, they are excluded in the calculation of this ratio. The acid-test ratio is calculated as:

$$\frac{\text{Quick current assets}}{\text{Current liabilities}}$$

The BDCC information required to calculate this ratio is:

In thousands of dollars		*2023*	*2022*	*2021*
Cash		$ 20	$ 30	$ 50
Marketable investments		36	31	37
Accounts receivable		544	420	257
Quick current assets	(a)	$ 600	$481	$344
Current liabilities	(b)	$1,255	$917	$369
Acid-test ratio	(a/b)	0.48:1	0.52:1	0.93:1

This ratio indicates how many quick asset dollars exist to pay each dollar of current liabilities. What is an adequate acid-test ratio? It is generally considered that a 1:1 acid test ratio is adequate to ensure that a firm will be able to pay its current obligations. However, this is a fairly arbitrary guideline and is not appropriate in all situations. A ratio lower than 1:1 can often be found in successful corporations.

In BDCC's case, the 2021 ratio of $0.93 is less than 1:1 but may be reasonable. In 2022, the acid-test ratio of $0.52 seems low. There was only $0.48 of quick assets available to pay each $1 of current liabilities in 2023. This amount also appears inadequate. Of particular concern to financial analysts would be BDCC's declining acid-test ratio trend over the three years.

Additional analysis can also be performed to determine the source of liquidity issues by comparing items on the balance sheet with those on the income statement. These are discussed next.

Accounts Receivable Collection Period

Liquidity is affected by management decisions related to trade accounts receivable. Slow collection of receivables can result in a shortage of cash to pay current obligations. The effectiveness of management decisions relating to receivables can be analyzed by calculating the **accounts receivable collection period**. This indicates **t**he average number of days needed to collect an amount due to the corporation. It indicates the efficiency of collection procedures when the collection period is compared with the firm's sales terms (in BDCC's case, assume the sales terms are *net 30* meaning that amounts are due within 30 days of the invoice date).

The accounts receivable collection period is calculated as:

$$\frac{\text{Average accounts receivable}^{2}}{\text{Net credit sales}} \times 365 \text{ days}$$

The BDCC financial information required to make the calculation is shown below (the 2021 calculation cannot be made because the 2020 accounts receivable amount is not available). Assume all of BDCC's sales are on credit.

In thousands of dollars		*2023*	*2022*
Net credit sales	(a)	$3,200	$2,800
Average accounts receivable [(Opening balance + closing balance)/2]	(b)	$ 482[1]	$ 338[2]
Average collection period [(b/a) x 365 days]		55 days	44 days[3]

[1] ($420 + 544)/2 = $482
[2] ($257 + 420)/2 = $338 (rounded)
[3] Note that the 2021 ratio is excluded. Average balances cannot be calculated since 2020 ending balances are not provided.

When BDCC's 30-day sales terms are compared to the 55-day collection period, it can be seen that an average 25 days of sales (55 days – 30 days) have gone uncollected beyond the regular credit period in 2023. The collection period in 2023 is increasing compared to 2022. Therefore, some over-extension of credit and possibly ineffective collection procedures are indicated by this ratio. Quicker collection would improve BDCC's cash position. It may indicate that older amounts are buried in the total amount of receivables, and should be investigated.

Whether the increase in collection period is good or bad depends on several factors. For instance, more liberal credit terms may generate more sales (and therefore profits) if bad debt expense does not increase proportionately. The root causes of the change in the ratio need to be investigated.

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[2] Average balance sheet amounts are used when income statement amounts are compared to balance sheet amounts in a ratio. This is because the income statement item is assumed to be earned or expended equally over a fiscal year. On the other hand, balance sheet amounts are reported as at the end of each fiscal year. Averaging opening and ending amounts shown on the balance sheet is an attempt to approximate the amount at the midpoint in the fiscal year, to better match SPL amounts with SFP amounts.

In BDCC's case, however, the ratio seems to indicate that effectiveness of credit and collection procedures between 2022 and 2023 has declined. This may be problematic.

Number of Days of Sales in Inventory

The effectiveness of management decisions relating to inventory can be analyzed by calculating the **number of days of sales in inventory**. The ratio is calculated as follows:

$$\frac{\text{Average merchandise}}{\text{Cost of goods sold}} \times 365 \text{ days}$$

This measure indicates relative inventory levels compared to cost of goods sold. The BDCC financial data for 2022 and 2023 required to calculate this ratio are shown below.

In thousands of dollars		*2023*	*2022*
Cost of goods sold		$2,500	$2,150
Average inventory [(opening balance + closing balance)/2]	(a)	$ 668 [1]	$432[2]
Cost of goods sold	(b)	365	365
Number of days sales in inventory [(b/a) x 365 days]		98 days	73 days

[1] ($503 + 833)/2 = $668
[2] ($361 + 503)/2 = $432

The calculation indicates that BDCC is investing more in inventory in 2023 than in 2022. There are 98 days of sales in inventory in 2023 versus 73 days in 2022. The cause of this increase warrants further investigation.

A declining number of days of sales in inventory is usually a sign of good inventory management. It indicates that the average amount of assets tied up in inventory is declining. With lower inventory levels, inventory-related expenses such as rent and insurance are lower because less storage space is often required. However, lower inventory levels can have negative consequences since items that customers want to purchase may not be in inventory, resulting in lost sales.

Having said this, increasing days of sales in inventory is usually a sign of poor inventory management because an excessive investment in inventory ties up cash that could be used for other purposes. Increasing levels may indicate that inventory is becoming obsolete (consider an electronics company) or deteriorating (consider a corporation that sells perishable groceries). Obsolete or deteriorating inventories may be unsalable. However, the possible positive aspect of more days of sales in inventory is that there can be more sales generated if more items are in stock.

Whether BDCC's increasing days of sales in inventory is positive or negative depends on management's objectives. Is management increasing inventory to provide for increased sales in the next year, or is inventory being poorly managed? Remember that ratio analyzes identify areas that require investigation. This improves investors' overall knowledge of the corporation.

The Revenue Portion of the Operating Cycle

The sale of inventory and resulting collection of receivables are part of a business's operating cycle, as shown in Figure 13–2.

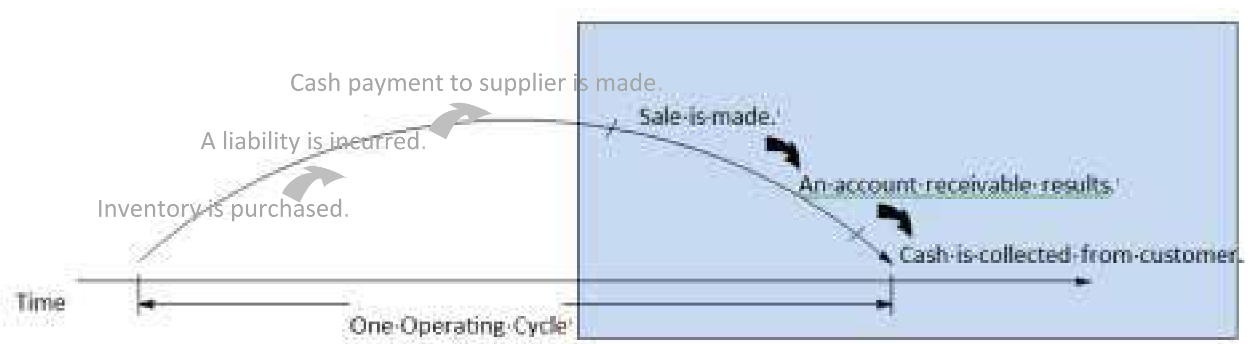

Figure 13–2 The Sales and Collection Portion of the Operating Cycle

A business's **revenue operating cycle** is a subset of the operating cycle and includes the purchase of inventory, the sale of inventory and creation of an account receivable, and the generation of cash when the receivable is collected. The length of time it takes BDCC to complete one revenue operating cycle is an important measure of liquidity and can be calculated by adding the number of days of sales in inventory plus the number of days it takes to collect receivables.

The BDCC financial data required for this calculation follows.

	2023	*2022*
Average number of days of sales in inventory	98 days	73 days
Average number of days to collect receivables	55 days	44 days
Number of days to complete the revenue cycle	153 days	117 days

In 2023, 153 days were required to complete the revenue cycle, compared to 117 days in 2022. So, if accounts payable terms require payment within 60 days, BDCC may find it more difficult to pay trade creditors, and the number of days to complete the revenue cycle for both 2022 (117 days) and 2023 (153 days) are significantly greater than 60 days.

Analysis of BDCC's Liquidity

Reflecting on the results of all the liquidity ratios, it appears that Big Dog Carworks Corp. is growing less liquid. Current assets, especially quick assets, are declining relative to current liabilities. The revenue operating cycle is increasing.

C. Profitability Ratios: Analyzing Operating Activities

Profitability ratios compare various expenses to revenues, and measure how well the assets of a corporation have been used to generate revenue.

Gross Profit Ratio

The **gross profit ratio** indicates the percentage of sales revenue that is left to pay operating expenses, interest on borrowings, and income taxes after deducting cost of goods sold. The ratio is calculated as:

$$\frac{\text{Gross profit}}{\text{Net sales}}$$

BDCC's gross profit ratios for the three years are:

In thousands of dollars		*2023*	*2022*	*2021*
Gross profit	(a)	$ 700	$ 650	$ 540
Net sales	(b)	$3,200	$2,800	$2,340
Gross profit ratio	(a/b)	0.22:1	0.23:1	0.23:1

In other words, for each dollar of sales BDCC has $0.22 of gross profit left to cover operating, interest, and income tax expenses compared to

$0.23 in each of 2022 and 2021. The ratio has not changed significantly from year to year. However, even a small decline in this percentage can affect net income significantly because the gross profit is such a large component of the income statement. Changes in the gross profit ratio should be investigated, as it may impact future financial performance.

Operating Profit Ratio

The **operating profit ratio** is a means to assess relative levels of operating expenses. This ratio indicates the percentage of sales revenue left after deducting cost of goods sold and operating expenses to cover interest and income taxes expenses. In other words, it is calculated as:

$$\frac{\text{Income from operations}}{\text{Net sales}}$$

BDCC's operating profit ratio for the 2021, 2022, and 2023 fiscal years is calculated as follows:

In thousands of dollars		*2023*	*2022*	*2021*
Income from operations	(a)	$ 300	$ 274	$ 204
Net sales	(b)	$3,200	$2,800	$2,340
Operating profit ratio	(a/b)	0.09:1	0.10:1	0.09:1

The results indicate that for each dollar of sales revenue in 2023, the corporation had $0.09 left to cover interest and income tax expenses after deducting cost of goods sold and operating expenses. A review of the corporation's operating expenses (selling, general, and administrative expenses; employee benefits, and depreciation) show that they have all increased. As a result, and despite increasing sales revenue and gross profit, operating income has remained relatively flat. Although it seems reasonable that an increase in operating expenses would follow an increase in sales, the reasons for the operating expense increases should be investigated. Analysis of trends by nature of expense (rather than by function of expense as in this case) could be performed based on additional information that should be disclosed in the notes to the financial statements.

Net Profit Ratio

The **net profit ratio** is the percentage of sales revenue retained by the corporation after payment of operating expenses, interest expenses, and income taxes. It is often used to compare the corporation to others in the same industry. This ratio is calculated by the following formula:

$$\frac{\text{Net income}}{\text{Net sales}}$$

BDCC's net profit ratios for the three years are calculated as follows:

In thousands of dollars		*2023*	*2022*	*2021*
Net income	(a)	$ 116	$ 117	$ 112
Net sales	(b)	$3,200	$2,800	$2,340
Net profit ratio	(a/b)	0.04:1	0.04:1	0.05:1

The results indicate that for each $1 of sales in 2023, BDCC earned $0.04 of net income. The net profit ratio has been relatively stable over the past three years, but needs to be compared with industry or competitors' averages for a better perspective.

Recall that revenues are generated from a business's assets. The financial strength and success of a corporation depends on the efficient use of these assets. Indicators of how effectively assets are used are discussed next.

Sales to Total Assets Ratio

Are BDCC's sales adequate in relation to its assets? The calculation of the **sales to total assets ratio** helps to answer this question by establishing the number of sales dollars earned for each dollar invested in assets. The ratio is calculated as:

$$\frac{\text{Net sales}}{\text{Average total assets}}$$

BDCC's ratios are calculated as follows:

In thousands of dollars		*2023*	*2022*
Net sales	(a)	$3,200	$ 2,800
Average total assets	(b)	$2,299[1]	$1,765.5[2]
Sales to total assets ratio	(a/b)	1.39:1	1.59:1

[1] ($2,112 + 2,486)/2 = $2,299
[2] ($1,417 + 2,112)/2 = $1,764.5

The ratio has decreased from 2022 to 2023. Each $1 of investment in assets in 2022 generated sales of $1.59 on average. In 2023, each $1 of investment in assets generated only $1.39 in sales. Over the same period, BDCC's investment in assets increased. The results indicate that the additional assets are not producing revenue as effectively as in the past. It may be too soon to tell whether the increase in assets in 2022 will eventually create greater sales, but more investigation should be considered.

As noted earlier, comparison with industry averages would be useful. A low ratio in relation to other corporations in the same industry may indicate an over-investment in or inefficient use of assets by BDCC. On the other hand, a higher ratio in comparison to other corporations would be a positive indicator despite BDCC's declining trend.

Return on Total Assets Ratio (ROA)

The **return on total assets ratio (ROA)** is designed to measure the efficiency with which all of a corporation's assets are used to produce income from operations. The ratio is calculated as:

$$\frac{\text{Income from operations}}{\text{Average total assets}}$$

Note that expenses need to finance the corporation operations are excluded from the calculation, specifically interest and income taxes. This is because all the assets of the corporation are considered in the ratio's denominator, whether financed by investors or creditors. Average total assets are used in the calculation because the amount of assets used likely varies during the year. Again, the use of averages tends to smooth out such fluctuations.

BDCC's returns on total assets for 2022 and 2023 are calculated as follows:

In thousands of dollars		*2023*	*2022*
Income from operations	(a)	$ 300	$ 274
Average total assets	(b)	$2,299[1]	$1,765.5[2]
Return on total assets ratio	(a/b)	0.13:1	0.16:1

[1] ($2,112 + 2,486)/2 = $2,299
[2] ($1,417 + 2,112)/2 = $1,764.5

The ratios indicate that BDCC earned $0.13 of income from operations for every $1 of average total assets in 2023, a decrease from $0.16 per $1 in 2022. This downward trend indicates that assets are being used less efficiently. However, it may be that the increased investment in assets during 2023 noted above has not yet begun to pay off. On the other hand, although sales are increasing, it is possible that future sales volume will not be sufficient to justify the increase in assets. More information about the corporation's plans and projections would be useful.

Return on Stockholders' Equity Ratio (ROSE)

The **return on stockholders' equity ratio** (**ROSE)** measures how much net income was earned compared to the amount stockholders have invested. Net income is the earnings of the corporation to which stockholders are entitled, so it is fitting to use this as the numerator. The ratio is calculated as:

$$\frac{\text{Net income}}{\text{Average stockholders' equity}}$$

The 2022 and 2023 returns on stockholders' equity ratios for BDCC are calculated as follows (note that the 2021 ratio is excluded; average stockholders' equity cannot be calculated since 2020 ending balances are not provided):

In thousands of dollars		*2023*	*2022*
Net income	(a)	$ 116	$ 117
Average stockholders' equity	(b)	$1,213[1]	$1,121.5[2]
Return on stockholders' equity ratio	(a/b)	0.10:1	0.10:1

[1] ($1,195 + 1,231)/2 = $1,213
[2] ($1,048 + 1,195)/2 = $1,121.5

In both years, stockholders earned on average $0.10 for every $1 invested in BDCC, or 10%. Industry averages could aid analysis. But if the industry as a whole earned only a 5% return on stockholders' equity in 2023, BDCC performed better than average in terms of this measure.

D. Leverage Ratios: Analyzing Financial Structure

The accounting equation expresses a relationship between assets owned by an entity and the claims against those assets. Although stockholders own a corporation, they alone do not finance the corporation; creditors also finance some of its activities. Together, creditor and stockholder capital form the **financial structure** of a corporation.

At December 31, 2023, the balance sheet of BDCC shows the following financial structure:

ASSETS	=	LIABILITIES	+	STOCKHOLDERS' EQUITY
$2,486	=	$1,255	+	$1,231

There are several ratios that can be used to analyze financial structure.

Debt to Stockholders' Equity Ratio

The proportion of creditor to stockholders' claims is called the **debt to stockholders' equity ratio**, and is calculated by dividing total liabilities by stockholders' equity. In BDCC's case, these amounts are:

In thousands of dollars		*2023*	*2022*	*2021*
Total liabilities	(a)	$1,255	$ 917	$ 369
Stockholders' equity	(b)	$1,231	$1,195	$1,048
Debt to s/h equity ratio	(a/b)	1.02:1	0.77:1	0.35:1

In other words, BDCC has $1.02 of liabilities for each dollar of stockholders' equity at the end of 2023, its current fiscal year. The proportion of debt financing has been increasing since 2021. In 2021 there was only $0.35 of debt for each $1 of stockholders' equity. In 2023, creditors are financing $1.02 for each $1 of stockholder financing. This may be a cause for concern.

On the one hand, management's increasing reliance on creditor financing is good. Issuing additional stock might require existing stockholders to give up some of their control of BDCC. Creditor financing may also be more financially attractive to existing stockholders if it enables BDCC to earn more with the borrowed funds than the interest paid on the debt.

On the other hand, management's increasing reliance on creditor financing increases risk because interest and principal have to be paid on this debt. Before deciding to extend credit, creditors often look at the total debt load of a corporation, and therefore the corporation's ability to meet interest and principal payments in the future. An increasing debt to stockholders' equity ratio could impede borrowing capacity in the future. As well, total earnings of BDCC could be reduced if interest rates rise.

Although there is no single appropriate debt to stockholders' equity ratio, there are techniques for estimating the optimum balance. These are beyond the scope of introductory financial accounting. For now, it is sufficient to note that for BDCC the debt to stockholders' equity ratio has increased considerably over the three-year period. A continuing trend into the future would be generally viewed unfavourably because of the risk to sustainability associated with increased debt financing.

Times Interest Earned Ratio

Creditors are also interested in evaluating a corporation's financial performance in order to project whether the firm will be able to pay interest on borrowed funds and repay debt when it comes due. Creditors are therefore interested in measures such as the **times interest earned ratio**. This ratio indicates the amount by which income from operations could decline before a default on interest may result. The ratio is calculated by the following formula:

$$\frac{\text{Income from operations}}{\text{Interest expense}}$$

Note that income from operations is used again. BDCC's 2022 and 2023 ratios are calculated as follows:

In thousands of dollars		*2023*	*2022*	*2021*
Income from operations	(a)	$300	$274	$204
Interest expense	(b)	$ 89	$ 61	-0-
Times interest earned ratio	(a/b)	3.4:1	4.5:1	n/a

The larger the ratio, the better creditors are protected. BDCC's interest coverage has decreased from 2022 to 2023 (3.37 times vs. 4.49 times), but income from operations would still have to decrease significantly for the corporation to be unable to pay its obligations to creditors. The analysis does indicate, though, that over the past two years interest expense has increased compared to income from operations. Both creditors and investors need to assess corporation plans and projections, particularly those affecting income from operations, to determine whether loans to the corporation are at risk or is the corporation is becoming too reliant on debt financing. As discussed above, it may be that significant investments in assets have not yet generated related increases in sales and income from operations.

E. Market Ratios: Analysis of Financial Returns to Investors

The stock market plays an important role in allocating financial resources among corporations that offer their stock to the public. Investors frequently consider whether to invest or divest in stock of a corporation. There are various ratios that combine market data with an individual corporation's financial statement information to help investors make these decisions. These are called **market ratios**.

Earnings per Share (EPS)

Measures of efficiency can focus on stockholder returns on a per-share basis. That is, the amount of net income earned in a year can be divided by the number of outstanding shares of common stock to establish how much return has been earned for each outstanding share. As noted in a previous chapter, basic and diluted EPS ratios are required disclosures under IFRS for publicly-traded corporations. Basic earnings per share value is calculated as:

$$\frac{\text{Net income – preferred share dividends}}{\text{Weighted-average number of shares of outstanding common stock}}$$

BDCC has no preferred stock and thus no preferred stock dividends. Recall that 100,000 shares of outstanding common stock are at the end of 2021, 2022, and 2023. Assume as well that there are no potentially dilutive instruments like unexercised employee stock options.

For BDCC, basic and diluted EPS calculations for the three years are:

In thousands of dollars		*2023*	*2022*	*2021*
Net income	(a)	$116	$117	$112
Number of wtd. avg. outstanding common shares	(b)	100	100	100
Earnings per share	(a/b)	$1.16	$1.17	$1.12

BDCC's EPS has remained relatively constant over the three-year period because both net income and number of outstanding shares of common stock have remained fairly stable. Increasing sales levels and the resulting positive effects on net income, combined with unchanged common stock issued, has generally accounted for the slight increase from 2021 to 2022.

Price-earnings (P/E) Ratio

The price at which a share of common stock trades on a stock market is an important measure of a corporation's financial performance. The market price of one share reflects the aggregate of investors' opinions about a corporation's future value compared to alternative investments.

The earnings performance of common stock is often expressed as a **price-earnings (P/E) ratio**. It is calculated as:

$$\frac{\text{Market price per share}}{\text{Earnings per share}}$$

This ratio is used as an indicator of the market's expectation of a corporation's future performance. Assume Corporation A has a current market value of $15 per share and an EPS of $1 per share. It will have a P/E ratio of 15. If Corporation B has a market value of $4 per share and an EPS of $0.50 per share, it will have a P/E ratio of 8. This means that the stock market expects Corporation A to earn relatively more in the future than Corporation B. For every $1 of net income currently generated by Corporation A, investors are willing to invest $15. In comparison, for every $1 of net income generated by Corporation B, investors are willing to pay only $8. Investors therefore perceive stock of Corporation A as more valuable.

Assume that BDCC's average market price per common share was $4 in 2021, $5 in 2022, and $6 in 2023. Its P/E ratio would be calculated as:

In thousands of dollars		*2023*	*2022*	*2021*
Market price per common share	(a)	$6.00	$5.00	$4.00
Earnings per share ratio (see above)	(b)	$1.16	$1.17	$1.12
Price-earnings ratio	(a/b)	5.17	4.27	3.57

BDCC's P/E ratio has increased each year. Although it would be important to compare industry and competitor's P/E ratios, BDCC's increasingly positive ratio indicates of itself that investors are "bullish" on BDCC. That is, the stock market expects BDCC to be increasingly profitable in the coming years compared to similar investment opportunities. Despite a relatively constant EPS ratio from 2021 to 2023, investors are willing to pay more and more for the corporation's common stock. This usually indicates that future financial performance is anticipated to be better than in the past three years.

Dividend Yield

Some investors' primary objective is to maximize dividend revenue from stock investments, rather than realize an increasing market price of the stock. This type of investor is interested in information about the earnings available for distribution to stockholders and the actual amount of cash paid out as dividends rather than the market price of the shares.

The **dividend yield ratio** is a means to determine this. This is calculated as:

$$\frac{\text{Dividends per share of stock}}{\text{Market price per share}}$$

This ratio indicates how large a return in the form of cash from an investment in a corporation's stock has been realized. The relevant information for BDCC over the last three years is shown in the financial statements, as follows:

In thousands of dollars		*2023*	*2022*	*2021*
Dividends declared	(a)	$ 80	$ 70	$ 60
Outstanding common shares	(b)	100	100	100
Dividends (dollars per share)	(a/b)	$0.80	$0.70	$0.60

The dividend yield ratio is therefore:

		2023	*2022*	*2021*
Dividends per share (see above)	(a)	$0.80	$0.70	$0.60
Market price per share (given)	(b)	$6.00	$5.00	$4.00
Dividend yield ratio	(a/b)	0.13:1	0.14:1	0.15:1

The corporation's dividend yield ratio decreased from 2021 to 2023. In 2021, investors received $0.15 for every $1 invested in stock. By 2023, this had decreased to $0.13 for every $1 invested. Though the decline is slight, the trend may concern investors who seek steady cash returns. Also notice that total dividends declared increased from 2021 to 2023 even though net income did not substantially increase, and despite the corporation's poor liquidity position noted earlier. Investors might ask why such high levels of dividends are being paid given this situation.

F. Overall Analysis of BDCC's Financial Statements

Results of ratio analysis are always more useful if accompanied by other information such as overall industry performance, prospects for the general economy, financial ratios of prior years, and qualitative factors such as analysts' opinions and management's plans. A good understanding of the business and specific risks is important to comprehensive financial analysis. Also, specialized industries may use financial ratios that focus on different factors deemed critical to success. Corporations within the same industry may also have differing types of assets, capital structures, costs, revenue sources, and business models.

However, there are some interpretations that can be made about BDCC from the foregoing ratio analyses even in the absence of other information. These results can spur additional, important enquiry.

Although BDCC is experiencing growth in sales, net income has not substantially increased over the three-year period 2021 to 2023. The gross profit ratio is relatively constant. The corporation's increasing operating expenses appear to be an issue, though. The sales to total assets and return on assets ratios have decreased due to a recent investment in property, plant and equipment, and growth in current assets. Yet income from operations has not increased in proportion to this growth in the asset base. It may be premature to make conclusions about management's wisdom of investing in plant assets, but more investigation may be warranted, such as management's operational plans.

The most immediate problem facing BDCC is the shortage of working capital and its poor liquidity position. BDCC increased accounts receivable and inventories, but did not experience a proportionate growth in revenue. The corporation should therefore review its credit policies and monitor its investment in inventory to ensure that these current assets only expand in proportion to sales.

Further, the corporation's ability to meet its debt obligations appears to be deteriorating. The ability of income from operations to cover interest expense has declined. The increase in accounts receivable, inventories, and PPE has produced an increase in current liabilities (mainly borrowings). BDCC should investigate alternatives to current borrowings to finance PPE by converting some of this to non-current debt or issuing additional capital stock to refinance some of its current debt obligations.

Despite these challenges, the stock market indicates that it expects BDCC to be increasingly profitable in the future. Perhaps it views the negative indicators noted above as only temporary or easily rectified by management.

The next section provides further insights into BDCC's operations through trend analysis of the corporation's financial statements.

G. Horizontal and Vertical Trend Analysis

LO2 - Describe horizontal and vertical trend analysis, and explain how they are used to analyze financial statements.

Trend analysis is the evaluation of corporation's financial performance based on a restatement of financial statement dollar amounts as percentages. Horizontal analysis and vertical analysis are two types of trend analyses.

Horizontal analysis involves the calculation of percentage changes from one or more years over the base year dollar amount. The base year is typically the older year and is always stated as 100%.

Vertical analysis requires numbers in a financial statement to be restated as percentages of a base dollar amount. For income statement analysis, the base amount used is sales. For balance sheet analysis, total assets (or equivalently, total liabilities and stockholders' equity) are used as the base amounts. When financial statements are converted to percentages, they are called **common-size financial statements**.

Horizontal and vertical analyses of the balance sheets of Big Dog Carworks Corp. are as follows:

Horizontal Analysis: Balance Sheet

			Change	
	2023	*2022*	*Difference*	*%*
Current assets	$1,433(a)	$ 984(b)	+$449 (a-b)	+45.6[(a-b)/b]
Non-current assets	1,053	1,128	-75	-6.6
Total	$2,486	$2,112(c)	+$374	+17.7
Current liabilities	$1,255	$917	+$338	+36.9
S/H equity	1,231	1,195	+36	+3.0
Total	$2,486	$2,112	+$374	+17.7

Notice the two columns introduced here. Analysis of the last ("%") column indicates a large increase in current assets (45.6%) together with a large increase in current liabilities (36.9%). There was a small decline in PPE assets (6.6%) and a small increase in stockholders' equity (3%). The percentage change should be interpreted together with the absolute dollar amount of change ("Difference" column) to avoid incorrect conclusions; percentages can sometimes be misleading.

Vertical Analysis (Common-size): Balance Sheet

	% 2023	% 2022
Current assets	57.6 [1]	46.6 (b/c)
Non-current assets	42.4	53.4
Total	**100.0**	**100.0**
Current liabilities	50.5	43.4 [2]
S/H equity	49.5	56.6
Total	**100.0**	**100.0**

[1] 1,433/2,486 = 57.6%
[2] 917/2,112 = 43.4%

The common-size balance sheet reveals that the composition of the assets has shifted more to current assets in 2023 (46.6% to 57.6%). Also, the percentage of current liabilities has increased (43.4% to 50.5%), resulting in an overall shift from stockholders' equity financing to debt financing between 2022 and 2023.

Horizontal Analysis: Income Statements

			Change		
	2023	2022	Amount	Per Cent	
Sales	$3,200(a)	$2,800(b)	+$400 (a-b)	+14	([(a-b)/b]
COGS	2,500	2,150	+350	+16	
Gross profit	700	650	+$ 50	+8	
Expenses	584	533	+$ 51	+10	
Net income	$ 116	$ 117	-$ 1	-1	

Although sales and gross profit increased in dollar amounts, net income decreased slightly from 2022 to 2023 (1%). This net decrease resulted because cost of goods sold increased at a faster rate than sales (16% vs. 14%).

Vertical Analysis (Common-Size): Income Statements

	% 2023	% 2022
Sales	**100**	**100**
Cost of goods sold	78[1]	77
Gross profit	22	23
Expenses	18	19[2]
Net income	4	4

[1] 2,500/3,200 = 78%

[2] (1,831 + 193 +61 + 196)/2,800 = 19%

Notice the relative change in the components. For example, cost of goods sold increased in 2023 relative to sales (77% to 78%), while expenses in 2023 relative to sales decreased (19% to 18%). The overall changes were almost offsetting, as net income remained fairly stable.

The calculated percentages become more informative when compared to earlier years. Further analysis is usually undertaken in order to establish answers to the following questions:

Horizontal Analysis:
What caused this change?
Is the change favorable or unfavorable?

Vertical Analysis:
How do the percentages of this corporation compare with other corporations in the same industry? In other industries?

These and similar questions call attention to areas that require further study. One item becomes more apparent as a result of trend analysis. Initially, it was stated that operating expenses were increasing between 2021 and 2023. Based on trend analysis, however, these expenses are actually declining as a percentage of sales. As a result, their fluctuations may not be as significant as first inferred.

H. Summary of Financial Ratios

The ratios covered in this chapter are summarized in Figure 13–3.

Analysis of liquidity:	Calculation of ratio:		Indicates:
1. Working capital	Current assets – current liabilities		The excess of current assets available after covering current liabilities (expressed as a dollar amount).
2. Current ratio	$\frac{\text{Current assets}}{\text{Current liabilities}}$		The amount of current assets available to pay current liabilities.
3. Acid-test ratio	$\frac{\text{Quick current assets}}{\text{Current liabilities}}$		Whether the corporation is able to meet the immediate demands of creditors. (This is a more severe measure of liquidity.)
4. Accounts receivable collection period	$\frac{\text{Average acct. rec.}}{\text{Net credit sales}}$	x 365	The average time needed to collect receivables.
5. Number of days of sales in inventory	$\frac{\text{Average inventory}}{\text{Cost of goods sold}}$	x 365	Number of days of sales can be made with existing inventory.
6. Revenue operating cycle	Average number of days to collect receivables + average number of days of sales inventory		Length of time between the purchase of inventory and the subsequent collection of cash.

Analysis of profitability:	Calculation of ratio:	Indicates:
1. Gross profit ratio	Gross profit / Net sales	The percentage of sales revenue that is left to pay operating expenses, interest, and income taxes after deducting cost of goods sold.
2. Operating profit ratio	Income from operations / Net sales	The percentage of sales revenue that is left to pay interest and income taxes expenses after deducting cost of goods sold and operating expenses.
3. Net profit ratio	Net income / Net sales	The percentage of sales left after payment of all expenses.
4. Sales to total assets ratio	Net sales / Average total assets	The adequacy of sales in relation to the investment in assets.
5. Return on total assets (ROA)	Income from operations / Average total assets	How efficiently a corporation uses its assets as resources to earn net income.
6. Return on stockholders' equity (ROSE)	Net income / Average S/H equity	The adequacy of earnings as a return on owners' investment.

Leverage ratios:	Calculation of ratio:	Indicates:
1. Debt to stockholders' equity ratio	Total liabilities / Stockholders' equity	The proportion of creditor financing to stockholder financing.
2. Times interest earned ratio	Income from operations / Interest expense	The ability of a corporation to pay interest on borrowings.

Market ratios:	Calculation of ratio:	Indicates:
1. Earnings per share	Net income – pref. stock dividends / Avg. number common shares o/s	The amount of net income that has been earned on each share of common stock after deducting dividends to preferred stockholders.
2. Price-earnings ratio	Market price per share / Earnings per share	Market expectations of future profitability.
3. Dividend yield ratio	Dividends per share / Market price per share	The short-term cash return that can be expected from an investment in a corporation's stock.

Figure 13-3: Summary of Financial Statement Ratios

Schematically, the various analytical tools can be illustrated as shown in Figure 13–4.

Liquidity		Profitability		Financial Structure	Market Measures	Trend Analysis
Short-term cash needs	*Current asset performance*	*Returns on sales*	*Returns on SFP items*			
Current ratio	A/R collection period	Gross profit ratio	Sales to total assets ratio	Debt to S/H equity ratio	Earnings per share	Horizontal
Acid-test ratio	Number of days of sales in inventory	Operating income ratio	Return on total assets	Times interest earned ratio	Price-earnings ratio	Vertical
	Revenue operating cycle	Net profit ratio	Return on stockholders' equity		Dividend yield ratio	

Figure 13–4 Categorization of Financial Statement Analytical Tools

Appendix: The Scott Formula

LO3 - Describe the Scott formula and explain how it is used to analyze financial statements.

The **Scott formula** was developed by WR Scott, a Canadian accounting academic. The formula links return on total assets (ROA) to return on stockholders' equity (ROSE), and also integrates a number of related financial ratios to provide a more informed analysis of ROSE. The formula breaks down return on stockholders' equity into two major components – *return on operating capital*, similar to return on total assets, and *return on leveraging* – that is, the return to a corporation through its ability to borrow money at a given interest rate, purchase assets with the loan proceeds, and earn a return on these assets that is greater than the interest rate paid on the loan. This excess return accrues to stockholders since creditors already have been paid for the use of borrowed funds via interest payments.

An Example of Leverage

To illustrate the concept of **leverage**, consider the following example:

	Corp. A	*Corp. B*
Total assets	$400,000	$400,000
Bonds (12%)	-0-	200,000
Stockholders' equity	400,000	200,000

Both A and B have the same amount of assets – $400,000. However, corporation A has no non-current liabilities. Corporation B has $200,000 of 12% bonds. If both corporations earn income from operations of $100,000, do they have a similar return on total assets and stockholders' equity? First, net income needs to be determined, as follows:

	Corp. A	*Corp. B*
Income from operations	$100,000	$100,000
Less: Interest ($200,000 x 12%)	-0-	(24,000)
Income before income taxes	100,000	76,000
Less: Income taxes (50%)	(50,000)	(38,000)
Net income	$ 50,000	$ 38,000

Figure 13–5 Partial Income Statement of Corporations A and B

The use of non-current financing results in a lower net income figure for corporation B because of interest expense ($24,000). This is mitigated somewhat by the lower income taxes expense that results for corporation B ($38,000 vs. $50,000). The difference occurs because the interest expense incurred by B is a deductible expense for income tax purposes. As a result, B's net interest expense is only $12,000, and its **after-tax cost of borrowing** is 6% [12% x (1 – tax rate)]. When interest expense is recorded separately and an income taxes expense is allocated between income from operations and interest expense, this becomes more apparent:

	Corp. A	*Corp. B*
Income from operations	$100,000	$100,000
Less: Income taxes (50%)	(50,000)	(50,000)
Income from operations, after-tax	50,000	50,000
Finance costs	-0-	(24,000)
Interest expense ($200,000 x 12%)		
Less: Income tax **savings** (50%)	-0-	12,000
Net interest expense	-0-	12,000
Net income	$ 50,000	$ 38,000

Figure 13–6 Partial Income Statement of Corporations A and B Showing Allocation of Income Taxes Expense

Now consider the implications of this higher debt load on the calculation of after-tax return on total assets and return on stockholders' equity:

		Corp. A	*Corp. B*
Income from operations, after-tax	(a)	$50,000	$50,000
Net income for the year	(b)	50,000	38,000
Total assets	(c)	400,000	400,000
Stockholders' equity	(d)	400,000	200,000
Return on total assets	(a/c)	12.5%	12.5%
Return on stockholders' equity	(b/d)	12.5%	19%

Figure 13–7 Effects of Leverage on Return on Stockholders' Equity

The return on total assets is 12.5% for both corporations; however the return on stockholders' equity is considerably greater for corporation B (19% vs. 12.5% = 6.5%). This is because corporation B borrowed funds at an after-tax cost of 6% to earn a 12.5% return on the assets it purchased. This 6.5 cent gain for every $1 borrowed (12.5% – 6%) accrues to stockholders of corporation B and therefore increases or *leverages* return on stockholders' equity.

However, there is risk involved in leveraging. While return on stockholders' equity is increased when the return on related assets exceeds the cost of borrowing additional funds, return on stockholders' equity is decreased if cost of borrowings exceeds return on related assets. As a result, and in general, corporations with stable earnings can carry more debt in their financial structures than corporations with fluctuating earnings because there is less risk that the cost of borrowing will exceed the return on assets that the borrowed funds generate.

The Specifics of the Scott Formula

To add analytic power to the Scott formula analysis, the traditional balance sheet format is rearranged somewhat:

1. Liabilities like accounts payable and income taxes payable that arise from normal operating activities are deducted from related assets like accounts receivable and inventory. This is called "**working capital from operations**".
2. Cash and marketable investments normally reported as current assets are deducted from borrowings to give a more representative picture of amounts actually owing to creditors (since these could be used to pay off debt if desired). The new amount is called "**net financial debt**".
3. With these changes, total assets are now called "**operating capital**". The total of net financial debt and stockholders' equity is now called "**financial capital**". Operating capital always equals financial capital, just as total assets always equals total liabilities plus stockholders' equity on a standard balance sheet.

Recall the Big Dog Carworks Corp. balance sheet presented in Figure 13–1 above. For Scott formula analysis, this would be re-cast as follows:

Big Dog Carworks Corp.
Balance Sheet
At December 31

Operating liabilities are deducted from operating assets to arrive at working capital from operations.

Cash and short-term investments are deducted from borrowings to arrive at net financial debt.

Operating capital equals financial capital.

Operating Capital			
In thousands of dollars	*2021*	*2020*	*2019*
Working capital from operations			
Accounts receivable	544	420	257
Inventories	833	503	361
Less: Accounts payable	(382)	(295)	(219)
Income taxes payable	(48)	(52)	(50)
	947	576	349
Plant assets, at carrying amount	1,053	1,128	712
Operating capital	$2,000	$1,704	$1,061
Net Financial Debt			
Borrowings	$ 825	$ 570	$ 100
Less: Cash	(20)	(30)	(50)
Marketable investments	(36)	(31)	(37)
	769	509	13
Stockholders' Equity			
Common stock	1,063	1,063	963
Retained earnings	168	132	85
	1,231	1,195	1,048
Financial capital	$2,000	$1,704	$1,061

Figure 13–8 BDCC Balance Sheet Restated in Terms of Operating and Financial Capital

Some changes are also made to the presentation of income taxes expense on the BDCC income statement, using the same concept as illustrated in Figure 13–6 above.

1. First, the average income tax rate needs to be calculated. This is 45% for all three years, derived from Figure 13–1 as follows:

		2021	*2020*	*2019*
Income before income taxes	(a)	211	213	204
Less: Income taxes	(b)	95	96	92
Net income		$ 116	$ 117	$ 112
Income tax rate	(b/a)	45%	45%	45%

2. Based on this rate, income taxes expense is allocated between income from operations and interest expense, as shown below:

Big Dog Carworks Corp.
Income Statement
For the Year Ended December 31

In thousands of dollars	*2021*	*2020*	*2019*
Sales (net)	$3,200	$2,800	$2,340
Cost of goods sold	2,500	2,150	1,800
Gross profit	700	650	540
Operating expenses			
Selling and marketing	212	183	154
Administration	188	193	182
	400	376	336
Income from operations	300	274	204
Less: Income taxes (45%)	(135)	(123)	(92)
Income from operations, after-tax	165	151	112
Finance costs			
Interest	89	61	-0-
Less: Income taxes **saved** (45%)	(40)	(27)	-0-
Net interest expense	49	34	-0-
Net income	$ 116	$ 117	$ 112

Income tax effects are allocated.

Net income remains unchanged.

Figure 13–9 BDCC Income Statement Restated to Allocate Income Taxes Expense (Savings)

The Scott formula can now be used to calculate how much of BDCC's return on stockholders' equity is derived from operations (return on assets) and how much is derived from leverage. The formula is calculated as:

RETURN ON CAPITAL + RETURN ON LEVERAGING = RETURN ON STOCKHOLDERS' EQUITY

Return on capital and return on leveraging will be examined more closely below.

Return on Operating Capital

Under the Scott Formula, **return on operating capital** is calculated as:

$$\frac{\text{Income from operations (after-tax)}}{\text{Operating capital}}$$

Based on the altered balance sheet and income statement of BDCC as shown in Figures 13–8 and 13–9 above, the calculations of return on operating capital (ROC) for the three years are:

		2021	*2020*	*2019*
Income from operations (after-tax)	(a)	$ 165	$ 151	$ 112
Operating capital	(b)	$2,000	$1,704	$1,061
Return on operating capital	(a/b)	8.3%	8.9%	10.6%

Return on operating capital is significantly lower than the somewhat equivalent return on assets originally calculated earlier in this chapter (for example, 8.3% vs. 13% in 2021). This is primarily because income tax effects on income from operations are now considered, but also because the denominator is somewhat lower. Accounts payable and income taxes payable are now deducted from current assets to arrive at operating capital; cash and marketable investments are omitted.

Return on operating capital is analyzed further within the Scott formula. Two related ratios are calculated: the **after-tax operating profit ratio**, and the **sales to operating capital ratio**. These are somewhat similar to two ratios studied earlier in the chapter – the operating profit ratio and sales to total assets ratio, respectively. However, they are altered to incorporate changes to the balance sheet and income statement noted above. One other change is also made to simplify calculations: *ending balance sheet amounts rather than averages are used*.

The after-tax operating profit ratio for BDCC can be calculated as:

$$(1)\ \frac{\text{Income from operations (after-tax)}}{\text{Net sales}}$$

The sales to operating capital ratio is calculated as:

$$(2)\ \frac{\text{Net sales}}{\text{Operating capital}}$$

Notice that the product of these two ratios equals the return on operating capital ratio:

(1)	x	(2)	=	(3)
After-tax operating profit ratio	x	*Sales to operating capital ratio*	=	*Return on operating capital*

$$\frac{\text{Income from operations (after-tax)}}{\cancel{\text{Net sales}}} \times \frac{\cancel{\text{Net sales}}}{\text{Operating capital}} = \frac{\text{Income from operations (after-tax)}}{\text{Operating capital}}$$

This relationship is used to provide further insights into the return on operating capital ratio. Using BDCC's financial statement from Figures 13–8 and 13–9, the ratios are calculated as:

	(1)		(2)		(3)
2019	$\frac{\$112}{2{,}340}$	x	$\frac{\$2{,}340}{1{,}061}$	=	$\frac{\$112}{1{,}061}$
OR	**4.8%**	**x**	**2.2**	**=**	**10.6%**
2020	$\frac{\$151}{2{,}800}$	x	$\frac{\$2{,}800}{1{,}704}$	=	$\frac{\$151}{1{,}704}$
OR	**5.4%**	**x**	**1.6**	**=**	**8.9%**
2021	$\frac{\$165}{3{,}200}$	x	$\frac{\$3{,}200}{2{,}000}$	=	$\frac{\$165}{2{,}000}$
OR	**5.1%**	**x**	**1.6**	**=**	**8.3%**

The return on operating capital (column 3) has declined from 10.6% in 2019 to 8.3% in 2021. The after-tax operating profit ratio (column 1) has fluctuated somewhat over the same period. No trend is apparent. Therefore, the largest effect on ROC has been the decline in the sales to operating capital ratio (column 2) from 2.2 times in 2019 to 1.6 times in 2020 and 2021. This indicates that the increase in operating capital (chiefly assets like accounts receivable, inventory, and PPE) has not been matched with a proportionate increase in sales. This is similar to the conclusion reached earlier in the chapter. However, using the Scott formula, its effect is more apparent.

Return on Leveraging

As noted above, the other useful feature of the Scott formula is its analysis of return on leveraging (ROL) and the resultant effects on return on stockholders' equity. Recall that leverage is the return generated by assets in excess of the after-tax cost of borrowing money to finance these assets. An example of leveraging was illustrated in Figure 13–7.

The Scott formula further refines analysis of leverage by considering the effect of financial structure as indicated by the debt to stockholders' equity ratio. In Figure 13–7, the debt to stockholders equity ratio is 1:1 for corporation B ($200,000/200,000). (We ignore analysis of leverage for corporation A, as it has no liabilities and thus no ability to employ leverage.) Now assume the same information for corporation B, and additional information for corporation C, as follows:

	Corp. B	*Corp. C*
Total assets (same as operating capital)	$400,000	$400,000
Bonds (12%) (same as net financial debt)	200,000	300,000
Stockholders' equity	200,000	100,000

The only difference in financial structure between B and C is that corporation C has $300,000 of bonds and only $100,000 of stockholders' equity. Its debt to stockholders' equity ratio is 3:1 ($300,000/100,000) compared to corporation B's debt to stockholders' equity ratio of 1:1 ($200,000/200,000).

Assume the same income from operations and income tax rate as our prior example in Figure 13–7. The partial statements of profit and loss of each corporation would show:

	Corp. B	*Corp. C*
Income from operations	$100,000	$100,000
Less: Income taxes (50%)	(50,000)	(50,000)
Income from operations, after-tax	50,000	50,000
Finance costs	(24,000)	-0-
Interest expense (B) ($200,000 x 12%)		
Interest expense (C) ($300,000 x 12%)		(36,000)
Less: Income tax **savings** (50%)	12,000	18,000
Net interest expense	12,000	18,000
Net income	$ 38,000	$ 32,000

Return on capital and return on stockholders' equity would be calculated for each corporation as follows using the Scott formula:

		Corp. B	*Corp. C*
Income from operations, after-tax	(a)	$50,000	$50,000
Net income for the year	(b)	38,000	32,000
Total operating capital	(c)	400,000	400,000
Stockholders' equity	(d)	200,000	100,000
Return on operating capital	(a/c)	12.5%	12.5%
Return on stockholders' equity	(b/d)	19%	32%

Figure 13–10 Effects of Leverage and Financial Structure: Return on Stockholders' Equity

In each case, the corporations have realized leverage on borrowed money. Bonds were issued at an after-tax interest rate of 6% and earned returns on after-tax operating capital of 12.5% for both corporations, a difference of 6.5%. Why is corporation C's return on stockholders' equity 32%, and corporation B's only 19%? The answer lies in the relative financial structures of the corporations. In corporation B's case, the debt to stockholders' equity ratio is 1:1. Therefore each 6.5 cents earned on one dollar of financed assets (12.5 – 6%) is transferred to stockholders in proportion to the debt to stockholders' equity ratio (1:1). In other words, corporation B's return on stockholders' equity is composed of a 12.5% return on assets plus a 6.5% return on leveraging, for a total return on stockholder's equity of 19%.

However, in corporation C's case each 6.5 cents earned on one dollar of financed assets is increased because there are three dollars of debt for each dollar of stockholders' equity. Therefore, the return on borrowed money *to stockholders* is magnified by this amount, or 6.5% x 3 = 19.5%. Corporation C's return on stockholders' equity is composed of a 12.5% return on assets plus a 19.5% return on leveraging, for a total return on stockholder's equity of 32%.

Return on leveraging (ROL) is therefore determined as follows using the Scott formula:

$$[\text{ROC} - \text{Interest rate (after-tax)*}] \quad \times \quad \frac{\text{Net financial debt}}{\text{Stockholders' equity}}$$

$$\text{*calculated as: } \frac{\text{Interest expense (after-tax)}}{\text{Net financial debt}}$$

For corporation C, return on leveraging for 2021 is calculated as:

$$\left[\frac{\$500{,}000}{400{,}000} \quad - \quad \frac{18{,}000}{300{,}000}\right] \quad \times \quad \frac{\$300{,}000}{100{,}000}$$

= (12.5% - 6%) x 3

= 19.5%

Combining Return on Operating Capital and Return on Leveraging

Recall that under the Scott formula, return on stockholders' equity is the sum of return on operating capital and return on leverage; in other words, ROC + ROL = ROSE. Combining the constituent ratios for ROC and ROL, the Scott formula suggests that return on stockholders' equity will equal:

Return on operating capital			+	*Return on leveraging*			=	*Return on stockholders' equity*
(1)		(2)		(3)		(4)		(5)
Income from operations (after tax) / Net sales	x	Net sales / Operating capital	+	(ROC – Interest rate)	x	Net financial debt / Stockholders' equity	=	Net income / Stockholders' equity

For BDCC, the Scott formula ratios for the 2019, 2020 and 2021 years are calculated as follows:

Return on operating capital (1)	(2)	+	*Return on leveraging* (3)	(4)	=	*Return on stockholders' equity* (5)

$$2019\quad \left[\frac{\$112}{2{,}340} \times \frac{\$2{,}340}{1{,}061}\right] + \left[\left[\frac{\$112}{1{,}061} - \frac{\$0}{13}\right] \times \frac{\$13}{1{,}048}\right] = \frac{\$112}{1{,}048}$$

$$= [\,4.8\% \times 2.2\,] + [\,10.6\% \times .01\,] = 10.7\%$$

$$= \mathbf{10.6\%} + \mathbf{.1\%} = \mathbf{10.7\%}$$

$$2020\quad \left[\frac{\$151}{2{,}800} \times \frac{\$2{,}800}{1{,}704}\right] + \left[\left[\frac{\$151}{1{,}704} - \frac{\$34}{509}\right] \times \frac{\$509}{1{,}195}\right] = \frac{\$117}{1{,}195}$$

$$= [\,5.4\% \times 1.6\,] + [\,2.2\% \times .43\,] = 9.8\%$$

$$= \mathbf{8.9\%} + \mathbf{.9\%} = \mathbf{9.8\%}$$

$$2021\quad \left[\frac{\$165}{3{,}200} \times \frac{\$3{,}200}{2{,}000}\right] + \left[\left[\frac{\$165}{2{,}000} - \frac{\$49}{769}\right] \times \frac{\$769}{1{,}231}\right] = \frac{\$116}{1{,}231}$$

$$= [\,5.1\% \times 1.6\,] + [\,1.9\% \times .62\,] = 9.4\%$$

$$= \mathbf{8.3\%} + \mathbf{1.1\%} = \mathbf{9.4\%}$$

Analyzing BDCC's Performance using the Scott formula

Maintaining an acceptable return on stockholders' equity is an important objective for investors, and senior managers are hired to maximize these returns. The Scott formula highlights a number of interconnected ratios and demonstrates how these influence return on stockholders' equity. Because of this, it can provide a valuable analytic tool for investors and managers.

In BDCC's case, the formula results indicate that return on stockholders' equity has declined from 10.7% to 9.4% over the three years (column 5), in spite of increasing returns from leveraging of .1% in 2019 to 1.9% in 2021 (columns 3 and 4). Return on operating capital has declined more precipitously than ROSE, from 10.6% in 2019 to 8.3% in 2021 (columns 1 and 2). With respect to return on operating capital, and as noted earlier, the after-tax operating profit ratio displays no trend (column 1). However, the sales to operating capital ratio (column 2) has declined from 2.2 times in 2019 to 1.6 times in 2020 and 2021, indicating that the additions to operating assets as yet have not been matched with a proportionate increase in sales. With respect to return on leverage, the relatively small difference between return on capital and the after-tax cost of borrowing funds in 2020 and 2021 (column 3) suggests that return from leveraging will most likely be improved by increasing the difference between return on capital and the after-tax cost of borrowing funds. This further emphasizes the importance of increasing the sales to operating capital ratio, as it affects the return on operating capital ratio most significantly. The relatively low debt to stockholders' equity ratio (column 4) suggests that BDCC should consider borrowing more funds when required, rather than issuing additional stock and increasing the amount of stockholders' equity. This can magnify return on leveraging. However, the difference between return on operating capital and the cost of borrowed funds should be improved before more borrowing takes place, to minimize risk to stockholders and maximize effects on return on stockholders' equity.

Summary of Chapter 13 Learning Objectives

LO1 – Describe ratio analysis, and explain how the liquidity, profitability, leverage, and market ratios are used to analyze and compare financial statements.

Ratio analysis measures the relative magnitude of two selected numerical values taken from a corporation's financial statements and compares the result to prior years and other similar corporations. Financial ratios are an effective tool for measuring: (a) liquidity (current ratio, acid-test ratio, accounts receivable collection period, and number of days of sales in inventory); (b) profitability (gross profit ratio, operating profit ratio, net profit ratio, sales to total assets ratio, return on total assets, and return on stockholders' equity); (c) leverage (debt ratio, stockholders' equity ratio, debt to stockholders' equity ratio, and times interest earned ratio); and (d) market ratios (earnings per share, price-earnings ratio, and dividend yield ratio). Ratios help identify the areas that may require further investigation.

LO2 – Describe horizontal and vertical trend analysis, and explain how they are used to analyze financial statements.

Horizontal analysis involves the calculation of percentage changes from one or more years over a base year dollar amount. The base year is typically the older year and is always 100%. Vertical analysis requires that numbers in a financial statement be restated as percentages of a base dollar amount. For income statement analysis, the base amount used is sales. For balance sheet analysis, total assets (which are always the same as total liabilities and stockholders' equity) are used as the base amounts. When financial statements are converted to percentages, they are called common-size financial statements.

LO3 – (Appendix) Describe the Scott formula and explain how it is used to analyze financial statements.

The Scott formula separates return on stockholders' equity into two components: return on operating capital (ROC) and return on leveraging (ROL). ROC can be further analyzed as the product of the after-tax return on operating income multiplied by the sales to operating capital ratio. ROL can be further analyzed as (ROC – after-tax interest rate) multiplied by the debt to stockholders' equity ratio. The after-tax interest rate is calculated as [interest expense x (1- income tax rate)]/net financial debt.

A S S I G N M E N T   M A T E R I A L S

Concept Self-check

1. Ratios need to be evaluated against some base. What types of information can be used?
2. Explain what *liquidity* means. When a corporation is becoming less liquid, what are the implications for stockholders? for creditors?
3. How is it possible that a corporation earning net income each year is becoming less liquid?
4. What ratios can be calculated to evaluate liquidity? Explain what each one indicates.
5. a. Define working capital. Distinguish between the current ratio and the acid-test ratio.
   b. "The current ratio is, by itself, inadequate to measure liquidity." Discuss this statement.
6. Two firms have the same amount of working capital. Explain how it is possible that one is able to pay off short-term creditors, while the other firm cannot.
7. Management decisions relating to accounts receivable and inventory can affect liquidity. Explain.
8. What is one means to evaluate the management of accounts receivable? inventory?
9. Discuss the advantages and disadvantages of decreasing number of days of sales in inventory.
10. What is the revenue operating cycle? How is its calculation useful in evaluating liquidity?
11. Identify and explain six ratios (and any associated calculations) that evaluate a corporation's profitability. What does each ratio indicate?
12. Why are analysts and investors concerned with the financial structure of a corporation?
13. Is the reliance on creditor financing good or bad? Explain its impact on net income.
14. Discuss the advantages and disadvantages of short-term debt financing compared to long-term debt financing.
15. Identify and explain ratios that evaluate financial returns for investors.
16. Distinguish between horizontal and vertical analysis of financial statements.
17. (Appendix) Describe the components of the Scott formula.

Comprehension Problems

CP 13–1

Required: Match the following ratios with the appropriate formula.

Ratio or Rate		*Formula*
______	Acid-test	a. Income from operations / Interest expense
______	Current	b. Total liabilities / Stockholders' equity
______	Return on stockholders' equity	c. Net income– preferred stock dividends / Number of outstanding common shares
______	Times interest earned	d. Net sales / Average total assets
______	Earnings per share	e. Market price per share / Earnings per share
______	Accounts receivable collection period	f. Current assets / Current liabilities
______	Sales to total assets	g. Average inventory x 365 days / Cost of goods sold
______	Dividend yield	h. Net income / Net sales
______	Price-earnings ratio	i. Income from operations / Average total assets
______	Number of days of sales in Inventory	j. Dividends per share / Market price per share

______	Debt to s/h equity ratio	k.	$\dfrac{\text{Net income}}{\text{Average stockholders' equity}}$
______	Net profit ratio	l.	$\dfrac{\text{Quick current assets}}{\text{Current liabilities}}$
______	Accounts receivable collection period	m.	$\dfrac{\text{Average accounts receivable x 365 days}}{\text{Net credit sales}}$
______	Return on total assets	n.	$\dfrac{\text{Average accounts receivable x 365 days}}{\text{Net credit sales}}$

CP 13–2

The following information is taken from the partial balance sheet of Quail Productions Corp.

	2019	*2018*
Current assets		
Cash	$ 10	$ 15
Marketable investments	35	35
Accounts receivable	200	150
Inventory	600	400
Current liabilities		
Accounts payable	500	400
Borrowings	245	180

Required:

1. Describe the purpose of and calculate the current ratio for each year.
2. Describe the purpose of and calculate the acid-test ratio for both years.
3. What observations can you make from a comparison of the two types of ratios?
4. (Appendix) Restate the balance sheet to facilitate Scott formula analysis.

CP 13–3

The following information is taken from the records of Black Spruce Co. Ltd.:

	2019	*2018*	*2017*
Sales	$252	$141	$120
Gross profit	63	48	54
Net income	12	5	15

Required: Analyze the gross profit and net profit ratios using the above data. Comment on trends you observe.

CP 13–4

The following information relates to three companies in the same industry:

Corporation	*Latest market price*	*Earnings per share*	*Dividends per share*
A	$35	$11	$-0-
B	40	5	4
C	90	10	6

Required: Explain and calculate the price-earnings and dividend yield ratios. On the basis of only the foregoing information, which company represents the most attractive investment opportunity to you? Explain.

CP 13–5

The following data are taken from the records of Cronkite Corp.:

	2019	*2018*
Sales	$2,520	$1,440
Cost of goods sold	1,890	960
Gross profit	630	480
Other expenses	510	430
Net income	$ 120	$ 50

Required: Perform horizontal analysis on the above date and interpret your results.

CP 13–6

In the left-hand column, a series of independent transactions is listed; in the right-hand column, a series of ratios is listed.

Transaction	*Ratio*	*Effect on ratio* Increase	Decrease	No change
Declared a cash dividend	Current ratio			
Wrote-off an uncollectible account receivable	Accounts receivable collection period			
Purchased inventory on account	Acid-test ratio			
Issued 10-year bonds to acquire plant assets	Return on total assets			
Issued additional stock for cash	Debt to stockholders' equity ratio			
Declared a stock dividend on common shares	Earnings per share			
Purchased supplies on account	Current ratio			
Paid a current creditor in full	Acid-test ratio			
Paid an account payable	Number of days of sales in inventory			

Required: For each transaction indicate whether the ratio will increase, decrease, or remain unchanged. Assume all ratios are greater than 1:1 before each transaction where applicable.

CP 13–7

Consider the following financial statement data:

Balance Sheet

Cash	$20
Accounts receivable	20
Merchandise inventory	40
Plant, at carrying amount	140
	$220
Accounts payable	$20
Non-current borrowings	60
Common stock (8 shares issued)	80
Retained earnings	60
	$220

Income Statement

Sales	$100
Cost of goods sold	50
Gross profit	50
Operating expenses	14
Income from operations	36
Less: Interest	6
Income before income taxes	30
Less: Income taxes	10
Net income	$20

Assume that the average of all balance sheet items is equal to the year-end figure and that all sales are on credit.

Required:

1. Calculate the following ratios:
   a. Return on total assets (assume interest has been paid)
   b. Return on stockholders' equity
   c. Times interest earned ratio
   d. Earnings per share
   e. Number of days of sales in inventory
   f. Accounts receivable collection period
   g. Sales to total assets ratio
   h. Current ratio
   i. Acid-test ratio
   j. Debt to stockholders' equity ratio.
2. Which of these ratios are measures of liquidity?

3. (Appendix) Restate the financial statements to facilitate Scott formula analysis.
4. (Appendix) Calculate the Scott formula.

CP 13–8

Consider the following information:

Salinas Limited
Balance Sheet
At December 31, 2019

Assets		*Liabilities and Stockholders' Equity*	
Cash	$ 72	Accounts payable	$ 60
Accounts receivable	88	Bank loan, non-current	150
Merchandise inventory	100		
Prepaid expenses	40	Preferred stock (10%)	60
PPE, at carrying amount	320	Common stock	250
		Retained earnings	100
Total assets	$620	Total liab and sh. equity	$620

Salinas Limited
Income Statement
For the Year Ended December 31, 2019

Sales		$240
Cost of goods sold		144
Gross profit		96
Operating expenses		
Salaries	$44	
Depreciation	6	50
Income from operations		46
Less: Interest		8
Income before income taxes		38
Less: Income taxes		18
Net income		$ 20

Assume that 80% of sales are on credit, that the average of all balance sheet items is equal to the year-end figure, that all preferred stock dividends have been paid, and that the number of outstanding shares of common stock is 10.

Required: Calculate the following ratios and percentages

1. Current ratio
2. Return on total assets
3. Sales to total assets
4. Acid-test ratio
5. Times interest earned
6. Earnings per share of common stock
7. Accounts receivable collection period
8. Return on stockholders' equity
9. (Appendix) Scott formula.

CP 13–9

Assume a company has the following financial information:

Cash and short-term investments	$ 6
Prepaid expenses	-0-
Capital assets	90
Total liabilities	40
Stockholders' equity	140
Sales	420
Credit sales	300
Current ratio	2.5:1
Acid-test ratio	1:1
Gross profit ratio	30%

Assume current assets consist of cash, short-term investments, accounts receivable, inventory, and prepaid expenses, and that ending balances are the same as average balances for the year.

Required: Calculate

1. Current liabilities
2. Inventory
3. Accounts receivable collection period
4. Number of days of sales in inventory
5. Revenue operating cycle
6. (Appendix) Net financial debt. Assume current liabilities consist of a bank loan.

CP 13–10

A company began the month of May with $200,000 of current assets, a 2.5 to 1 current ratio, and a 1.25 to 1 acid-test ratio. During the month, it completed the following transactions:

Transaction	*Effect on current ratio*		
	Increase	*Decrease*	*No change*
a. Bought $20,000 of merchandise on account (the company uses a perpetual inventory system)			
b. Sold for $10,000 cash, merchandise that cost $5,000			
c. Collected a $2,500 account receivable			
d. Paid a $10,000 account payable			
e. Wrote off a $1,500 bad debt against the allowance for doubtful accounts			
f. Declared a $1 per-share cash dividend on the 10,000 outstanding shares of common stock			
g. Paid the dividend declared above			
h. Borrowed $10,000 from a bank by assuming a 60-day, 10-per cent loan			
i. Borrowed $25,000 from a bank by placing a 10-year mortgage on the plant			
j. Used the $25,000 proceeds of the mortgage to buy additional machinery.			

Required:

1. Indicate the effect on current ratio assuming each transaction is independent of the others.
2. At the end of May, and taking all the above transactions into account, what was
   a. the current ratio?
   b. the acid-test ratio?

Use the following format (the opening current ratio calculation and effects of the first transaction are provided:

a. Current ratio

In thousands of dollars		*May 1 bal.*	*a*	*b*	*c*	*d*	*e*	*f*	*g*	*h*	*i*	*j*	*May 31 bal.*
Current assets	x	200	+20										
Current liabilities	y	80	+20										
Current ratio	x/y	2.5											

b. Acid-test ratio

In thousands of dollars		*May 1 bal.*	*a*	*b*	*c*	*d*	*e*	*f*	*g*	*h*	*i*	*j*	*May 31 bal.*
Quick assets	x												
Current liabilities	y												
Acid-test ratio	x/y												

Problems

P 13–1

Consider the following information:

Mammoth Corporation
Balance Sheet
At December 31, 2019

Assets		Liabilities	
Current		*Current*	
Cash	$ 100	Accounts payable	$ 300
Accounts receivable	200	Wages payable	50
Merchandise inventory	500	Dividends payable	50
Prepaid expenses	50		400
	850		
Non-current		*Non-current*	
Plant assets, net	1,000	Borrowings	800
			1,200
		Stockholders' Equity	
		Common stock	500
		Retained earnings	150
			650
Total assets	$1,850	Total liab and sh. equity	$1,850

Required:

1. Based on this information, calculate the
   a. Current ratio
   b. Acid-test ratio
   c. Debt to stockholders' equity ratio.
2. What do these ratios tell you about Mammoth Corporation?
3. What other information would help with the financial analysis of Mammoth Corporation?

P 13–2

The following information for 2019 was gathered from the financial statements of Epicentre Corporation.

Balance Sheet At December 31, 2019		Income Statement For the Year Ended December 31, 2019	
Assets			
Current		Net sales (all on credit)	$800
Cash	$ 60	Cost of goods sold	600
Accounts receivable	140	Gross profit	200
Merchandise inventory	250	Selling and admin. expenses	100
Prepaid expenses	10	**Income from operations**	100
	460	Interest expense	20
PPE, at carrying amount	330	**Income before income taxes**	80
	$790	Income taxes	30
Liabilities		**Net income**	$ 50
Current			
Accounts payable	$100		
Borrowings	20		
Notes payable	60		
	180		
Non-current			
Borrowings	140		
	320		
Stockholders' Equity			
Preferred stock, 10% (8 shares)	120		
Common stock (50 shares)	250		
Retained earnings	100		
	470		
	$790		

Additional information from the December 31, 2018 balance sheet:

Accounts receivable	$180
Merchandise inventory	200
Plant assets, net	250
Retained earnings	80
Preferred stock	120
Common stock	250

Required:

1. Compute the following ratios for 2019:
   a. Current ratio
   b. Acid-test ratio
   c. Accounts receivable collection period
   d. Number of days of sales in inventory
   e. Debt to stockholders' equity ratio
   f. Return on stockholders' equity
   g. Earnings per share (assume all preferred stock dividends are paid)
2. Compute dividends paid on shares of common stock for 2019.
3. What do these ratios tell you about Epicentre Corporation?
4. (Appendix) Restate the financial statements to facilitate Scott formula analysis.
5. (Appendix) Calculate the Scott formula and analyze the results.

P 13–3

Belafonte Corporation's books were destroyed in a fire on April 30, 2019. The accountant of the corporation can only remember a few odd pieces of information:

a. The current ratio was 3.75 to 1.
b. Sales for the year were $73,000.
c. Inventories were $20,000 and were equal to property, plant and equipment at carrying amount, and also equal to bonds payable.
d. The accounts receivable collection period was 40 days.
e. The bonds payable amount was 10 times cash.
f. Total current assets were twice as much as common stock.

Required: Using this information, prepare Belafonte Corporation's balance sheet at April 30, 2019. Assume balances at April 30, 2019 are the same as average balances for the year then ended, and that besides retained earnings, there are no additional accounts.

P 13–4

Assume you are an accountant analysing Escalade Corporation. Escalade has expanded its production facilities by 200% since 2017. Its income statements for the last three years are as follows:

Escalade Corporation
Income Statement
For the Years Ending December 31

	2020	*2019*	*2018*
Sales	$250	$150	$120
Cost of goods sold	190	100	60
Gross profit	60	50	60
Other expenses	35	34	35
Net income	$ 25	$ 16	$ 25

Required:

1. Prepare a vertical analysis of Escalade Corporation's income statement for the three years.
2. What conclusions can be drawn from this analysis?

P 13–5

The incomplete balance sheet of Hook Limited is given below.

Hook Limited
Balance Sheet
At December 31, 2019

	Assets	
Current		
Cash	$ 30,000	
Accounts receivable	?	
Merchandise inventory	?	
		$?
Capital assets	?	
Less: Accumulated depreciation	100,000	?
Total assets		$?
	Liabilities	
Current		
Accounts payable	$ 50,000	
Estimated liabilities	?	
		$120,000
Non-current		
8% Bonds payable		?
		?
	Stockholders' Equity	
Common stock		?
Retained earnings		?
		?
Total liabilities and stockholders' equity		$?

Additional information for the 2019 year-end:

a. The amount of working capital is $150,000.
b. The issued value of the stock is $10 per share.
c. Market price per share is $15.
d. Price-earnings ratio is 3.
e. Income before payment of interest and income tax is $80,000.
f. The ratio of stockholder's equity to total assets is 0.60 to 1.
g. Income tax expense equals $30,000.
h. The acid-test ratio is 1.5 to 1.
i. The times interest earned ratio is 8 to1.

Required: Complete Hook Limited's balance sheet.

CHAPTER FOURTEEN

The Statement of Cash Flows

Information about the amount of cash received and paid out during an accounting period is shown on the statement of cash flows (SCF). This chapter discusses the purpose of the statement of cash flows, the steps in preparing it, and how to interpret the results.

Chapter 14 Learning Objectives

LO1 – Explain the purpose and components of the statement of cash flows.

LO2 – Prepare a statement of cash flows.

LO3 – Interpret a statement of cash flows.

LO4 – (Appendix) Use a cash flow table to develop a statement of cash flows.

A. Purpose of the Statement of Cash Flows

LO1 – Explain the purpose and components of the statement of cash flows.

Cash flow is an important factor in determining the success or failure of a corporation. It is quite possible for a profitable business to be short of cash. A company can have liquidity issues because of large amounts of cash tied up in inventory and accounts receivable, for instance. Conversely, an unprofitable business might have sufficient cash to pay its bills if it has access to enough bank financing or if it can issue additional stock.

The **statement of cash flows** provides a summary of where cash came from during the accounting period and how cash was used. The SCF explains why cash on hand at the end of the accounting period is different from the cash on hand at the beginning of the period by accounting for the effect of *operating, investing,* and *financing* activities on a company's cash resources.

Cash flow information is useful to management when making decisions such as purchasing equipment, plant expansion, paying down long–term debt, or declaring dividends. The SCF is useful to external users when evaluating a corporation's financial performance.

Providing information that helps readers assess the timing, amount, and uncertainty of future cash flows is a primary objective of financial reporting. Using the SCF, analysts can determine the relative amounts generated from the various sources and uses of cash during a period. This helps to help predict future cash flows. Predictive ability is limited, though, because the financial statements are based on historical rather than prospective data. Nevertheless, the ability to generate cash from past operations is often an important indication of whether the enterprise will have difficulty meeting obligations as they fall due, paying dividends, paying for recurring operating costs, or surviving adverse economic conditions. This is useful information to investors and creditors.

"Cash" consists of anything a bank will accept for deposit, like checks or currency. However, for SCF purposes, cash can also include **cash equivalents**—assets that will be converted to a known amount of cash within three months of acquisition and that are not subject to significant risk of changes in value. Investments in Canada Savings Bonds are an example, if they will be redeemed within three months of the year-end.

There are also examples of liabilities that are considered part of cash and cash equivalents, such as bank overdrafts. An overdraft occurs when a corporation is allowed to pay out more cash from its bank account than it has on deposit, with the understanding that the overdraft situation is temporary and limited to a predetermined amount. Another example is an operating loan that is due on demand. This is a short-term loan that provides cash to a company when needed. However, the bank can require that the loan be repaid at any time. Bank overdrafts and operating loans that are repayable on demand and form an integral part of an entity's cash management are considered “negative” cash. These amounts are deducted from the calculation of cash and cash equivalents on the SCF.

Because of differences in the nature of each entity and industry, management judgement is required to determine what assets constitute cash and cash equivalents for a particular firm. This decision needs to be disclosed on the SCF or in a note to the financial statements. For instance, the following note disclosure might be made:

Note X

Cash and cash equivalents consist of cash on deposit and short-term investments held for the purposes of meeting cash commitments within three months from their date of acquisition, net of operating loans that are due on demand and an integral part of the corporation’s cash management. Cash and cash equivalents reported on the statement of cash flows are comprised of the following:

($000s)

	2020	*2019*
Cash on deposit	$20	$30
Short-term investments	37	33
Less: Operating loan	(1)	(2)
	$56	$61

Cash flows result from a wide variety of a corporation’s activities as cash is received and disbursed over a period of time.

The statement of cash flows is classified into three main sections: operating activities, financing activities, and investing activities. A simplified example is shown in Figure 14–1 below:

The SCF covers a period of time, like the income statement.

The SCF is divided into three areas.

These amounts agree to cash reported on the balance sheet.

Statement of Cash Flows
For the Year Ended December 31, 2019

Operating activities	
Net income	$100
Plus: Changes in working capital	8
Cash flow from operating activities	108
Investing activities	
Purchase of equipment	(150)
Financing activities	
Common stock issued	50
Net increase in cash	8
Cash at beginning of year	10
Cash at end of year	$ 18

Figure 14–1 Example Statement of Cash Flows

Cash flow from operating activities is generated from the principal activities that produce revenue for a corporation, such as selling products, and incurring expenses reported on the income statement that are necessary to carry out these activities. Because the income statement is based on accrual accounting that matches expenses with revenues, net income usually is not the same as cash receipts and disbursements occurring during the same time period. The statement of cash flows converts net income into cash flow from operating activities.

Cash flow from investing activities is generated from transactions affecting long-term (capital) assets. These include outlays for the acquisition of plant assets, as well as cash proceeds from their disposal.

Cash flow from financing activities occurs when cash transactions affect non-current debt or stockholders' equity accounts – for instance, when long-term debt is repaid, stock is issued, or dividends are paid.

B. Preparing the Statement of Cash Flows

LO2 – Prepare a statement of cash flows.

Much of the information disclosed on the statement of cash flows is derived from the other three financial statements. The following financial statements of Sample Corporation will be used to illustrate the process:

Sample Corporation
Income Statement
For the Year Ended December 31, 2020
($000s)

Sales		$1,200
Cost of goods sold		674
Gross profit		526
Operating expenses		
Selling, general, and administration	$115	
Depreciation	260	375
Income from operations		151
Other items		
Gain on disposal of land	24	
Loss on disposal of machinery	(10)	14
Income before interest expense and income taxes		165
Interest expense		50
Income before income taxes		115
Income taxes		35
Net income		$ 80

Sample Corporation
Statement of Changes in Equity
For the Year Ended December 31, 2020
($000s)

	Common stock	*Retained earnings*	*Total equity*
Balance at Jan. 1, 2020	$ 800	$650	$1,450
Common stock issued	410	-	410
Net income	-	80	80
Dividends declared	-	(58)	(58)
Balance at Dec. 31, 2020	$1,210	$672	$1,882

Sample Corporation
Balance Sheet
At December 31
($000s)

	2020	2019
Assets		
Current		
Cash	$ 27	$ 150
Accounts receivable	375	450
Merchandise inventory	900	450
Prepaid expenses	20	10
	1,322	1,060
Plant assets		
Land	210	290
Buildings	1,200	400
Machinery	990	700
Less: Accumulated depreciation	(540)	(300)
	1,860	1,090
Total assets	$3,182	$2,150
Liabilities		
Current		
Accounts payable	$ 235	$ 145
Dividends payable	25	30
Income taxes payable	40	25
	300	200
Non-current borrowings	1,000	500
	1,300	700
Stockholders' Equity		
Common stock	1,210	800
Retained earnings	672	650
	1,882	1,450
Total liabilities and stockholders' equity	$3,182	$2,150

The steps used to prepare a statement of cash flows are as follows:

Step 1 Convert net income to cash flow from operating activities
Step 2 Record investing activities
Step 3 Record financing activities
Step 4 Calculate the net change in cash and ending cash balance, and prepare the statement of cash flows

Each step is explained below.

Step 1 Convert net income to cash flow from operating activities

Adjustments to net income to arrive at cash flow from operating activities can be described in three steps:

a. Add income as the first entry on the SCF. Add back non-cash expenses like depreciation.
b. Adjust for gains or losses on disposal of long-term assets.
c. Analyze and adjust for changes in non-cash current assets and liabilities.

Step 1a: First, scan the company's income statement for non-cash expenses. Common examples of non-cash expenses include depreciation and amortization. Recall Sample Corporation's income statement shown above, particularly the bolded information:

Sales		$1,200
Cost of goods sold		674
Gross profit		526
Operating expenses		
Selling, general, and administration	$115	
Depreciation	**260**	375
Income from operations		151
Other items		
Gain on disposal of land	**24**	
Loss on disposal of machinery	**(10)**	14
Income before interest expense and income taxes		165
Interest expense		50
Income before income taxes		115
Income taxes		35
Net income		**$ 80**

Net income is $80. Depreciation expense is $260. The recording of depreciation expense does not involve cash[1]. Since this non-cash expense was deducted to arrive at net income, it needs to be added back on the statement of cash flows.

[1] Recall the entry to record depreciation:
Debit Depreciation Expense
Credit Accumulated Depreciation

Step 1b: Next, any net income effects resulting from gains or losses on the disposal of plant assets must be reversed. These effects result from investing activities (that is, from transactions that affect long-term assets) not from operating activities. Sample Corporation's income statement shows a $24 gain on disposal of land and a $10 loss on disposal of machinery. Their effects on net income are reversed by adding back losses and deducting gains on the SCF.

At this point, the SCF should show:

Operating activities	
Net income	$ 80
Items not affecting cash flow	
Depreciation	260
Loss on disposal of machinery	10
Gain on sale of land	(24)

Step 1c: The third step is to adjust net income for effects of changes to non-cash working capital accounts[2] during the year.

Recall from earlier chapters that a cash inflow is recorded as a debit to cash. For instance, receipt of $100 cash for work to be performed in the future is recorded as:

Dr.	Cash	100	
Cr.	Unearned Revenue		100

Similarly, a cash outflow is recorded as a credit to cash. Purchase of $50 of inventory for cash is recorded as:

Dr.	Merchandise Inventory	100	
Cr.	Cash		100

This same principle is used to adjust for cash effects of changes in working capital in the operating activities section of the SCF. Each account is analyzed in terms of debit and credit effects that have occurred[3]. This is done by comparing each of the prior year's non-cash current asset and current liability account balances to the current year balances. To facilitate this, a third column is added to the comparative balance sheet. Each effect

[2] Recall that working capital consists of current assets minus current liabilities.

[3] These journal entries are only used as devices to prepare the SCF. They are not recorded in the general ledger of the corporation.

is accompanied by an offsetting debit or credit to cash. An offsetting debit to cash represents a cash inflow; an offsetting credit to cash represents a cash outflow.

Changes to Sample Corporation's non-cash current assets and current liabilities are as follows:

	2020 Dr. (Cr.)	*2019 Dr. (Cr.)*	Change Debit (Credit)
Non-cash current assets			
Accounts receivable	$ 375	$ 450	(75)
Merchandise inventory	900	450	450
Prepaid expenses	20	10	10
Non-cash current liabilities			
Accounts payable	(235)	(145)	(90)
Dividends payable	(25)	(30)	5
Income taxes payable	(40)	(25)	(15)

The explanation of these effects is as follows:

i. Accounts receivable decreased by $75 during the year. The journal entry to record this effect on the SCF would be:

Dr.	Cash	75	
Cr.	Accounts Receivable		75

Because of the reduction in accounts receivable, cash receipts during the year must have been $75 greater than the sales revenue shown on the income statement, indicated by the debit to the Cash account in the entry above. This additional cash inflow must be added to the net income figure to arrive at cash flow from operating activities.

ii. Inventory increased by $450 during the year. The journal entry to record this effect on the SCF would be:

Dr.	Inventory	450	
Cr.	Cash		450

Additional cash must have been paid to increase the inventory level during the year. This additional cash outflow must be deducted from the net income figure to arrive at cash flow from operating activities on the SCF.

iii. Prepaid expenses increased by $10 during the year. The journal entry to record this effect on the SCF would be:

Dr.	Prepaid Expenses	10	
Cr.	Cash		10

Additional cash has been used during the year to pay for the increased prepaid expenses. This cash outflow is not reflected in net income. Expenses reported on the income statement only include amounts that were used up during the year. This additional cash outflow must therefore be deducted from the net income figure to arrive at cash flow from operating activities.

iv. Accounts payable increased by $90 during the year. The journal entry to record this effect on the SCF would be:

Dr.	Cash	90	
Cr.	Accounts Payable		90

The increase in accounts payable means that expenses deducted to arrive at net income have not all been paid in cash during the year. Therefore, this additional cash inflow effect , as denoted by the debit to the Cash account, must be added back to the net income figure to arrive at cash flow from operating activities.

v. Dividends payable decreased by $5 during the year. Changes to this account are not considered operating activities. Dividend payments are considered a financing activity. Therefore, changes to the Dividends Payable account affect cash flow from financing activities. This effect is analyzed later.

vi. Income taxes payable increased by $15 during the year. The journal entry to record this effect on the SCF would be:

Dr.	Cash	15	
Cr.	Income Taxes Payable		15

The company has reported more income tax expense on the income statement than it has paid in cash during the year as denoted by the increase (credit) in the Income Taxes Payable account. By increasing the amount owed to the government, the company has created a $15 cash inflow effect. This additional cash inflow effect must be added back to the net income figure to arrive at cash flow from operating activities.

Once these three steps have been completed, the cash flow from operating activities section statement of cash flow can be prepared, as follows:

Operating activities	
Net income	$ 80
Items not affecting cash flow	
Depreciation	260
Loss on disposal of machinery	10
Gain on sale of land	(24)
Changes in non-cash working capital	
Decrease in accounts receivable	75
Increase in inventory	(450)
Increase in prepaid expenses	(10)
Increase in accounts payable	90
Increase in income taxes payable	15
Cash flow from operating activities	**46**

This indicates that cash flow from operating activities is only $46, even though net income is $80. The chief cause of this difference is the depreciation expense added back to net income ($260) and the large increase in inventory during the year ($450).

The operating activities section is often presented in a more abbreviated format, as follows (bolded for emphasis):

Operating activities	
Net income	$ 80
Items not affecting cash flow	
Depreciation	260
Net gains on disposal	**(14)**
Net changes in non-cash working capital	**(280)**
Cash flow from operating activities	46

Details of the net changes in non-cash working capital are then disclosed in a note to the financial statements.

Step 2 Record investing activities

The investing activities section of the SCF usually follows the operating activities section. It discloses cash transactions that have affected long-term assets. Common examples include the purchase or sale of plant assets.

There are several changes in Sample Corporations plant assets accounts. The same type of journal entry is used as in step 1(c) above. Debit and credit effects on each long-term asset account are calculated:

	2020 Dr. (Cr.)	*2019 Dr. (Cr.)*	Change Debit (Credit)
Plant assets			
Land	210	290	(80)
Buildings	1,200	400	800
Machinery	990	700	290
Less: Accumulated depreciation	(540)	(300)	(240)

Additional information about these transactions is as follows:

Transaction	*Description*
1	Land costing $80 was sold for $104.
2	A building was purchased for $800 cash.
3	Machinery was purchased for $350 cash.
4	Machinery costing $60 with accumulated depreciation of $20 was sold for $30 cash.

The investing activities effects are as follows:

a. The Land account decreased by $80 because land was sold during the year for $104. The journal entry to record this effect on the SCF would be:

Dr.	Cash	104	
Cr.	Gain on Sale of Land		24
Cr.	Land		80

Only the cash receipt of $104 will appear on the statement as a cash inflow. This is denoted by a debit to the Cash account in the entry above. The gain on the sale of $24 ($104 – $80) has already been adjusted in the operating activities section of the statement of cash flows in step 1(b) above.

b. The Buildings account increased by $800 during the year because a building was purchased for this amount of cash, per transaction 2. The journal entry to record this effect on the SCF would be:

Dr.	Building	800	
Cr.	Cash		800

Therefore, a cash outflow of $800 (denoted by the credit to the Cash account) will appear in the investing section of the SCF.

c. The Machinery account increased by $290 during the year. Transaction 3 explains that part of this is due to the purchase of machinery for $350. The journal entry to record this effect on the SCF would be:

(a)

Dr.	Machinery	350	
Cr.	Cash		350

A cash outflow of $350 will be shown in the investing section of the SCF.

Transaction 4 indicates that machinery with a cost of $60 and accumulated depreciation of $20 was sold during the year for $30 cash. The journal entry to record this effect on the SCF would be:

(b)

Dr.	Cash	30[i]	
Dr.	Acc. Dep'n – Mach.	20	
Dr.	Loss on Sale of Machinery	10[ii]	
Cr.	Machinery		60

A cash inflow of $30 (i) will appear in the investing section of the SCF. The loss on sale (ii) has already been adjusted in the operating activities section of the SCF.

The combined effects of journal entries (a) and (b) on the Machinery account equals the $290 net change shown above for this account ($350 - $60).

The journal entry above also affects the Accumulated Depreciation – Machinery account. Recall the earlier rationale to adjust depreciation expense because it is a non-cash expenditure on the income statement:

	(c)		
Dr.	Depreciation Expense	260	
Cr.	Accum. Depn' – Machinery		260

The combined effects of journal entries (b) and (c) on the Accumulated Depreciation equals the $240 net change in this account ($260 – 20).

The cash effects of the above transactions in the long-term asset accounts will be shown in the investing activities section of Sample Corporation's SCF. This shows a net cash outflow of $1,016.

Operating activities		
Net income		$ 80
Items not affecting cash flow		
Depreciation		260
Net gains on disposal		(14)
Net changes in non-cash working capital		(280)
Cash flow from operating activities		46
Investing activities		
Proceeds from sale of land	$ 104	
Proceeds from sale of machinery	30	
Purchase of building	(800)	
Purchase of machinery	(350)	
Cash used by investing activities		**(1,016)**

Step 3 Record financing activities

Cash flows from financing activities occur when there are changes to non-current liabilities or stockholder's equity accounts. These include items like bonds, mortgages, common stock, and retained earnings. Analysis of these changes provides information about financing activities to be reported on the SCF.

The applicable portion of Sample Corporation's balance sheet is as follows:

	2020 Dr. (Cr.)	2019 Dr. (Cr.)	Change Debit (Credit)
Liabilities			
Dividends payable	(25)	(30)	5
Non-current borrowings	(1,000)	(500)	(500)
Stockholders' Equity			
Common stock	(1,210)	(800)	(410)
Retained earnings	(672)	(650)	(22)

Additional information:

Transaction	*Description*
5	Sample Company received $500 cash from a long-term bank loan.
6	Stock was issued for $410 cash.
7	$58 of dividends were declared during the year.

The analysis of the long-term liabilities and stockholders' equity accounts is as follows:

a. The Non-current Borrowings account has increased by $500 because an additional loan was received, per transaction 5. The journal entry to record this effect on the SCF would be:

Dr.	Cash	500	
Cr.	Non-current Borrowings		500

A cash inflow of $500 (as indicated by the debit to the Cash account above) will appear in the financing section of the SCF.

b. The Common Stock account has increased by $410 because shares of common stock were issued, per transaction 6. Sample Corporation's statement of changes in equity also discloses this:

	Common stock	*Retained earnings*	*Total equity*
Balance at Jan. 1, 2020	$ 800	$650	$1,450
Common stock issued	**410**	-	410
Net income	-	80	80
Dividends declared	-	(58)	(58)
Balance at Dec. 31, 2020	$1,210	$672	$1,882

The journal entry to record this effect on the SCF would be:

Dr.	Cash	410	
Cr.	Common Stock		410

Therefore, a cash inflow of $410 will appear in the financing section of the SCF.

c. Transaction 7 requires additional explanation. The net change in the Retained Earnings account is $22, per Sample Corporation's statement of changes in equity shown above. Net income of $80 has increased retained earnings. The cash effect of this has been described in the earlier analysis of operating activities. This amount was the initial entry in the operating activities section of the SCF. In addition, though, a reduction of $58 has occurred in retained earnings because dividends were declared.

Though $58 of dividends was declared during 2020, recall that the Dividend Payable account reported on the balance sheet decreased $5 (from $30 to $25).

The journal entry to record these combined effects on the SCF would be:

Dr.	Retained Earnings	58	
Dr.	Dividends Payable	5	
Cr.	Cash		63

In effect, an additional $5 of dividends was paid in 2020, representing payments of some of the amounts owing at the end of the prior year. Combining these results in cash outflow of $63 reported as financing activities.

The cash effects of the above transactions are shown in the financing activities section of Sample Corporation's SCF. This shows a net cash inflow of $847.

Operating activities		
Net income		$ 80
Items not affecting cash flow		
Depreciation		260
Net gains on disposal		(14)
Net changes in non-cash working capital		(280)
Cash flow from operating activities		46
Investing activities		
Proceeds from sale of land	$104	
Proceeds from sale of machinery	30	
Purchase of building	(800)	
Purchase of machinery	(350)	
Cash used by investing activities		(1,016)
Financing activities		
Loan proceeds	500	
Common stock issued	510	
Payment of dividends	(63)	
Cash flow from financing activities		**847**

Step 4 Calculate net change in cash and ending cash balance, and prepare the statement of cash flows

The final step is to compute the net change in cash and ending cash balance. This is done by first adding the net cash amounts from all three sections of the SCF, then adding this total to the beginning cash balance shown on the comparative balance sheet. The amount of ending cash calculated should agree to the ending cash amount shown on the balance sheet.

The completed statement of cash flows for Sample Corporation is as follows:

Sample Corporation Statement of Cash Flows For the Year Ended December 31, 2020 ($000s)		
Operating activities		
Net income		$ 80
Items not affecting cash flow		
Depreciation		260
Net gains on disposal		(14)
Net changes in non-cash working capital		(280)
Cash flow from operating activities		46
Investing activities		
Proceeds from sale of land	$104	
Proceeds from sale of machinery	30	
Purchase of building	(800)	
Purchase of machinery	(350)	
Cash used by investing activities		(1,016)
Financing activities		
Loan proceeds	500	
Common stock issued	410	
Payment of dividends	(63)	
Cash flow from financing activities		847
Net decrease in cash		(123)
Cash at beginning of year		150
Cash at end of year		$ 27

Step 4

These amounts agree to the cash balances reported on the balance sheet.

C. Interpreting the Statement of Cash Flows

LO3 – Interpret a statement of cash flows.

Readers of financial statements need to know how cash has been used by the enterprise. The SCF provides external decision makers such as creditors and investors with this information. The statement of cash flows provides information about an enterprise's financial management policies and practices. It also may aid in predicting future cash flows, which is an important piece of information for investors and creditors.

The *quality* of earnings as reported on the income statement can also be assessed with the information provided by the SCF. The measurement of net income depends on a number of accruals and allocations that may not provide clear information about the cash-generating power of a company. Users will be more confident in a company with a high correlation between cash provided by operations and net income measured under the accrual basis. Recall, for instance, that although Sample Corporation has net income of $80 during 2020, its net cash inflow from operations is only $46 – chiefly due to the large increase in inventory levels. Although net cash flow from operations is still positive, this discrepancy between net income and cash flow from operations may indicate looming cash flow problems, particularly if the trend continues over time.

Sample Corporation's SCF also reveals that significant net additions to plant and equipment occurred during the year ($1,016), financed somewhat by cash flow from operating activities but primarily by financing activities that included the assumption of loans and issue of stock that amounted to $847, net of dividend payments.

It appears that a significant plant expansion may be underway, which may affect future financial performance positively. However, the magnitude of this expansion coupled with the payment of the dividends to stockholders has more than offset cash inflows from operating and financing activities, resulting in a net overall decrease in cash of $123. Though the current cash expenditure on plant and equipment may be a prudent business decision, it has resulted in (hopefully temporary) adverse effects on overall cash flow. The large increase in inventory levels is still worrisome, and should be investigated further.

The SCF is not a substitute for an income statement prepared on the accrual basis. Both statements should be used to evaluate a company's financial performance. Together, the SCF and income statement provide a better basis for determining the enterprise's ability to generate funds from operations and thereby meet current obligations when they fall due (liquidity), pay dividends, meet recurring operating costs, survive adverse economic conditions, or expand operations with internally-generated cash.

The SCF highlights the amount of cash available to a corporation, which is important. Excess cash on hand is unproductive. Conversely, inadequate cash decreases liquidity. Cash is the most liquid asset, and its efficient use is one of the most important tasks of management. Cash flow information, interpreted in conjunction with other financial statement analyses, is useful in assessing the effectiveness of the enterprise's cash management policies.

Readers who wish to evaluate the financial position and results of operations of an enterprise also require information on cash flows produced by investing and financing activities. The SCF is the only statement that explicitly provides this information. By examining the relationship among the various sources and uses of cash during the year, readers can also focus on the effectiveness of management's investing and financing decisions and how these may affect future financial performance.

Appendix: Preparing the Statement of Cash Flows Using a Cash Flow Table

LO4 – Use a cash flow table to develop a statement of cash flows.

The cash flow table method analyses transactions that involve a cash and cash equivalents account and any other balance sheet account. The following balance sheet format can be used to visualize this. The bold black line separates the cash and cash equivalent accounts from all other accounts.

These are cash and cash equivalent accounts.

Assets	*Liabilities and Stockholders' Equity*
Cash and s/t investments	Overdrafts and demand loans
Non-cash current assets	Other current liabilities
Non-current assets	Non-current liabilities
	Common stock
	Retained earnings
	+ Net income
	– Dividends declared

Changes to these accounts are classified as operating, investing, or financing activities.

Any transaction that affects one account above and one account below the black line results in either a cash inflow or a cash outflow. Such transactions cause changes to cash and cash equivalents.

The advantage of using a cash flow table to prepare the statement of cash flows is that it provides a set of rigourous, verifiable procedures that reduce errors and computation difficulties. Consider again the balance sheet, income statement and statement of changes in equity of Sample Corporation:

Sample Corporation
Income Statement
For the Year Ended December 31, 2020
($000s)

Sales		$1,200
Cost of goods sold		674
Gross profit		526
Operating expenses		
Selling, general, and administration	$115	
Depreciation	260	375
Income from operations		151
Other items		
Gain on disposal of land	24	
Loss on disposal of machinery	(10)	14
Income before interest expense and income taxes		165
Interest expense		50
Income before income taxes		115
Income taxes		35
Net income		$ 80

Sample Corporation
Statement of Changes in Equity
For the Year Ended December 31, 2020
($000s)

	Common stock	*Retained earnings*	*Total equity*
Balance at Jan. 1, 2020	$ 800	$650	$1,450
Common stock issued	410	-	410
Net income	-	80	80
Dividends declared	-	(58)	(58)
Balance at Dec. 31, 2020	$1,210	$672	$1,882

Sample Corporation
Balance Sheet
At December 31
($000s)

	2020	2019
Assets		
Current		
Cash	$ 27	$ 150
Accounts receivable	375	450
Merchandise inventory	900	450
Prepaid expenses	20	10
	1,322	1,060
Plant assets		
Land	210	290
Buildings	1,200	400
Machinery	990	700
Less: Accumulated depreciation	(540)	(300)
	1,860	1,090
Total assets	$3,182	$2,150
Liabilities		
Current		
Accounts payable	$ 235	$ 145
Dividends payable	25	30
Income taxes payable	40	25
	300	200
Non-current borrowings	1,000	500
	1,300	700
Stockholders' Equity		
Common stock	1,210	800
Retained earnings	672	650
	1,882	1,450
Total liabilities and stockholders' equity	$3,182	$2,150

To aid our analysis, the same summarized transactions from the records of Sample Corporation will be used.

Transaction	*Description ($000s)*
1	Land costing $80 was sold for $104.
2	A building was purchased for $800 cash.
3	Machinery was purchased for $350 cash.
4	Machinery costing $60 with accumulated depreciation of $20 was sold for $30 cash.
5	Sample Corporation received $500 cash from a long-term bank loan.
6	Stock was issued for $410 cash.
7	$58 of dividends were declared during the year.

Using the cash flow table method, the SCF can be prepared from an analysis of transactions affecting all non-cash accounts on the balance sheet.

Analysis of Cash Flows

The steps used to prepare a statement of cash flows from a cash flow table are as follows:

Step 1 Set up a **cash flow table**
Step 2 Calculate the changes in each account shown on balance sheet account
Step 3 Analyze changes in non-cash accounts on the balance sheet
Step 4 Prepare the cash flow from operating activities section of the SCF
Step 5 Prepare the investing, financing, and net cash flow sections of the statement of cash flows

Step 1 Set up a cash flow table

Set up a table as shown below with a row for each account shown on the balance sheet. Enter amounts for each account for 2019 and 2020. Show credit balances in parentheses. Total both columns and ensure they equal zero. The table should appear as follows after this step has been completed:

	Balance ($000s)	
	2020	*2019*
Account	*Dr. (Cr.)*	*Dr. (Cr.)*
Cash	27	150
Accounts receivable	375	450
Merchandise inventory	900	450
Prepaid expenses	20	10
Land	210	290
Buildings	1,200	400
Machinery	990	700
Accumulated depreciation	(540)	(300)
Accounts payable	(235)	(145)
Dividends payable	(25)	(30)
Income taxes payable	(40)	(25)
Borrowings	(1,000)	(500)
Common stock	(1,210)	(800)
Retained earnings	(672)	(650)
Total	-0-	-0-

Step 2 Calculate the changes in each account shown on the balance sheet

Add two columns to the cash flow table. Calculate the net debit or net credit changes for every account on the balance sheet and insert these changes in the appropriate column. This step is shown below.

	Step 1		Step 2		
	Balance ($000s)		*Change*		
	2020	*2019*			
Account	*Dr. (Cr.)*	*Dr. (Cr.)*	*Dr.*	*Cr.*	
Cash	27	150		123	Cash has decreased by $123,000.
Accounts receivable	375	450		75	
Merchandise Inventory	900	450	450		
Prepaid expenses	20	10	10		
Land	210	290		80	
Buildings	1,200	400	800		
Machinery	990	700	290		
Accumulated depreciation	(540)	(300)		240	
Accounts payable	(235)	(145)		90	
Dividends payable	(25)	(30)	5		
Income taxes payable	(40)	(25)		15	
Borrowings	(1,000)	(500)		500	
Common stock	(1,210)	(800)		410	
Retained earnings	(672)	(650)		22	
Total	-0-	-0-	1,555	1,555	Total debit changes equal total credit changes.

Step 3 Analyze changes in non–cash accounts on the balance sheet

Recall from earlier chapters that a cash inflow is recorded as a debit to cash. For instance, a cash sale of $100 is recorded as:

Dr.	Cash	100	
Cr.	Sales		100

Similarly, a cash outflow is recorded as a credit to cash. Purchase of $50 of inventory for cash is recorded as:

Dr.	Merchandise Inventory	100	
Cr.	Cash		100

This same principle is used to record cash inflows and outflows from operating, investing, and financing activities when the cash flow table method is used to prepare the SCF. A debit to cash represents a cash inflow; a credit to cash represents a cash outflow. Each type of activity represents a cash flow effect, in or out.

The next step is to set up three columns to the right of the "Change" columns shown in the table above. These columns should be titled "Cash Effect—Inflow," "Cash Effect—Outflow," and "Activity." Record the changes in each account listed in Step 2 as a *cash inflow effect* if the account's change is a credit (because the opposing debit represents an increase in cash, and therefore a cash inflow). It is a *cash outflow effect* if the change is a debit (because the opposing credit represents a decrease in cash, a cash outflow).

The cash flow table should appear as follows:

	Step 1		Step 2		Step 3		
	Balance ($000s)		Change		Cash effect		
	2020	*2019*			*Inflow*	*Outflow*	
Account	*Dr. (Cr.)*	*Dr. (Cr.)*	*Dr.*	*Cr.*	*Dr.*	*Cr.*	*Activity*
Cash	27	150		123			To be explained by SCF
Accounts receivable	375	450		75	75		
Merchandize inventory	900	450	450			450	
Prepaid expenses	20	10	10			10	
Land	210	290		80	80		
Buildings	1,200	400	800			800	
Machinery	990	700	290			290	
Acc. depreciation	(540)	(300)		240	240		
Accounts payable	(235)	(145)		90	90		
Dividends payable	(25)	(30)	5			5	
Income taxes payable	(40)	(25)		15	15		
Borrowings	(1,000)	(500)		500	500		
Common stock	(1,210)	(800)		410	410		
Retained earnings	(672)	(650)		22	22		
Total	-0-	-0-	1,555	1,555	1,432	1,555	

These represent all the operating, investing, and financing effects that will be shown on the SCF.

$123 net cash outflow ($1,432 – 1,555)

The $123 net outflow in all non-cash balance sheet accounts ($1,432 – 1,555) equals the $123 decrease in cash ($150 – 27). An analysis of these non-cash accounts below the thick black line will explain this net outflow of cash. Each account shown in the table above will be examined to determine whether the observed changes result from operating, investing, or financing activities.

Procedure 1: Calculating cash flow from operating activities

Calculating cash flow from operating activities is the first step in preparing a statement of cash flows. As noted above, net income of $80 is used as the starting point. Let's assume for the moment that this net income represents a net inflow of cash from operating activities of the same amount.

The summary journal entry would be

Dr.	Cash	80	
Cr.	Retained Earnings		80

Therefore, the first cash flow table effect recorded affects the Retained Earnings account.

The effect on the SCF would be an $80, cash inflow, shown as follows:

	Balance ($000s)		*Change*		*Cash effect*		
	2020	*2019*			*Inflow*	*Outflow*	
Account	*Dr. (Cr.)*	*Dr. (Cr.)*	*Dr.*	*Cr.*	*Dr.*	*Cr.*	*Activity*
Retained earnings	(672)	(650)		80*	80		Operating

(*The actual change is a $22 credit. This $58 discrepancy will be explained in Procedure 3a)

The net income is recorded as an operating activity in the cash flow table. However, this amount includes three categories of items that must be adjusted to derive cash flow from operating activities: (a) net debit and credit changes in working capital that do not affect the income statement, like depreciation; (b) losses and gains not due to normal operations of the entity; and (c) expenses and revenues not involving cash. These are explained below.

a. Analysis of working capital accounts that do not affect the income statement

The first category of adjustments involves working capital accounts that are used in accrual accounting. For Sample Corporation, these consist of:

Current assets	*Current liabilities*
Accounts receivable	Accounts payable
Merchandise inventory	Income taxes payable
Prepaid expenses	

The criteria for inclusion are whether adjustments through these accounts at some point affect items on the income statement. As a result, changes to the related Dividends Payable account are not considered operating activities. (Payment of dividends directly affects the Retained Earnings account, not a net income account.) The Dividends Payable account is therefore not analyzed at this point.

The remaining non-cash current asset and current liability accounts are relevant to the calculation of cash flow from operating activities because they affect expense and revenue items in the income statement. Examples of related items are sales on account that are recorded as accounts receivable, and merchandise purchases that eventually are reflected as cost of goods sold. The effects of changes in these accounts on net income must be considered when calculating cash flow from operating activities.

First, consider the change of $75 credit in the Accounts Receivable balance from the end of 2019 to 2020. If the relative levels of accounts receivable have decreased by $75 (a credit), a $75 cash inflow (a debit) has also occurred, as shown in the related cash effect column below.

	Balance ($000s)		*Change*		*Cash effect*		
	2020	*2019*			*Inflow*	*Outflow*	
Account	*Dr. (Cr.)*	*Dr. (Cr.)*	*Dr.*	*Cr.*	*Dr.*	*Cr.*	*Activity*
Accounts receivable	375	450		75	75		Operating

In effect, Sample Corporation has produced cash inflow during 2020 by speeding up cash collections of its accounts receivable from customers. This overall effect is not reflected in net income. This cash inflow must be added to the net income figure when calculating cash flow from operating activities in the statement of cash flows.

Next, consider the working capital account Merchandise Inventory. The balance in this account has increased by $450 from the end of 2019 to the end of 2020. If the relative levels of merchandise inventory have increased by $450 ($900 – 450, and a debit), cash payments of $450 have been used to accomplish this. This activity has not been included the cost of goods sold figure deducted to arrive at net income on the income statement. Hence the $450 credit (a cash outflow) shown in the cash effect column below needs to be deducted from the net income figure used as the starting point in determining cash flow from operating activities on the SCF. Similarly, the Prepaid Expenses account has increased by $10 (a debit) from 2019 to 2020. To accomplish this, a $10 cash outflow (a credit) must have occurred, also as shown in the related cash effect column below. This amount also needs to be deducted from net income on the SCF to arrive at cash flow from operating activities.

	Balance ($000s)		*Change*		*Cash effect*		
	2020	*2019*			*Inflow*	*Outflow*	
Account	*Dr. (Cr.)*	*Dr. (Cr.)*	*Dr.*	*Cr.*	*Dr.*	*Cr.*	*Activity*
Merchandise inventory	900	450	450			450	Operating
Prepaid expenses	20	10	10			10	Operating

The next applicable working capital account to be analyzed is Accounts Payable, a liability. Refer to the table below. The balance in this account has increased by $90 from the end of 2019 to the end of 2020. In effect, Sample Corporation has delayed cash payments to its short-term creditors during 2020, causing this liability account to increase. An increase in a liability is indicated by a credit. The consequent effect on cash is the opposite – a debit, denoting a cash inflow effect. Sample Corporation has provided more cash for itself by delaying payments to trade creditors. Similarly, the Income Taxes Payable liability account has increased by $15 from 2019 to 2020 (a credit). The consequent cash effect is a $15 inflow (a debit), as shown in the table. By increasing the amount that Sample Corporation owes to the government, the company has created a $15 cash inflow effect compared to the prior year. These effects are shown as cash inflows from operating activities on the SCF. They are added to net income to arrive at cash flow from operating activities.

	Balance ($000s)		*Change*		*Cash effect*		
	2020	*2019*			*Inflow*	*Outflow*	
Account	*Dr. (Cr.)*	*Dr. (Cr.)*	*Dr.*	*Cr.*	*Dr.*	*Cr.*	*Activity*
Accounts payable	(235)	(145)		90	90		Operating
Income taxes payable	(40)	(25)		15	15		Operating

b. Losses and gains not due to normal operating activities

Losses and gains on disposal of capital assets are not part of normal operations and therefore do not affect cash flow from operating activities. Since a loss is deducted when calculating net income, it is added back when calculating cash flow from operating activities on the SCF. Conversely, a gain on sale is included in net income reported on the income statement. It is deducted from the net income starting point when calculating cash flow from operating activities on the SCF.

The first example of this effect arises when analyzing the changes to the Land account. As noted previously (Transaction 1), land originally costing $80 was sold for $104. The journal entry to record the sale of the land would have been:

Dr.	Cash	104	
Cr.	Land		80
Cr.	Gain on Disposal of Land		24

The sale of the land thus has two effects on the SCF, as shown in the cash effects columns in the table below. First, the gain of $24 is shown as a credit. It was initially included in net income, but does not relate to day-to-day operations. Therefore, the gain is *deducted* from net income on the SCF to negate the original effect and arrive at cash flow from operating activities. This is done by recording it as a cash outflow. Second, in the above journal entry, the $104 sale proceeds are shown as a cash inflow (debit). *This represents a cash inflow from an investing* *activity, since it involves a non-current asset account*. The cash effects are shown below.

	Balance ($000s)		Change		Cash Effect		
	2020	2019			Inflow	Outflow	
Account	*Dr. (Cr.)*	*Dr. (Cr.)*	*Dr.*	*Cr.*	*Dr.*	*Cr.*	*Activity*
Land	210	290		80	104		Investing
						24	Operating

c. Expenses and revenue not involving cash

These consist of non-cash amounts that were included in the calculation of net income – depreciation expense in this case. Depreciation for 2020 amounted to $260 as shown on the Sample Corporation income statement. The entry to record the amount must have been

Dr.	Depreciation Expense	260	
Cr.	Acc. Dep'n – Plant Assets		260

Note that this entry does not involve cash flow. As a result, it is *added back* to net income on the SCF to reverse its effect and arrive at cash flow from operating activities. Hence it is shown as a $260 debit in the cash effect column of the table, as shown below:

	Balance		Change		Cash effect		
Account	*2020*	*2019*			*Inflow*	*Outflow*	*Activity*
	Dr. (Cr.)	*Dr. (Cr.)*	*Dr.*	*Cr.*	*Dr.*	*Cr.*	
Acc. Dep'n	(540)	(300)		260*	260		Operating

* The actual change is $240. This discrepancy will be explained in Procedure 2c.

In addition to adjustments described above needed to translate net income reported on the income statement into cash flow from operating activities, the remaining cash flow table accounts need to be analyzed to complete the SCF. This process is described below.

Procedure 2: Calculating Cash Flow from Investing Activities

To calculate cash flow from investing activities, non-current asset accounts are analyzed, as follows:

a. Analysis of Buildings account

As noted earlier, a building was purchased for $800 cash. The journal entry would have been:

Dr.	Buildings	800	
Cr.	Cash		800

The effect on cash is obvious – a cash outflow of $800 (a credit) is recorded in the applicable cash effect column in the table as shown below. Since this transaction affects a non-current asset account, it is recorded in the investing section of the SCF. (Depreciation on the building is assumed to be zero to simplify the illustration.)

	Balance ($000s)		*Change*		*Cash Effect*		
	2020	*2019*			*Inflow*	*Outflow*	
Account	*Dr. (Cr.)*	*Dr. (Cr.)*	*Dr.*	*Cr.*	*Dr.*	*Cr.*	*Activity*
Buildings	1,200	400	800			800	Investing

b. Analysis of Machinery account - purchases

The next accounts to be analyzed are the Machinery and Accumulated Depreciation accounts. Recall that machinery costing $350 was purchased for cash. The journal entry to record this would have been:

Dr.	Machinery	350	
Cr.	Cash		350

The cash effect should be a $350 outflow (a credit). Since this transaction affects a non-current asset account, it is recorded in the Investing section of the SCF.

	Balance ($000s)		*Change*		*Cash effect*		
	2020	*2019*			*Inflow*	*Outflow*	
Account	*Dr. (Cr.)*	*Dr. (Cr.)*	*Dr.*	*Cr.*	*Dr.*	*Cr.*	*Activity*
Machinery	990	700	350*			350	Investing

* The actual change is $290. This discrepancy will be explained in Procedure 2c.

c. Analysis of Machinery account - disposals

The transactions recorded to this point do not fully account for the change in the Machinery account balances from 2019 to 2020 ($990 – 700 = $290 debit) nor the Accumulated Depreciation balances ($540 – 300 = $240 credit). An additional transaction needs to be considered. As noted earlier, machinery costing $60 and having accumulated depreciation of $20 was sold for $30 cash.

The journal entry to record the sale would have been:

Dr.	Cash	30 (a)	
Dr.	Acc. Dep'n. – Mach.	20 (b)	
Dr.	Loss on Sale of Machinery	10 (c)	
Cr.	Machinery		60 (d)

There are two types of cash effects that need to be recorded in the SCF. The $10 loss on sale (c) has originally been deducted to arrive at net income on the income statement. Since the transaction does not relate to an operating activity, it is recorded as a debit (cash inflow) in the applicable cash effect column and *added back* to net income on the SCF to arrive at cash flow from operating activities.

Second, the $30 cash proceeds (a) from the sale need to be recorded as a cash inflow (debit) in the cash effects column and shown as an investing activity on the SCF. The cash flow table would show these effects as follows:

	Balance ($000s)		*Change*		*Cash effect*		
	2020	*2019*			*Inflow*	*Outflow*	
Account	*Dr. (Cr.)*	*Dr. (Cr.)*	*Dr.*	*Cr.*	*Dr.*	*Cr.*	*Activity*
Machinery	990	700	350			350	Investing[1]
				(d) 60	(a) 30		Investing
Acc. Dep.	(540)	(300)	(b) 20		(c) 10		Operating
				260	260		Operating[1]

[1] analyzed earlier

After these adjustments, all the changes in the Machinery and Accumulated Depreciation accounts have been analyzed.

Procedure 3: Calculating cash flow from financing activities

The last accounts to be analyzed are the non-current liability and stockholders' equity accounts, including retained earnings. These comprise financing activities reported on the SCF.

a. Analysis of dividends

Changes in the Dividends Payable account from 2019 to 2020 are analyzed in conjunction with any dividends declared during 2020. Transaction 7 above noted that these amounted to $58. This is also disclosed on the statement of changes in equity. As well, dividends payable have decreased by $5 from 2019 to 2020 ($25 – 30 = $5 debit). The journal entry to record these two effects would have been:

Retained Earnings	58	
Dividends Payable	5	
Cash		63

In effect, an additional $5 of dividends was paid in 2020, representing payments of some of the amounts owing at the end of the prior year. Combining these results in cash outflow of $63. Together, the effect on the SCF is recorded as a $63 cash outflow from financing activities as shown in the cash effects column below.

	Balance ($000s)		*Change*		*Cash effect*		
Account	*2020 Dr. (Cr.)*	*2019 Dr. (Cr.)*	*Dr.*	*Cr.*	*Inflow Dr.*	*Outflow Cr.*	*Activity*
Dividends payable	(25)	(30)	5			5	Financing
Retained earnings	(672)	(650)	58			58	Financing
				80[1]	80		Operating
						63	

[1] analyzed earlier

b. Analysis of borrowings

Transaction 5 stated that Sample Corporation received $500 cash from a long-term bank loan. This is reflected in the change in the Borrowings account from 2019 to 2020. The journal entry to record this transaction would have been:

Dr.	Cash	500	
Cr.	Borrowings		500

As shown in the journal entry above, the cash effect is a $500 inflow (debit).

This is shown in the applicable cash effects column below. It is recorded as a financing activity because it relates to a non-current liability account.

	Balance ($000s)		*Change*		*Cash effect*		
	2020	*2019*			*Inflow*	*Outflow*	
Account	*Dr. (Cr.)*	*Dr. (Cr.)*	*Dr.*	*Cr.*	*Dr.*	*Cr.*	*Activity*
Borrowings	(1,000)	(500)		500	500		Financing

A note about offsetting cash flows

Certain investing and financing transactions may involve offsetting cash inflows and outflows. For instance, if a $200 building is acquired entirely by borrowing money from a bank, the journal entry would be:

Dr.	Buildings	200	
Cr.	Borrowings		200

Offsetting investing and financing transactions that do not affect cash should be excluded from the statement of cash flows, but disclosed elsewhere in a note to the financial statements.

c. Analysis of common stock

As noted in transaction 6 above, $410 of common stock was issued during 2020. This accounts for the entire change in this account. The entry to record this transaction would have been:

Dr.	Cash	410	
Cr.	Common Stock		410

The cash effect is a $410 inflow (debit), as shown by the journal entry and in the cash effects column below. This is recorded as a financing activity inflow on the SCF because it relates to a stockholders' equity account.

	Balance ($000s)		*Change*		*Cash effect*		
	2020	*2019*			*Inflow*	*Outflow*	
Account	*Dr. (Cr.)*	*Dr. (Cr.)*	*Dr.*	*Cr.*	*Dr.*	*Cr.*	*Activity*
Common stock	(1,210)	(800)		410	410		Financing

All accounts have now been analyzed. Based on this, the revised cash flow table is as follows:

	Step 1		Step 2		Step 3		
Account	*Balance ($000s)*		*Change*		*Cash Effect*		*Activity*
	2020	*2019*			*Inflow*	*Outflow*	
	Dr. (Cr.)	*Dr. (Cr.)*	*Dr.*	*Cr.*	*Dr.*	*Cr.*	
Cash	27	150		123	To be explained		Cash and Cash Equiv.
Accounts receivable	375	450		75	75		Operating (Procedure 1a)
Merchandise inventory	900	450	450			450	Operating (Procedure 1a)
Prepaid expenses	20	10	10			10	Operating (Procedure 1a)
Land	210	290		80	~~80~~	24	Operating (Procedure 1b)
					104		Investing (Procedure 1b)
Buildings	1,200	400	800			800	Investing (Procedure 2a)
Machinery	990	700	~~290~~		~~290~~		
			350			350	Investing (Procedure 2b)
				(d) 60	(a) 30		Investing (Procedure 2c)
Acc. dep'n. – mach.	(540)	(300)	(b) 20		(c) 10		Investing (Procedure 2c)
				260	260		Operating (Procedure 1c)
				~~240~~	~~240~~		
Accounts payable	(235)	(145)		90	90		Operating (Procedure 1a)
Dividends payable	(25)	(30)	5			5	Financing (Procedure 3a)
Income taxes payable	(40)	(25)		15	15		Operating (Procedure 1a)
Borrowings	(1,000)	(500)		500	500		Financing (Procedure 3b)
Common stock	(1,210)	(800)		410	410		Financing (Procedure 3c)
Retained earnings	(672)	(650)		22	~~22~~		
					80		Operating (Procedure 1)
						58	Financing (Procedure 3a)
Total	-0-	-0-	1,635	1,635	1,574	1,697	

From this, the statement of cash flows can be prepared, classified into operating, investing, and financing activities.

Step 4 Prepare the cash flow from operating activities section of the SCF

The following cash flow from operating activities section of the SCF can now be prepared from the information in the cash effects columns in the cash flow table (amounts in $000s). Each activity labelled "Operating" in the completed cash flow table is used:

Operating activities	
Net income	$ 80
Items not affecting cash flow	
Depreciation	260
Loss on disposal of machinery	10
Gain on sale of land	(24)
Changes in non-cash working capital	
Decrease in accounts receivable	75
Increase in inventory	(450)
Increase in prepaid expenses	(10)
Increase in accounts payable	90
Increase in income taxes payable	15
Cash flow from operating activities	46

To start the SCF preparation process, we originally assumed that net income of $80 was the same amount of cash inflow from operating activities. After adjusting net income for the three categories of items that do not affect cash flow, we see that cash flow from operating activities is actually only $46. The major effects accounting for this difference are the add-back of depreciation expense ($260) and the large cash expenditures to build up inventory during 2020 ($450).

There are still some slight changes needed to the cash flow from operating activities section of the SCF to conform to generally accepted accounting standards.

a. Income taxes paid need to be disclosed separately. To accomplish this, income before income taxes is used as the starting point instead of net income. The income taxes expense of $35 as shown on the income statement is considered a separate cash outflow. This is combined with the change in the income taxes payable account between 2019 and 2020. The change in the income taxes payable account is a $15 credit ($40 – 25). The cash effect of this change is a $15 debit, or a cash inflow. The net effect on the SCF is that income taxes have created a $20 cash outflow during the year ($35 outflow – $15 inflow).

b. For presentation brevity, often the changes in non-cash working capital accounts are combined and shown as one amount. Gains and losses on disposal are also combined into one amount. If desired, details of these changes can be disclosed in a note to the financial statements.

The revised cash flow from operating activities section of the SCF would show ($000s):

Operating activities	
Income before income taxes	$ 115
Income taxes paid	(20)
Items not affecting cash flow	
Depreciation	260
Net gains on disposal[1]	(14)
Net changes in non-cash working capital[2]	(295)
Cash flow from operating activities	46

[1] ($40 – 24) = $14

[2] ($75 – 450 – 10 + 90) = $295

Details of the net changes in non-cash working capital are then disclosed in a note to the financial statements.

Note that cash flow from operating activities ($46) has not changed.

Step 5 Prepare the investing, financing, and net cash flow sections of the statement of cash flows

When analysis is complete, the cash effects columns of the cash flow table contain all the information needed to prepare the statement of cash flows:

Sample Corporation
Statement of Cash Flows
For the Year Ended December 31, 2020
($000s)

Operating activities		
Income before income taxes		$ 115
Income taxes paid		(20)
Items not affecting cash flow		
Depreciation expense		260
Net gains on disposal		(14)
Net changes in non-cash working capital		(295)
Cash flow from operating activities		46
Investing activities		
Proceeds from sale of land	$ 104	
Proceeds from sale of machinery	30	
Purchase of building	(800)	
Purchase of machinery	(350)	
Cash flow used by investing activities		(1,016)
Financing activities		
Loan proceeds	500	
Issuance of stock	410	
Payment of dividends	(63)	
Cash flow from financing activities		847
Net decrease in cash		(123)
Cash at beginning of year		150
Cash at end of year		$ 27

This agrees to the cash flow table.

These amounts agree to Cash reported on the balance sheet or as defined in the notes.

Summary of Chapter 14 Learning Objectives

LO1 – Explain the purpose and components of the statement of cash flows.

The statement of cash flows is one of the four financial statements. It highlights the net increase or decrease in the cash and cash equivalents balance during the accounting period, and details the sources and uses of cash that caused that change. Cash flows are divided into operating, investing, and financing activities on the SCF.

LO2 – Prepare a statement of cash flows.

Whe the indirect method is used, operating activities section of the statement of cash flows begins with net income calculated on the accrual basis and, by adjusting for changes in current assets, current liabilities, adding back depreciation expense, and adjusting for losses or gains on disposal of capital assets, arrives at cash flow from operating activities. The investing activities section analyzes cash inflows and outflows resulting from the sale and purchase of capital assets. The finance activities section discloses the cash inflows and outflows resulting from the assumption or payment of loans, issue or repurchase of stock, and payment of dividends.

LO3 – Interpret a statement of cash flows.

A statement of cash flows contributes to the decision-making process by explaining the sources and uses of cash. The operating activities section can signal potential areas of concern by focusing on differences between accrual net income and cash flow from operating activities. The investing activities section can highlight if cash is being used to acquire assets for generating revenue, while the financing activities section can identify where the cash to purchase those assets might be coming from. Those who use financial statements can focus on the effectiveness of management's investing and financing decisions and how these may affect future financial performance.

LO4 – (Appendix) Use a cash flow table to develop a statement of cash flows.

A cash flow table uses a worksheet approach to analyze and explain the changes in a company's cash flows for the period and organize this information into a statement of cash flows. It provides a more rigourous and verifiable means of creating the statement of cash flows.

A S S I G N M E N T   M A T E R I A L S

Concept Self-check

1. Using an example, explain in your own words the function of a statement of cash flows. Why is it prepared? What does it communicate to the reader of financial statements? What is its advantage over a balance sheet? over an income statement?
2. Why are financing and investing activities of a corporation important to financial statement readers?
3. How does an increase in accounts receivable during the year affect the cash flow from operating activities?
4. Is a statement of cash flows really only a summary of cash receipts and disbursements recorded in a corporation's Cash account?
5. What effect does the declaration of a cash dividend have on cash flow? the payment of a dividend declared and paid during the current year? the payment of a dividend declared in the preceding year?
6. Why may a change in the short-term investments account not be recorded on the statement of cash flows?
7. Why is it possible that cash may have decreased during the year, even though there has been a substantial net income during the same period?
8. Describe common transactions that produce cash outflows. Explain how these items are analysed to identify cash flows that have occurred during the year.
9. What is the basic format of a SCF? Prepare a model format.
10. (Appendix) How is the cash flow table method used to prepare a SCF?

Comprehension Problems

CP 14–1

The following transactions were carried out by Crozier Manufacturing Limited.

Required: Indicate into which category each transaction or adjustment is placed in the statement of cash flows: operating (O), financing (F), or investing (I) activities.

______ A payment of $5,000 was made on a non-current bank loan.

______ Depreciation expense for equipment was $1,000.

______ $10,000 of common stock was issued for cash.

______ Cash dividends of $2,500 were declared and paid to stockholders.

______ A non-current bank loan was assumed in exchange for equipment costing $7,000.

______ Land was purchased for $25,000 cash.

______ $750 of accrued salaries was paid.

______ A $5,000 operating loan was obtained. The loan is due on demand and is an integral part of the company's cash management strategy.

______ $10,000 of accounts receivable was collected.

______ A building was purchased for $80,000: $30,000 was paid in cash and the rest was borrowed.

______ Land was sold for $50,000 cash.

______ Equipment was sold for $6,000. The original cost was $10,000. The related accumulation depreciation was $3,000.

______ $1,200 cash was paid for a 12-month insurance policy to take effect next year.

______ A patent was amortized for $500.

______ Stock was redeemed for $50,000 cash, the original purchase price.

CP 14–2

The following table includes transactions carried out by Ram Horn Corporation, as well as columns for each of the three categories found in the statement of cash flows: operating, financing, and investing activities.

Required: For each event shown, indicate whether there is an inflow or outflow of cash in each of the categories, and indicate the amount. If the transaction would not appear on the statement of cash flows, explain why.

	Operating activities In (out)	*Financing activities In (out)*	*Investing activities In (out)*
Example			
1. Retired $100 of non-current debt with cash.	______	(100)	______
2. Purchased a building for $90; $60 was financed by non-current debt and the rest was paid in cash.	______	______	______
3. Declared and paid cash dividends of $12 during the year.	______	______	______
4. Purchased equipment by issuing $20 of common stock.	______	______	______
5. Paid $50 in cash to pay off a non-current bank loan.			
6. Sold land for $30 cash.	______	______	______
7. Earned net income of $75.			
8. Purchased equipment costing $15; of this, $5 was paid in cash and the rest with a 90–day note payable.	______	______	______
9. Amortized a patent by $2.	______	______	______
10. Assumed $100 of non-current debt and repurchased common stock with the proceeds.	______	______	______
11. Purchased short-term investments for $5 cash.	______	______	______

12. Sold a machine that cost $20 for $7 cash; the accumulated depreciation on it was $10. ________ ________ ________

13. Depreciation expense for building and equipment amounted to $8 ________ ________ ________

14. Paid in cash the note payable in transaction 8 above ________ ________ ________

15. Issued $20 of preferred stock for cash ________ ________ ________

16. Purchased a patent for $25 cash ________ ________ ________

17. Prepaid $20 for the next two months of advertising ________ ________ ________

18. Purchased land for $60 cash. ________ ________ ________

CP 14–3

Required: For each of the following items indicate whether it increases, decreases, or has no effect (N/E) on cash flow:

Cash flow			
Inc.	Dec.	N/E	
____	____	____	1. Earning net income for the year
____	____	____	2. Redemption of preferred stock at face value.
____	____	____	3. Purchase of inventory
____	____	____	4. Issuing common stock for equipment
____	____	____	5. Assuming non-current debt
____	____	____	6. Declaring a cash dividend
____	____	____	7. Collection of an account receivable
____	____	____	8. Payment of an account payable
____	____	____	9. Purchase of land for cash

______ ______ ______ 10. Issuing common stock for cash

______ ______ ______ 11. Reclassifying non-current liabilities as current liabilities equal to the amount to be paid in cash next year

______ ______ ______ 12. Payment of a cash dividend declared last year

______ ______ ______ 13. Decrease in market value of short-term investments due in 90 days

______ ______ ______ 14. Calculation of amount owing for income taxes.

CP 14–4

Assume the following balance sheet information:

	2020	*2019*
Assets		
Cash	$ -0-	$100
Short-term investments, (due in 60 days)	100	-0-
	$100	$100
Stockholders' Equity		
Common stock	$100	$100

Required: Calculate the change in cash and cash equivalents during 2020.

CP 14–5

Assume the following information:

	2020	*2019*
Assets		
Cash	$100	$50
Liabilities		
Current bank loan, due on demand	$100	$50

Required: Assume the loan is an integral part of cash management. Calculate the change in cash and cash equivalents during the year, and the ending balance.

CP 14–6

Assume the following income statement and balance sheet information for the year ended December 31, 2020:

Sales	$200
Cost of goods sold	120
Gross profit	80
Operating expenses	
Rent	30
Net income	$50

	2020	*2019*
Current assets		
Cash	$100	$86
Accounts receivable	60	40
Inventory	36	30
Prepaid rent	10	
	206	156
Stockholders' equity		
Retained earnings	206	156

Required:

1. Calculate cash flow from operating activities.
2. (Appendix) Prepare a cash flow table. Show that cash effects net to a $14 inflow.

CP 14–7

Assume the following income statement for the year ended December 31, 2020 and balance sheet at year-end:

Revenue	$ -0-
Gain on sale of equipment	500
Net income	$500

	2020	*2019*
Equipment	$ -0-	$1,000
Accumulated depreciation—equipment	-0-	(600)

No equipment was purchased during the year. Equipment was sold for cash during the year.

Required:

1. Calculate the amount of cash for which the equipment was sold.
2. Prepare the journal entry to record the sale of the equipment.
3. Calculate the cash flow from operating activities and investing activities.

CP 14–8

Assume the following income statement and balance sheet information:

Service revenue (all cash)	$175
Operating expenses	
Salaries (all cash)	85
Net income	$90

	2020	*2019*
Current assets		
Cash	$1,250	$1,600
Short-term invest.	100	200
	$1,350	$1,800
Liabilities		
Borrowings	600	1,000
Stockholders' equity		
Common stock	200	300
Retained earnings	550	500
	750	800
	$1,350	$1,800

Other information: The short-term investments are riskless and will be converted to a known amount of cash in 60 days. Borrowings are non-current. No gain or loss occurred when common stock was repurchased.

Required:

1. Calculate cash flow from operating activities.
2. Prepare the 2020 statement of changes in equity.
3. Calculate cash flow from financing activities.
4. (Appendix) Prepare a cash flow table. Show that cash effects net to a $450 outflow.

CP 14–9

The comparative balance sheets of Glacier Corporation showed the following at December 31.

	2020	2019
Assets		
Current		
Cash	$ 10	$ 8
Accounts receivable	18	10
Inventory	24	20
	52	38
Plant assets		
Land	10	24
Plant and equipment	94	60
Accum. dep'n	(14)	(10)
	90	74
	$142	$112
Liabilities		
Current		
Accounts payable	$ 16	$ 12
Non-current borrowings	40	32
	56	44
Stockholders' equity		
Common stock	60	50
Retained earnings	26	18
	86	68
	$142	$112

The income statement for 2020 was as follows:

Sales		$300
Cost of goods sold		200
Gross profit		100
Operating expenses		
Rent	77	
Depreciation	6	83
Income from operations		17
Other gains (losses)		
Gain on sale of equipment	1	
Loss on sale of land	(4)	(3)
Net income		$ 14

Additional information:

a. Land was sold during the year for $10. It was originally purchased for $14.

b. Equipment was sold for cash during the year that originally cost $7. Carrying amount was $5.

c. Equipment was purchased for $41 cash.

Required:

1. Calculate the amount of dividends declared and paid.
2. Prepare a statement of cash flows for the year ended December 31, 2020.
3. Comment on the operating, financing, and investing activities of Glacier Corporation for the year ended December 31, 2020.
4. (Appendix) Prepare a cash flow table. Show that cash effects net to a $2 inflow.

Problems

P 14–1

Assume the following income statement information:

Sales (all cash)	$35
Operating expenses	
Depreciation	10
Income before other item	25
Other item	
Gain on sale of equipment	8
Net income	$33

Required:

1. Assume the equipment originally cost $20, had a carrying amount of $4 at the date of disposal and was sold for $12. Prepare the journal entry to record the disposal. What is the cash effect of this entry?
2. Calculate cash flow from operating and investing activities.

P 14–2

Assume the following income statement and balance sheet information:

Service revenue (all cash)	$300
Operating expenses	
Supplies	200
Income before income taxes	100
Income taxes	20
Net income	$ 80

	2020	2019
Assets		
Current		
Cash	$135	$38
Liabilities		
Current		
Accounts payable	$ 15	$ 6
Income taxes payable	20	12
	35	18
Stockholders' equity		
Retained earnings	100	20
	$135	$38

Required:

1. Prepare the cash flow from operating activities section of the statement of cash flow.
2. (Appendix) Prepare a cash flow table and a revised operating activities section of the SCF. Show that cash effects net to a $97 inflow.

P 14–3

Assume the following income statement and balance sheet information:

Revenue	$ -0-
Depreciation expense	(100)
Net loss	$(100)

	2020	2019
Assets		
Current		
Cash	$350	$650
Plant assets		
Machinery	500	200
Accum. dep'n.	(250)	(150)
	250	50
	$600	$700
Stockholders' equity		
Retained earnings	$600	$700

No machinery was disposed during the year. All machinery purchases were paid in cash.

Required:

1. Prepare a journal entry to record the depreciation expense for the year. Determine the cash effect.
2. Prepare a journal entry to account for the change in the Machinery balance sheet account. What is the cash effect of this entry?
3. Prepare a statement of cash flows for the year ended December 31, 2020.
4. (Appendix) Prepare a cash flow table. Show that cash effects net to a $300 outflow.

P 14–4

The following transactions occurred in the Hubris Corporation during the year ended December 31, 2020.

a.	Net income	$800
b.	Depreciation expense	120
c.	Increase in wages payable	20
d.	Increase in accounts receivable	40
e.	Decrease in merchandise inventory	50
f.	Amortization of patents	5
g.	Payment of non-current borrowings	250
h.	Issuance of common stock for cash	500
i.	Payment of cash dividends	30

Other information: Cash at December 31, 2020 was $1,200.

Required:

1. Prepare a statement of cash flows.
2. (Appendix) Prepare a cash flow table. The first two columns are not necessary. Show that cash effects net to a $1,175 inflow.

P 14–5

During the year ended December 31, 2020, Wheaton Co. Ltd. reported $20,000 of net income, consisting of $95,000 of revenues, $70,000 of operating expenses, and $5,000 of income taxes expense. Following is a list of transactions that occurred during the year:

a. Depreciation expense, $3,000 (included with operating expenses)
b. Increase in wages payable, $500
c. Increase in accounts receivable, $900
d. Decrease in merchandise inventory, $1,200
e. Amortization of patent, $100
f. Non-current borrowings reduced by payment of cash, $5,000
g. Issuance of common stock for cash, $12,500
h. Equipment, cost $10,000, acquired by issuing common stock
i. At the end of the fiscal year, a $5,000 cash dividend was declared, payable one month later
j. Old machinery sold for $6,000 cash; it originally cost $15,000 (one-half depreciated). Loss reported on income statement as ordinary item and included in the $70,000 of operating expenses.
k. Decrease in accounts payable, $1,000.
l. Cash at January 1, 2020 was $1,000; change in cash during the year, $37,900.
m. There was no change in income taxes owing.

Required:

1. Prepare a statement of cash flows.
2. Explain what this statement tells you about Wheaton Co. Ltd.
3. (Appendix) Prepare a cash flow table. Show that cash effects net to a $37,900 inflow. Prepare a revised operating activities section of the SCF.

P 14–6

The following income statement and balance sheet have been prepared for Obelisk Corporation at December 31, 2020, after its first year of operations.

Assets		
Current		
Cash	$ 45	
Accounts receivable	100	
Inventory	60	
Prepaid rent	10	215
Plant assets		
Equipment	160	
Accum. dep'n	(44)	116
		$331
Liabilities		
Current		
Accounts payable	$ 50	
Dividends payable	5	
Income taxes payable	8	63
Non-current borrowings		80
		143
Stockholders' equity		
Common stock	140	
Retained earnings	48	188
		$331

Sales		$225
Cost of goods sold		92
Gross profit		133
Selling and administration		
Rent	$39	
Depreciation	44	83
Income from operations		57
Gain on sale of land		20
Income before income taxes		77
Income taxes		7
Net income		$ 70

Additional information:

a. Obelisk assumed $100 of long-term debt during the year for cash.
b. The company issued common stock for equipment, $40. Other equipment was purchased for $120 cash. No equipment was sold during the year.
c. Land costing $30 was purchased, then sold during the year for $50.
d. Some borrowings were repaid during the year for $20 cash.
e. The company declared dividends of $15 during the year.

Required:

1. Prepare a statement of cash flows.
2. Explain what the statement of cash flows tells you about Obelisk Corporation.
3. (Appendix) Prepare a cash flow table and a revised operating activities section of the SCF. Show that cash effects net to a $45 inflow.

P 14–7

The balance sheet of Cormier Limited at December 31 appears below.

Assets	*2020*	*2019*
Current		
Cash	$ 40	$ 30
Accounts receivable	38	28
Inventory	102	106
Prepaid expenses	8	6
	188	170
Plant assets		
Land		20
Buildings	240	180
Machinery	134	80
Accum. dep'n	(76)	(80)
Patents, at carrying amount	8	10
	306	210
	$494	$380

Liabilities		
Current		
Accounts payable	$ 40	$ 44
Income taxes payable	8	6
	48	50
Non-current borrowings	70	60
	118	110
Stockholders' equity		
Common stock	310	240
Retained earnings	66	30
	376	270
	$494	$380

The following additional information is available:

a. Net income for the year was $56; income taxes expense was $20.
b. Depreciation recorded on building and machinery was $14.
c. Amortization of patents amounted to $2.
d. Machinery costing $30 was purchased; one-third was paid in cash and a 5-year loan assumed for the balance.
e. Machinery costing $60 was purchased, and was paid for by issuing 6 common stock.

f. Machinery was sold for $16 cash. This originally cost $36 (one-half depreciated); loss or gain reported in the income statement.
g. A building was purchased for $60; paid cash.
h. Land costing $20 was sold for $24 cash during the year. The related gain was reported in the income statement.
i. Cash dividends of $20 were declared and paid.
j. No stock was reacquired.

Required:

1. Prepare a statement of cash flows at December 31, 2020.
2. What observations about Cormier can you make from this statement?
3. (Appendix) Prepare a cash flow table and a revised operating activities section of the SCF. Show that cash effects net to a $10 inflow.

P 14–8

The balance sheet, income statement, and statement of changes in equity of Big Dog Carworks Corp. for the years ended December 31, 2021 through 2023 were presented in Figure 13-1 of chapter 13. Refer to these. All figures are stated in thousands of dollars ($000s).

Additional information:

a. Short-term investments are riskless and are held to meet on-going cash requirements and will be liquidated 120 days after acquisition.

b. Accounts receivable consist of the following ($000s):

	2023	*2022*	*2021*
Trade accounts receivable	$600	$406	$302
Allowance for doubtful accounts	(56)	(36)	(45)
Net trade receivables	544	370	257
Insurance proceeds from warehouse fire (see note d below)	-0-	50	-0-
Total	$544	$420	$257

c. Inventory at December 31, 2023 was reduced by $200 due to obsolescence of some items.

d. During 2022, a warehouse building costing $100 and with a carrying amount of $47 was destroyed by fire. Insurance proceeds of $50 were received in 2011 and recorded as part of accounts receivable at December 31, 2022 (see note 2 above). The gain on disposal was recorded as part of selling, general, and administrative expenses on the 2022 income statement. There were no other disposals of property, plant, and equipment in 2022 and 2023.

e. Borrowings consist of the following ($000s):

	2023	*2022*	*2021*
Operating bank loan	$600	$570	$100
Stockholder loan	225	-0-	-0-
	$825	$570	$100

f. The operating loan is due on demand and is an integral part of the company's cash management strategy. The stockholder loan is expected to repaid within six months of the fiscal year-end.

g. Accounts payable at December 31, 2023 include $80 of dividends payable (2022 and 2021: $-0-).

h. Depreciation is included in administration expenses. In 2023, depreciation amounted to $75 (2022: $84).

Required:

1. Prepare a comparative statement of cash flows for the years ended December 31, 2022 and 2023.
2. Interpret the SCF results.
3. (Appendix) Prepare cash flow tables for 2022 and 2023. State any assumptions you make. Restate the operating activities section of the SCF using the format illustrated in the appendix.

Introduction to
Financial Accounting

Based on United States Generally Accepted Accounting Principles

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