

# **Basic Computing And Typing Skills**

Dr. Dwight Thomas & Mr. Calvor Muchindu

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## **Basic Computing and Typing Skills**

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### Typing Basics

Basic Computing and Typing Skills seeks to help students understand basic computing and to teach them foundational touch typing skills. The teaching approach is learner-centered and hands-on in nature. Because the course is highly skilled-based, it will be offered as a two week intensive course, with two weeks of fulltime face-to-face work.

### Outcomes

Regarding computing, by the end of the course, the student will be able to:

- ... name the parts of a computer and hook them up correctly,
- ... navigate Windows and/or Ubuntu operating systems at a basic level,
- ... create and manipulate word processing documents at a basic level,
- ... open, save, and close documents,
- ...organize documents in such a way that they are easy to retrieve,
- ...print a document from the computer to either a virtual printer or a physical printer,

Regarding the internet and email, by the end of the course, the student will be able to:

- ... explain the basic nature of the internet and how it functions,
- ... explain the primary social media and their purposes,
- ... understand email and how it works,
- ... login and out of an email account, create and send an email, reply to an email, attach a document to an email, and download an attachment to a computer

Regarding typing, by the end of the course, the student will be able to:

- ...understand and explain the nature of “touch typing”
- ... name the two cardinal rules of good typing,
- ...describe and demonstrate the correct posture and position for good typing,
- ...know from memory all of the keys of the typical typing keyboard,
- ...touch type correctly at a minimum speed of 15 words per minute with 80% or greater accuracy,
- ...explain the formatting requirements and produce for the following types of documents: letters, reports, simple event adverts or invitations.



### Materials Provided by Students

This intensive course is for people who have successfully completed grade nine or above.

Students will need the following materials:

- 3 pencils, a sharpener, a rubber, 2 pens
- Three A5 196-page notebooks for taking notes
- 25 sheets of blank, clean A-4 paper for printing purposes
- Personal laptop

### Course Expectations

- Attend classes regularly and arrive on time
- Participate with a willing spirit and an open mind
- Spend significant time studying concepts, terminology and skills
- Help others when asked by the lecturer to do so

### ZACU Policies and Code of Conduct

- Code of Conduct
  - ZACU students are expected to agree in writing to its Code of Conduct.
  - ZACU expects courteous behavior from all of its students. Any student who fails to do so will be dismissed immediately and any paid fees will not be refunded.
- Policies:
  - ZACU will not make copies of the course materials. Nor will ZACU make copies for personal purposes. Additional copies of the course materials can be purchased from the ZACU office for a fee.

### Assessment / Grades

- |                      |     |
|----------------------|-----|
| • Attendance         | 20% |
| • Assignments        | 20% |
| • Final written exam | 30% |
| • Final typing exam  | 30% |



## Computer Basics

- Fundamental computer concepts and terminology
  - Binary code, bits, bytes, kilobytes, megabytes, gigabytes, terabytes
  - Desktop, laptop, tablets, smart phones
- Computer parts
  - Central processing unit (CPU):
    - mother board – the circuit board on which various components are mounted
    - power supply – provides power to the computer
    - drives (hard drives, flash drives, memory cards)
    - internal memory (RAM and ROM)
    - plug-in boards & slots
    - speakers
  - Input and output connecting cables and cords
    - Power cord
    - Video cables: vga, hdmi, dvi
    - usb, mini usb, micro usb
    - CAT5, Firewire
    - Keyboard and mouse
    - Audio (in and out)
    - Printer cable
    - Old-style keyboard cable
    - Older cables: serial, parallel, etc.
  - Monitors
  - Keyboards
  - Mouse or mouse pad
    - Left click = action or “select”
    - Left double click = action (i.e. open a doc or start a program)
    - Right click = shows information or options (properties, etc.)
    - Left hold = combination task
    - Left hold, drag = drag an object
    - Left hold, Ctrl, drag = copy to another location
  - ‘Peripherals’:
    - Printers – for printed output (color or black and white)
    - Scanners – for capturing images and sending them to the computer
    - Modems, dongles and hotspots – for connecting to the internet
    - External CD or DVD drives – for reading and writing CDs or DVDs
    - External hard drives
    - Flash drives (aka, thumb drives)
    - fax machines
  - Drivers & their purposes
- Activity: Computer Crossword



## Connecting computer parts – Diagrams and Demonstration

Inside a desktop PC:

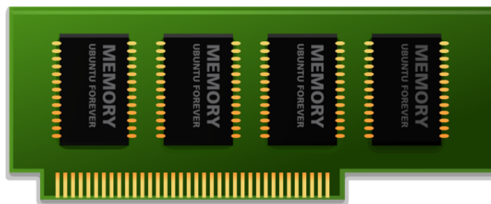


Case  
Motherboard  
CPU  
Fans  
Heatsink  
RAM  
Opt. Drive  
Hard Drive  
Video Card  
Other Exp. Cards  
Cables

Hard Drive



PC memory card for PCI slot



USB Flash drive

USB memory card adaptor





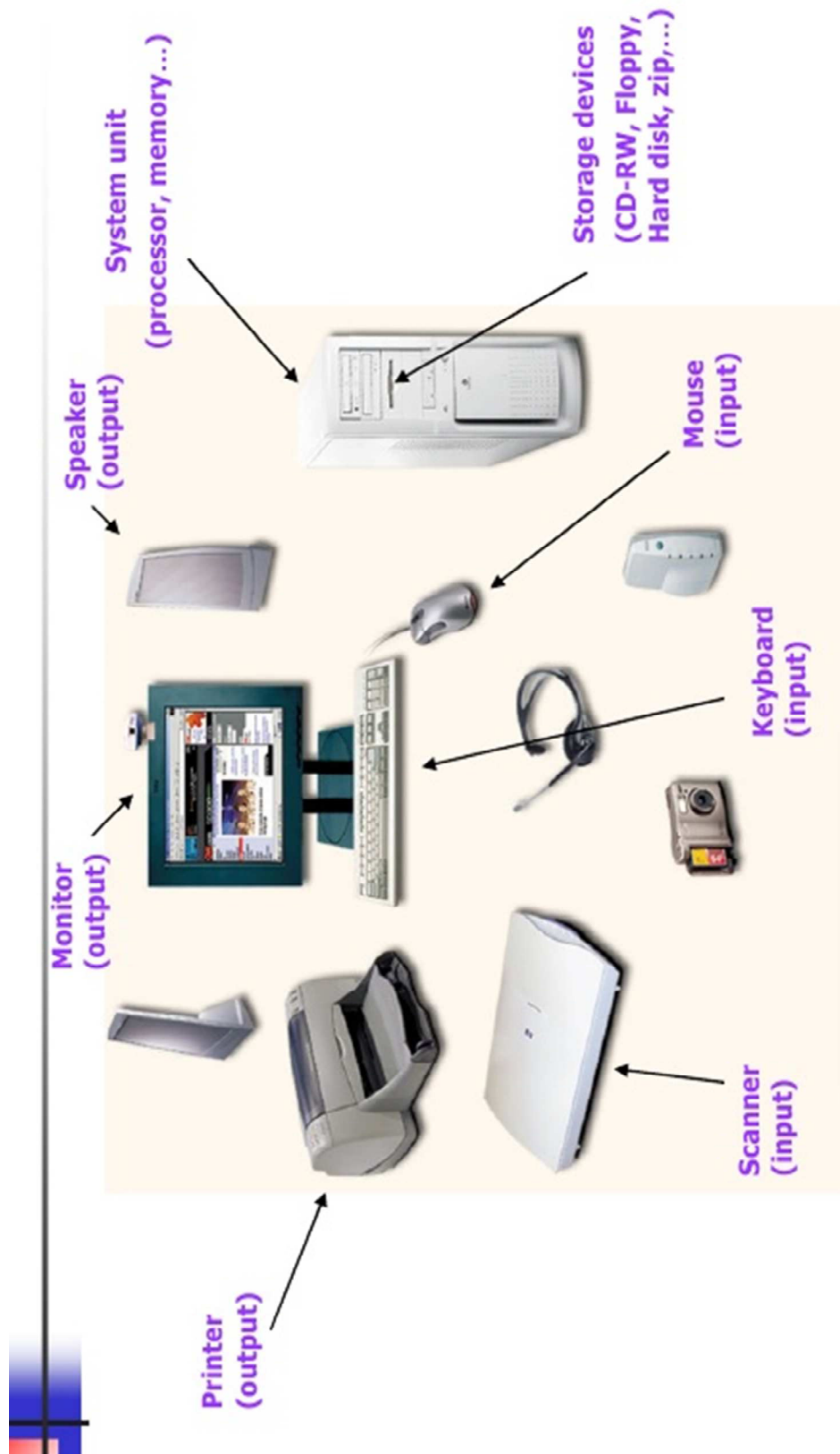


## Types of memory cards

Non exhaustive visual listing of memory types  
you can duplicate with or without adaptor.









## Types of computer plugs and jacks

### Audio



Line-Out Headphones



Microphone



Stereo Line In



Subwoofer/Center Out



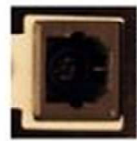
Rear Surround Speakers



Mid Surround Speakers



Digital Audio (RCA)



Optical Audio "Toslink"

### Video



VGA (male)



VGA (female)



DisplayPort (male)



DisplayPort (female)



Mini DisplayPort (m)



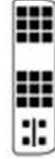
Mini DisplayPort (f)



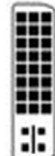
HDMI Type A (male)



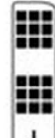
HDMI Type A (female)



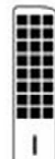
DVI-I Single Link



DVI-I Dual Link



DVI-D Single Link



DVI-D Dual Link LFH-60



DVI-D Dual Link DM5-59



Micro-DVI



Mini-DVI



Mini HDMI Type C



Composite A/V (RCA)



S-Video



Component Video (m)



Component Video (f)



RF/Coaxial (male)



RF/Coaxial (female)



Apple Display Conn (ADC)



Micro HDMI Type D

### Power



IEC 320 C13/C14 Connector



IEC 320 C13 Socket (f)



IEC 320 C14 Plug (m)



IEC 320 C19 (f)



IEC 320 C20 (m)



IEC 320 C5 Connector



SATA Power Connector



Molex 4-pin Connector

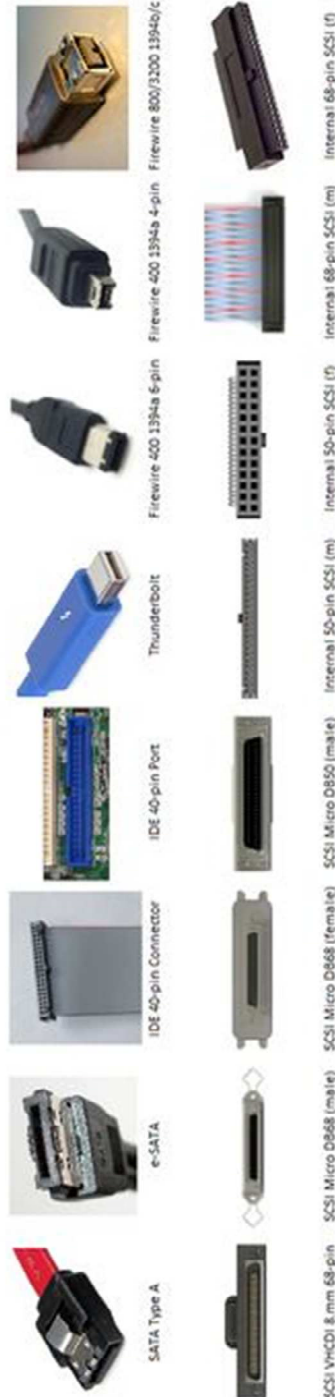


## Types of computer plugs and jacks

### USB, Keyboard and Mouse



### Storage / Disk





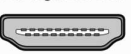
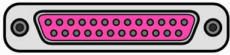
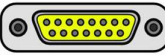



### Network / Communications

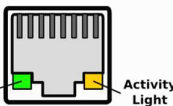

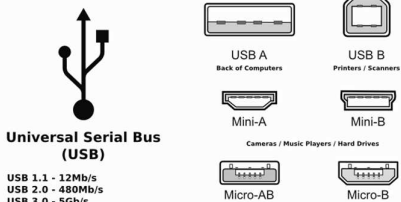






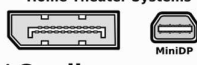

# Identifying Computer Ports

<b>Serial Port</b> Used for PDAs and serial devices. 	<b>PS/2 Port</b> Mouse Keyboard 	<b>VGA Port</b> For External Monitor 	<b>S-Video</b> For Video in/out 	<b>HDMI</b> For High End TVs 
<b>Parallel Port</b> Used for printers and data. 	<b>Games Port</b> Joysticks and Midi Input 	<b>Digital Video Interface</b> DVI Mini-DVI Micro-DVI 		

All Replaced by USB!

<b>Ethernet / RJ45</b> 10Mb/s, 100Mb/s and 1Gb/s 	<b>Modem / RJ14</b> 56Kb/s 	<b>Universal Serial Bus (USB)</b> USB 1.1 - 12Mb/s USB 2.0 - 480Mb/s USB 3.0 - 5Gb/s 	
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<b>Audio Mini-Jacks Sockets</b> 	<b>S/PDIF Digital Audio</b> 	<b>Firewire / i.Link IEEE1394</b> Video Cameras (DV) and Hard Drives 	<b>Firewire 400Mb/s - IEEE1394a</b> 6-circuit connector 4-circuit connector 
		<b>Firewire 800Mb/s - IEEE1394b</b> 9-circuit connector 	

<b>IEC Power Connectors</b> C5 / C6 Cloverleaf 2.5 Amps C7 / C8 Figure of 8 2.5 Amps C13 / C14 IEC Cord 10 Amps 	<b>eSata</b> External Hard Drive Port 	<b>DisplayPort</b> Video and Audio Port for Home Theater Systems 
<b>PCMCIA / Cardbus</b> WiFi, Networking and Expansion Cards 		

by Martin Owens  
Revision 05 2009-07-17

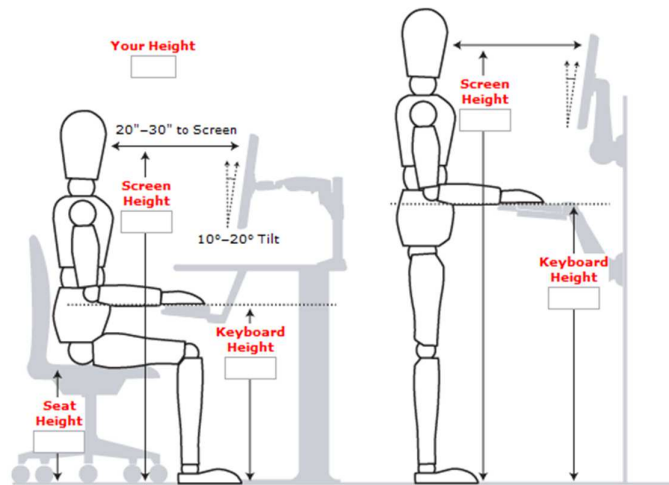


Activity: Connect desktop computer correctly.



## Typing Basics

Posture, Position, etc. – Maintaining the correct typing posture will help you type faster, more accurately, and for longer periods of time. You should be sitting in a comfortable chair with your feet on the floor, back straight, arms extended straight ahead (see below). Your fingers should extend straight ahead with the fingers slightly bent. Typing “flat fingered” will slow you down. Your wrists should not be touching the keyboard or laptop. More recently in some work environments, people have found that they can work faster and longer standing up. To accommodate this working style, furniture companies have designed special desks which allow users to change the height of the desk to accommodate either sitting or standing.



- The height of the keyboard is also important. The best height for a computer table is about 26" above floor level (with a normal chair height of 18"). This height will vary according to the height of the chair and your body size. If the keyboard is too high, the typist will be typing at an uncomfortable level and will experience fatigue. The point is simply that the desk height should permit the typist to maintain a comfortable arm, wrist and hand position in order to maximize typing speed and accuracy.
- Two cardinal rules of good touch typing – Obey the two cardinal rules below, practice regularly, and you will be able to touch type with speed and accuracy within six months to a year. Be very diligent about these two cardinal rules. You will be tempted to “cheat” and look at the keyboard; and you might find it challenging to keep your fingers in home position at first. But, be assured, if you force yourself to follow these two cardinal rules, the benefits will become evident within a year’s time. Time spent now in obeying them might slow your work slightly in the short term, but you will save much more time in the long term if you obey.



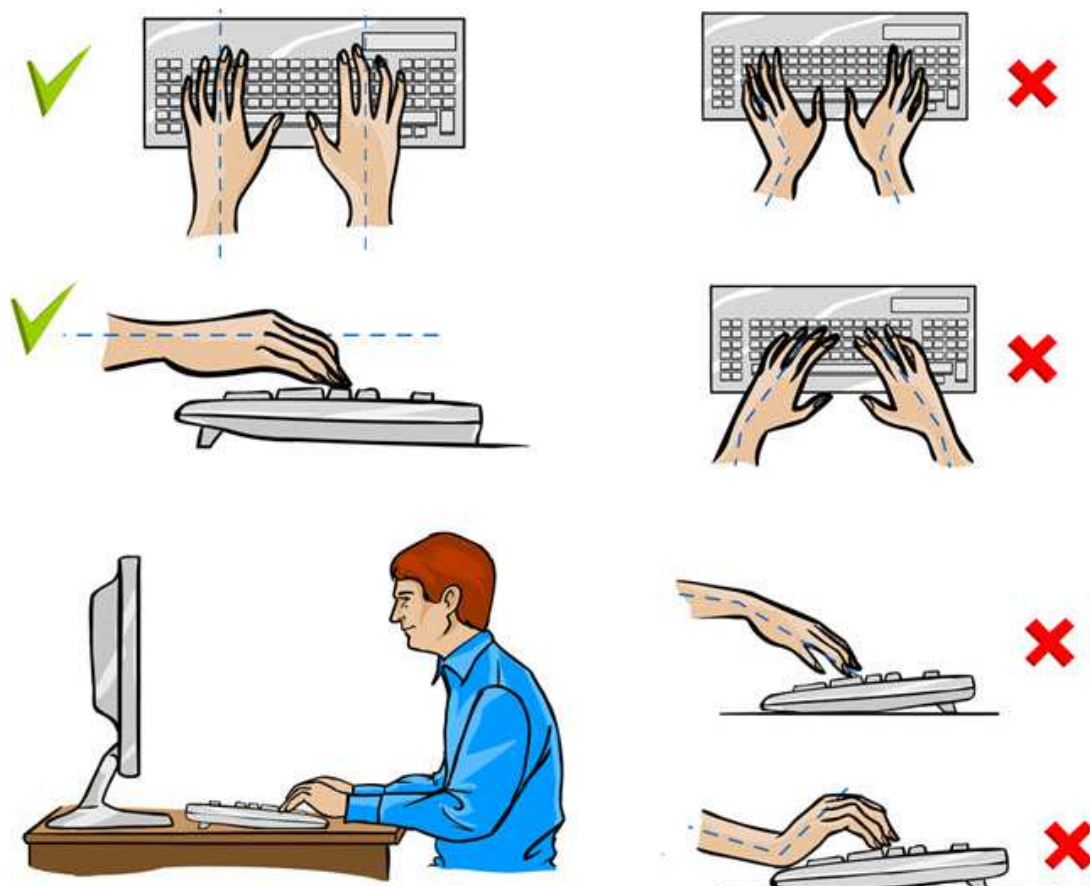
## HOME ROW

Keyboard keys: home row, Qwerty, etc. – The home row is the row of keys which begins with “A” on the left. “F” and “J” keys each have a small raised piece. These are there so the typist can locate them without looking. Place your left index finger on “F” and your right index finger on “J” and your hands will be in home position. This is where your hands should remain whenever you are typing. You should only move away from this position when necessary.

- Activities: Keyboard memorization and “dry” typing using a paper keyboard and a physical keyboard (not connected to the computer).

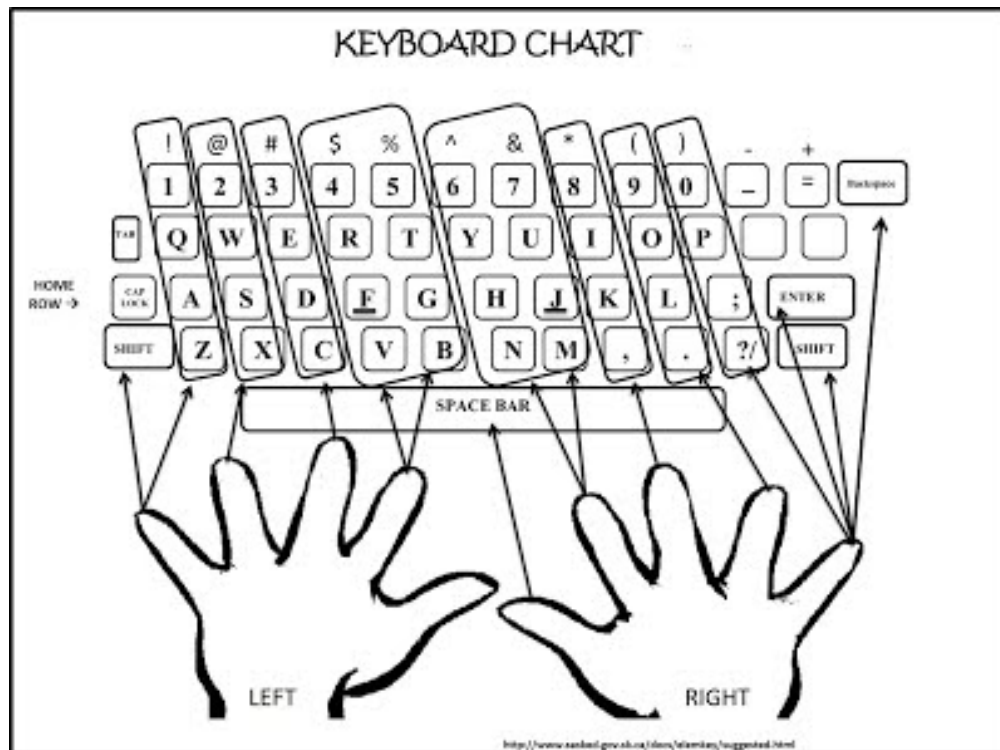
### Posture & position

Correct hand position and seating posture are shown below:

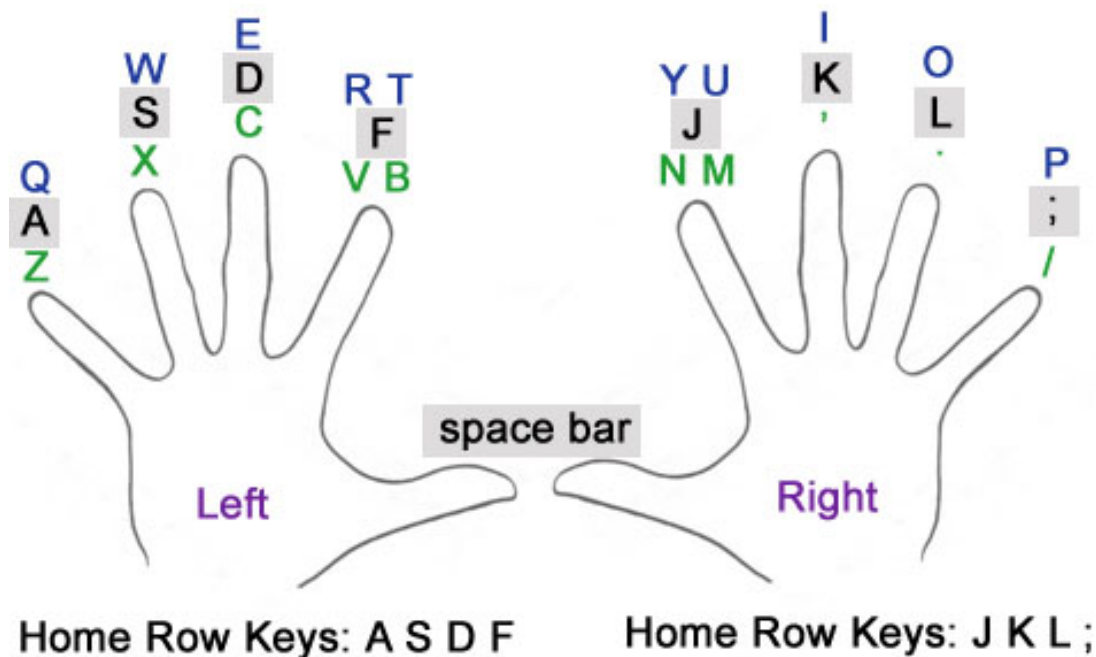


Each of your ten fingers has specific keys which it must type. Ideally, you should not cheat and use the wrong finger for the wrong key. If you have physical limitations, of course, it is acceptable to substitute a different finger. However, if all of your fingers function well, use them with the appropriate key of the keyboard. Below are two diagrams showing key assignments for each finger. Home row is also indicated.





## Keyboarding Finger Chart

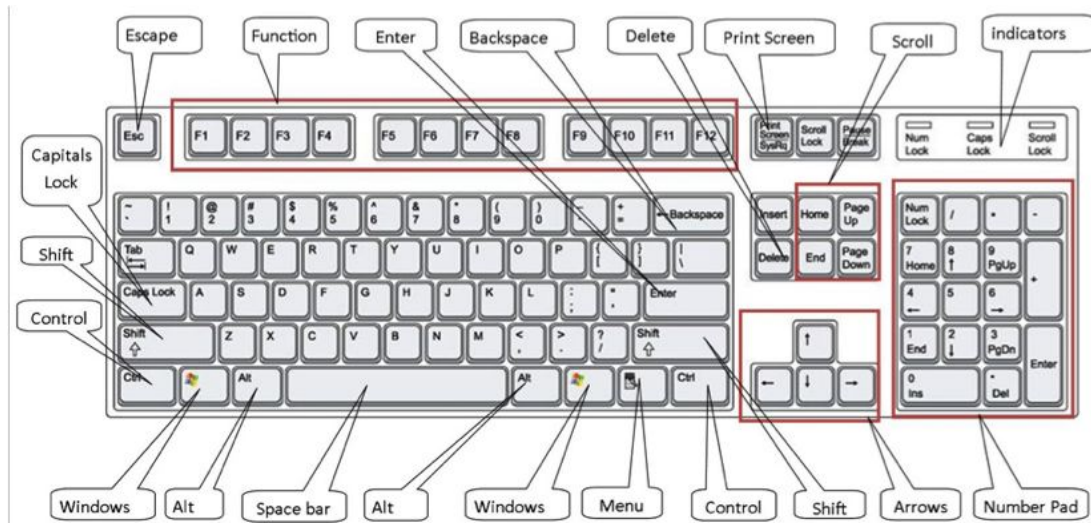




## Keyboard Layout

Most modern keyboards follow the so-called “**Qwerty**” layout. There have been some attempts to redefine keyboards in recent years, but as of now they have not been successful. You will also find that keyboards have slight variations in the auxiliary keys (such as delete and “print screen”). It is easy to adjust to these variations, and quite acceptable to look at the keyboard when using such auxiliary keys. Below is a standard older PC keyboard with the keys identified.

An older PC keyboard

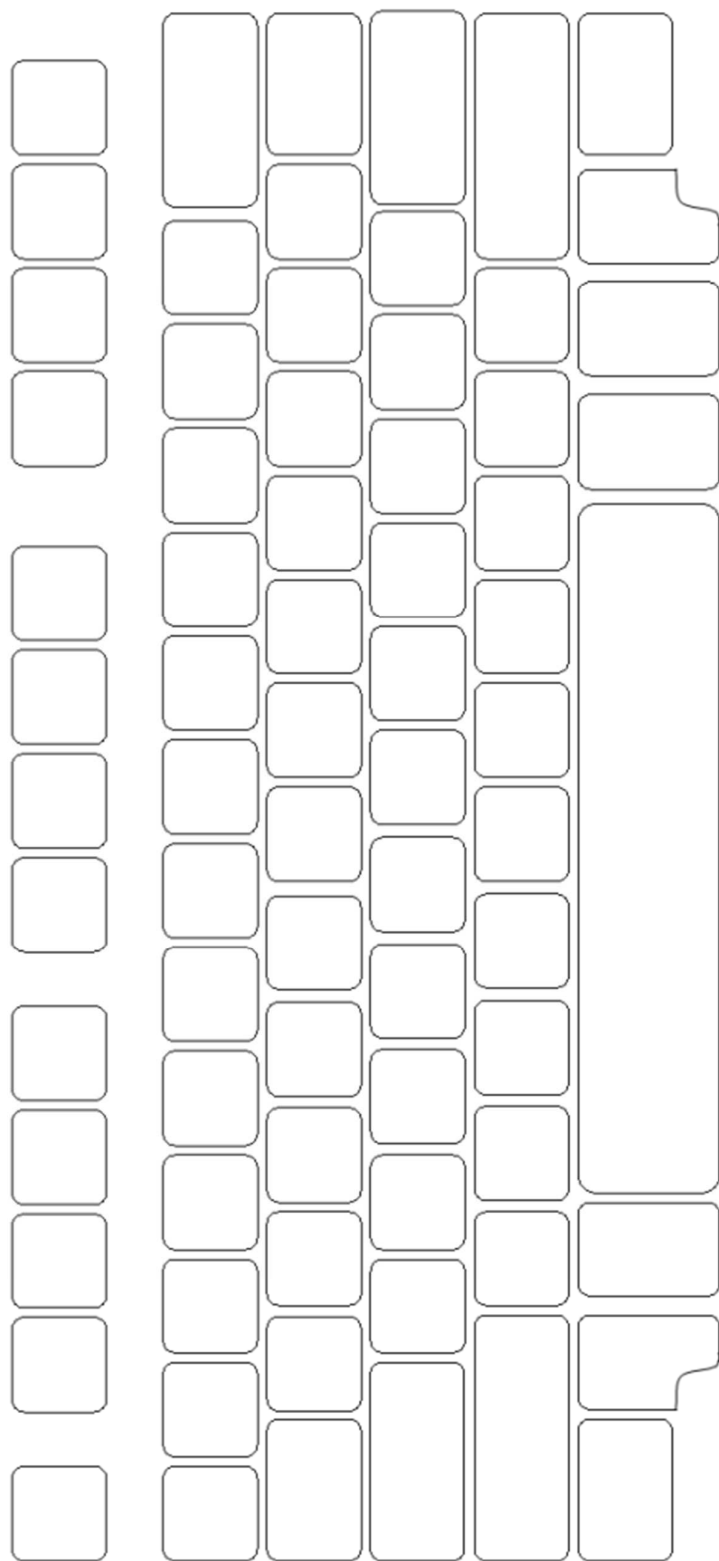


Activity: Keyboard memorization. Try to memorize the keyboard and write the letters or functions in pencil in the blank keyboard below:



# Blank Keyboard

Name: \_\_\_\_\_



**10:00 – Break**



# Two Cardinal Rules of Correct Touch Typing

#1 – Keep your fingers  
in “home position.”

#2 – Do **NOT** look at the keyboard.  
Keep your eyes  
on the page you are typing  
or on the screen  
if you are typing free form.



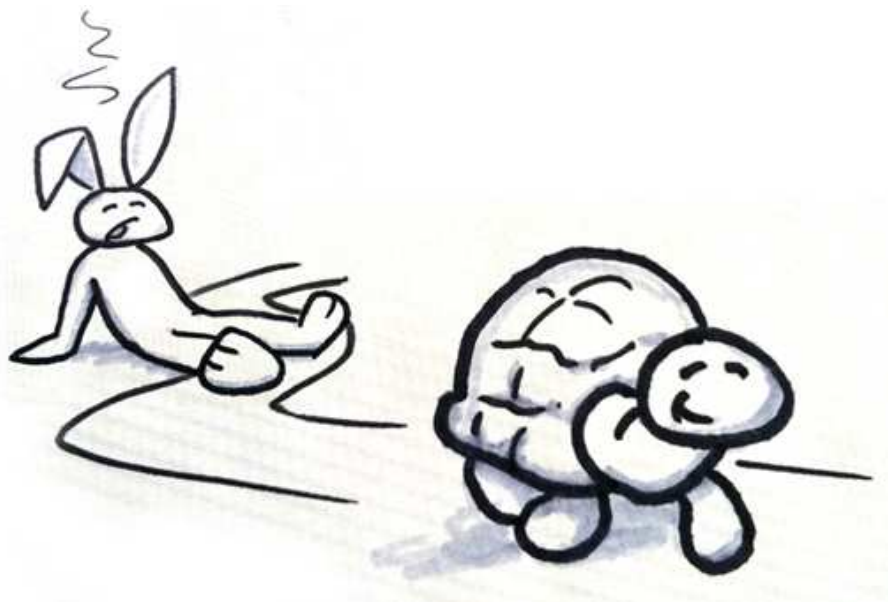
## Typing Basics 2

Typing and keyboard terms:

- Review of the principles and concepts of “touch typing”
  - Body position and posture
  - Table height
  - Keyboard layout
  - Finger positions
- Typing speed – Explanation of “**words per minute**” (wpm) or “**characters per minute**” (cpm). 25 wpm is considered respectable but on the slow side. 50 wpm is the bottom of professional level typing. 65 wpm and above is considered fast. Some typists can manage 90 wpm and higher. Whatever your current level, there is no doubt that you can improve your speed.
- Accuracy – Although speed is important, accuracy is equally important. In fact, typing slower in order to be accurate will actually save time in the end. The well-known proverb is certainly true here:

“We go slow in order to go fast.”

Typing fast at the expense of accuracy merely means you will need to take more time to edit your work. And, in general, editing takes more time than the typing. So, strive for accuracy. Anything below 80% accuracy is considered poor. Anything above 95% accuracy is considered excellent. Remember, however, that professional typists often type at 98 to 100% accuracy.





## Fonts and font treatment

- The term “**font**” refers to the style of the type. There are several basic categories of fonts:
  - **Serif** (with small tails)
    - Times Roman
    - Bookman
    - Courier New
  - **Sans-serif** (without tails)
    - Arial
    - Calibri
    - Berlin Sans FB
  - **Script**
    - *Blackadder JTC*
    - *Brush Script MT*
    - *Freestyle Script*
  - **Display or Decorative**
    - **ALGERIAN**
    - **Broadway**
    - **COPPERPLATE GOTHIC BOLD**

## Treatment of fonts

- Most fonts can be treated in several ways:
  - **Bold:** **This is bold.**
  - **Italics:** *This is italics.*
  - **Bold italics:** ***This is bold and italics.***
  - **Underline:** This is underlined.
  - **Superscript:** <sup>This is superscript.</sup>



## Font size

Font size is important and is measure in “**points.**” The term “points” is an older printing measurement but is still used to describe modern font size.

- This is 12 point Times Roman.
- This is 14 point Times Roman.
- This is 16 point Times Roman.
- This is 18 point Times Roman.
- This is 24 point Times Roman.

## Spacing

Spacing can be thought of in both the linear and vertical dimensions. That is, the space between the lines can vary (vertical), and the space between characters can vary (linear).

- This can be important, because some spacing is easier to read than others. For example, double spacing between lines is often helpful when a document must be edited. This is the reason that academic papers (such as term papers, theses, etc.) are submitted in double-spaced form. The space between the lines allows the editor to add marks, comments or corrections between the typed lines. Below are examples of various line spacings.

- Any paragraph can be spaced at several different spacings. We call this the “line spacing.” The most common spacings are: single spacing and double spacing, but most word processors allow other spacing. This paragraph is **single spaced** Times Roman, 12 point type.
- Any paragraph can be spaced at several different spacings. We call this the “line spacing.” The most common spacings are: single spacing and double spacing, but most word processors allow other spacing. This paragraph is **double spaced** Times Roman, 12 point type.
- Any paragraph can be spaced at several different spacings. We call this the “line spacing.” The most common spacings are single spacing and double spacing, but most word processors allow other spacing. This paragraph is Times Roman, 12 point type spaced at **1.5 spaces**.



## **Font Width**

Different fonts have different widths. Some have **fixed widths** for every character (e.g., Courier), but most have **variable widths** whereby letters like “i” or “l” are narrower than “m” or “w.” You will notice that the two sentences below are almost identical insofar as the text, but physically the first example is longer. The reason is simply that the first font (Courier) is a fixed width font, while the second (Times) is a variable width font.

- Here is a sentence using a fixed font (Courier)  
Here is a sentence using a variable font (Times)

The character width accounts for the difference in the length of the two lines above. The number of characters in each line is almost exactly the same.

Below are some other examples which indicate spacing and style differences. Each example technically uses the same font size. Notice the difference in length and the difference in the type styles.

- Arial:  
The cows have escaped the kraal and are eating the maize.
- Bradley Hand  
*The cows have escaped the kraal and are eating the maize.*
- Bookman Old  
The cows have escaped the kraal and are eating the maize.
- Britannic Bold  
**The cows have escaped the kraal and are eating the maize.**



## **Justification**

The term “**justification**” refers to the position and arrangement of lines of text. Two basic types of justification exist: **ragged** or **full**. The first (ragged) has three variations: “**flush left**,” “**flush right**,” and “**centered**.” Said another way,

- Text can be ragged or full justification.
- Ragged text can be “flush left,” “flush right,” or centered

Below are examples of each type of justification.

This is flush left, ragged right:

Just as body, though one, has many parts, but all its many parts form one body, so it is with Christ. For we were all baptized by one Spirit so as to form one Body.

This is flush right, ragged left:

Just as body, though one, has many parts, but all its many parts form one body, so it is with Christ. For we were all baptized by one Spirit so as to form one Body.

This is centered, ragged left and right:

Just as body, though one, has many parts, but all its many parts form one body, so it is with Christ. For we were all baptized by one Spirit so as to form one Body.

This is full justification:

Just as body, though one, has many parts, but all its many parts form one body, so it is with Christ. For we were all baptized by one Spirit so as to form one Body.

- Each form of justification serves a different purpose and various documents generally favor different justification. Academic papers, for example, are almost always typed as flush left, ragged right. Published books, however, usually appear fully justified. Adverts and invitations will often use centered texts for the sake of appearance. Letters are generally flush left, ragged right.



## Tab and indent

- The “**tab key**” is very useful. It jumps the text by a pre-determined amount of space. This space can be adjusted in most word processors. Do NOT try to imitate tabs by using the space bar. Because different fonts have different widths, the result will look uneven and unprofessional.
- **Indent** is a term which means to “push” a line or a section in from the margins. It is customary to indent the first line of paragraphs. It is possible to indent from the left or from the right.
- Enter (or return) – The “**enter**” or “**return**” key simply ends a line or paragraph and forces the text to the next line.
- Shift, Caps and caps lock – Two “**shift keys**” are located on the left and the right of the keyboard. There are two so that typists can capitalize letters with either hand.
  - The left shift key is used with letters on the right side;
  - the right shift key is used with letters on the left side.
  - The “caps lock” key forces every key stroke to be capital. “Caps” is simply an abbreviation for “capital.” This key can be useful when you need to type a long word or phrase in caps.
- Delete and backspace – Many keyboards have both a “**delete**” key and a “**backspace**” key. They function similarly.
  - The delete key deletes whatever is in front of the cursor or whatever text is selected.
  - The backspace key deletes whatever is behind the cursor or whatever text is selected.



## Page formatting terms and concepts

- When typing a document, you have a wide variety of choices. Knowing your options will help you produce nicer and more professional looking documents.
- Page size can be varied. A4 is the most common “**page size**” in Zambia and the UK. So-called “Letter” size is commonly used in the United States.
- Margins can be varied.
  - If a document is going to be stapled, it is best to have equal “**margins**” on the left and right. A one inch margin is typical for many documents.
  - However, when you intend to staple a document into a booklet, it is best to have a wider margin on the left (perhaps 1-1/2”) and a smaller margin on the right (perhaps 1”).
- Page numbers are especially helpful if your document is more than 2 or 3 pages long. “**Page numbers**” can be at the top or bottom, and can be centered, flush left, or flush right.
- Headers and footers – Most word processors have a feature which will add a “**header**” at the top or a “**footer**” at the bottom of the document. This can be helpful to indicate what the document is about, especially in a multi-section document. It also allows the addition of other helpful information such as file name or date.
- Paragraph spacing
  - It is often helpful to have a little extra space between paragraphs to make reading easier. We refer to this as “**paragraph spacing**.” Some word processors can be set to automatically insert space after every paragraph.
- Headings and Subheadings
  - Often, you will want to use “**headings**” to indicate the beginning of an important section. You can center the heading and use bold type or underlined type to highlight the beginning of the section.
  - “**Subheadings**” can be created by using bold (upper-lower) flush left. This distinguishes it from the main heading.
  - “**Sub-subheadings**” might use light face italics. Below is an illustration:

**This is a Heading Using Bold Face and Underlined**

**This is a Subheading**

*This is a Sub-subheading*

**ACTIVITY:** More “dry” practice / make simple document stands from cardboard



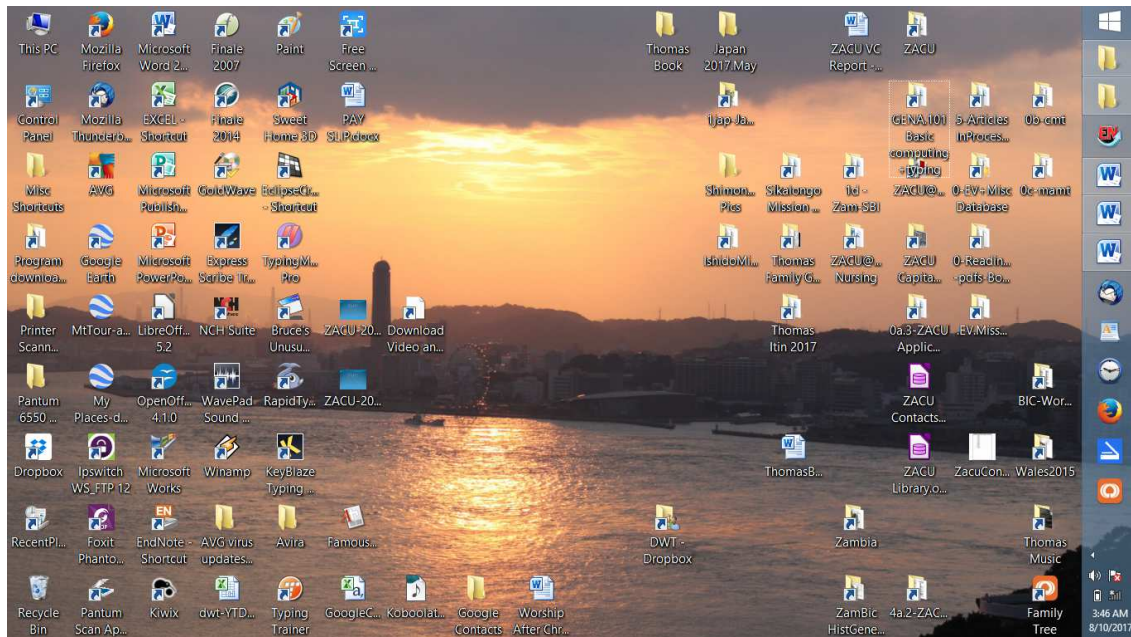
## Computer Basics, Part 2

- Operating systems: Windows, Apple, Linux (Ubuntu, Debian, etc.)
  - The “**operating system**” is the computing platform upon which all other programs function. There are three primary operating systems:
    - Windows (produced by Microsoft)
    - Apple OS (produced by Apple)
    - Linux (a free, “open source” operating system)
  - The basic features of each operating system are pretty much the same, but the exact locations differ.
- The “open source” philosophy
  - “**Open source**” is a worldwide movement to provide free computing resources to everyone. The community supporting this idea believes that large companies (such as Microsoft and Apple) are taking advantage of people by charging unreasonable fees for their products. In response, people have created free operating systems and software.
- Piracy and copyright
  - “**Piracy**” and “**copyright**” infringement is a big problem in Zambia today. An alarmingly high percentage of computers use pirated software and operating systems. Many Zambian users are not even aware that their computers have stolen software installed. ZACU takes this issue seriously and intends to only use legal copies of operating systems and software. Relatedly, ZACU will utilize open source software whenever possible in order to avoid stealing “**intellectual property**”.
- Locations/Features/Functions of operating systems: All operating systems have similar basic locations, features and functions:
  - The “**desktop**” is the home screen and includes pull-down menus, program icons, folders, wallpaper, etc.
    - “**Pull-down menus**” help users find programs and other computer resources. Windows, Apple and Linux are each slightly different, but the essential idea is the same for all of them.
    - The word “**icon**” refers to a graphic symbol which represents a program or some other computer function. Icons are usually designed in such a way that users can readily know what the function is. “**Program icons**” can be clicked or double clicked to activate the program. “**Folder icons**” can be double clicked to open the folder.
    - “**Wallpaper**” refers to the background image of the desktop. This can be changed to suit the user’s tastes. Try “right clicking” the desktop to see what features you can change.
    - Other features include the “**settings**,” “**task bar**,” “**start menu**,” and “**control panel**.”



- Features:
  - Screen “**brightness**” can be adjusted to a desired level.
  - The screen “**resolution**” can be adjusted to make icons large or smaller.
  - System “**sound**” can also be adjusted to taste.
  - Icons can be moved and arranged in any location on the desktop. This allows you to organize your desktop in a manner which suits you.
- “Settings” – Every operating system has a “**settings**” function which allows users to change settings and find various features. In the case of Windows, for example, the settings control panel allows users to “**install**” or “**uninstall**” a program and remove it from the computer.

Below is my Windows desktop. Notice that I have customized the desktop background with a picture Shimonoseki, Japan, where my wife and I lived for three years.



**ACTIVITY:** experiment with locations and features and write notes in your notebook to remember their locations.



# Software

## Sorts of software

- **“Commercial”** – These are products which usually have a high cost (often more than 1000 kwacha per program per computer), with the intent that they will deliver high value. Sometimes that is true; sometimes not. There are thousands of software companies producing a wide variety of software.
- **“Shareware”** – These are products which require a smaller amount of money (usually about 300 kwacha). Many are quite useful and stable. Some, however, are not fully developed or come with attached “spyware” which tracks your computer activities.
- **“Freeware”** or **“open source”** – These are completely free. Like shareware, many are useful, but often they have advertising embedded or spyware which tracks your computer activities. It is best to read reviews about these products before downloading them.

## Types of software and their uses

### ○ Office Suites

- **“Office Suites”** are software packages with a package of program modules: word processing, spreadsheet, database, presentation, graphics, publication
- ZACU uses two basic office suites:
  - Libre (an open-source Linux package)
  - Microsoft Office (a commercial package)

Both packages have similar modules with similar features.

### • Computer utility software

- Internet and web design
  - Ipswitch ftp (file transfer software)
  - Browsers: Explorer, Firefox, Chrome, Safari
  - Email clients: Thunderbird, Outlook
- Printer helpers
  - Virtual printers (i.e., pdf creators): Bullzip, SweetPDF, Foxit

- Financial software – A wide variety of **“financial software”** is available to help manage financial affairs. Some are so-called **“standalone”** while more recent software is sometimes internet or **“cloud-based.”** Many institutions simply use spreadsheets to manage their accounts (e.g., Choma Secondary). We will study spreadsheets later.

- Here are several standalone Bookkeeping and Accounting programs
  - Quicken
  - GNU cash







- Anti-virus protection and optimization software – “**Anti-virus**” programs protect your computer against viruses which can damage the computer or data. Users should update their virus software and “**scan**” their computers at least once a week. “**Optimization software**” can improve your computer’s speed and efficiency by deleting unused files or disabling programs which run “in the background.”
  - Below are some of the available software programs:
    - Anti-virus: AVG, Avira, Avast, Samdav, Bitdefender
    - Cleanup: Disk Cleaner, Little Registry Cleanup
  - Additionally, users should “**backup**” data regularly in order to have it in case your computer is “**infected**” or “**crashes**.” A so-called computer crash can corrupt your data and leave you with nothing left. Backing up your data on an external device (flash drive, hard drive, CD or DVD will preserve your data in case of a crash.
  - “**Computer viruses**” take a variety of forms. They general get on your computer through someone else’s flash drive, or they are attached to some program you might have installed. Some of the main types are listed below:
    - Malware – “**Malware**” gets its name from the word, “malicious,” which means “to try and create harm.” These viruses are designed to go after your data, your system settings and your files. The worst of them are capable of corrupting or destroying files. If this happens with your operating system, the computer might fail to function at all.
    - Spyware – As its name suggests, “**spyware**” tries to follow your computer actions. Some sorts simply follow your browsing habits. They often do this in order to know what kinds of things you might want to buy. The companies then sell your email address to other companies who can target you as a customer.
    - Adware – “**Adware**” is not generally malicious, but it can be annoying. It actively advertises while you are doing other operations (browsing in particular).
  - A good anti-virus program can protect you against these viruses and clean up your computer if they somehow infect it.



- Media software is available for a variety of purposes:
  - Audio players, recorders, mixers and editors – Audio “**players**” simply play audio files. Most such programs have limitations on which sorts of files they can play, so you might need several of these in order to play different file types. Audio “**recorders**” can be used to record directly from the computer or can be used with external recording equipment such as microphones and mixers. Many of the audio programs come with built-in “**mixers**” which allow users to balance input levels on the computer. Indeed, most professional recording studios in the West now use computers for much of their work. They either mixer directly on the computer, or they use computers to control their mixers. Audio “**editors**” enable users to manipulate and edit audio files, boosting the volume, cutting sections out, fading in and fading out, etc. Below are several examples of such programs.
    - Players: Aria Player, Windows Media Player
    - Recorder/Editors: Audacity, Goldwave, Wavepad
  - Video recording and editing – Programs for video are available in much the same types as audio. Some are simply players, some will record, and some are editors. Another category of programs (for both audio and video) converts files from one format to another. This is especially important for video because of the various “**proprietary**” file types(i.e., files which can only be used by a particular program). If you have a good converter, you will be able to play almost any video file. Below are several examples of such programs.
    - Player/Editors: VLC video suite, Easy Video Maker, Windows Movie Maker
    - Video converters: WinAVI video converter, Freemake, VCL
  - Photograph manipulation and storage – Like audio and video, there are many programs for storage and/or manipulation of photographs. Many programs allow a variety of editing options, including: cropping, color adjustment, dust removal, digital manipulation (e.g., posterization), etc. Often, they can help you organize your photographs as well. Many printers are “bundled” with such programs and can be installed when you install the printer driver.
    - Photoshop, Microsoft Office (image module), Gallery, Various printer-related programs
- Graphics, draw, architectural, and CAD (computer-aided design) – In addition to the media software listed above, some software can help with various design tasks. So-called “**draw programs**” simply help users to create drawings of various sorts. Older programs depended on the computer mouse, but many recent



ones can be operated using a touch-sensitive screen, allowing users to treat it almost as if they were drawing by hand. “**Architectural programs**” are designed to help users create plans for buildings or construction sites. They often include so-called virtual 3D features, allowing users to see the final result in a simulated 3D image. “**CAD programs**” (or “**Computer-aided design**” programs) are similar to architectural, but are generally used for engineering purposes, allowing users to design objects such as machine parts, furniture, building parts, etc. Below are examples of such programs.

- Draw programs allow the user to “draw” pictures or designs.
  - Paint, Draw (Libre)
- Architectural software can create floor plans and render 3-dimensional (3D) images of buildings.
  - Sweet Home 3D
- CAD programs
  -
- Games – A wide variety of game software is available. Some is paid commercial software and some is shareware or freeware. Simply put, these programs are for entertainment. However, to be fair, some also have educational value in that they stimulate and sharpen users’ minds, encourage creativity, and impart factual information (e.g., checkers, Empire and Minecraft).
  - Board, card and puzzle games
    - Grand Master Chess, checkers
    - Spider Solitaire
    - Elvin Mist, Snoopy Snails
  - Action, building and entertainment games
    - Minecraft, Big Farm, Empire
    - City racing



## **Educational Software**

Educators can choose from many different programs to enhance their teaching. Test-makers, puzzle-makers, grade-keepers, and encyclopedias are just a few of the available programs. Some resources require “**online**” access, but many things are available “**offline**” and can be used anywhere.

- Info software
  - Kiwix Wikipedia
  - Dictionary and Thesaurus
- Teacher helpers
  - Anki Flash cards, Cue Card
  - Quizmaker, Grade Maker,
  - Eclipse Crossword, Word Search Creator
- Student learning aids and games
  - Typing: Bruce’s typing wizard, Kavaro, Rapid Typing, Typing Trainer

ACTIVITY: Discussion of activities which might utilize computers and software



## Typing, Part 1

### Home Row Exercise

<ul style="list-style-type: none"> <li>• <b>Exercise 1:</b> asdfg hjkl; asdfg hjkl; ;lkjh gfdsa asdfg hjkl; ;lkjh gfdsa ;lkjh gfdsa</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Exercise 2:</b> ah had lag slag ah had lag slag ah had ah had lag slag</li> </ul>
<ul style="list-style-type: none"> <li>• <b>Exercise 3:</b> hash flash ask has hash flash ask has hash hash flash ask hash</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Exercise 4:</b> dash gash lash dash gash lash dash gash lash dash gash lash</li> </ul>
<ul style="list-style-type: none"> <li>• <b>Exercise 5:</b> lad sash flag lad sash flag lad sash flag lad sash flag lad sash</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Exercise 6:</b> fall gall hall lass fall gall hall lass fall gall hall lass fall</li> </ul>
<ul style="list-style-type: none"> <li>• <b>Exercise 7:</b> glass alfalfa adds glass alfalfa adds glass alfalfa adds glass alfalfa</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Exercise 8:</b> sad shall salad sad shall salad sad shall salad sad shall salad sad shall</li> </ul>
<ul style="list-style-type: none"> <li>• <b>Exercise 9:</b> ash glad alas ash glad alas ash glad alas ash glad alas ash glad alas</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Exercise 10:</b> all flask half all flask half all flask half all flask half all flask half</li> </ul>



## Writing Formats

Briefly examine formats of these documents, noting the primary features for each.

- Letter (formal and informal)
  - Addressee and Address
  - Salutation (e.g., “Dear Dr. Thomas,”)
  - Body
  - Closing (e.g., “Respectfully”)
- Class paper (research paper)
  - Title page: includes the title, the date, the course name and number, the name of the lecturer, the name of student
  - Body: includes the relevant material with necessary citations
  - References or endnotes (as prescribed by the lecturer)
- Report
  - Heading (with reporting body’s name); date
  - Body of report
  - Closing: “Respectfully submitted”
- Invitation
  - Greeting/Invitation
  - Event, Place, Time
  - R.S.V.P. or other conditions
  - Notes (optional)
- Advert
  - Product or Event
  - Cost
  - Contact information
  - Other relevant details (think about your target audience)
- Speech/sermon outline
  - Title
  - Theme verse or slogan (e.g., “I want to talk to you today about...”)
  - Bold or larger type headings making it easier to read quickly
  - Closing points should be clear
  - Expected times along the left is a good idea.
- Budget
  - Budget name & Date of budget production
  - Department or organization
  - Time frame for the budget
  - Brief summary of budget priorities
  - Categories of the budget with numbers
  - “Prepared by...”

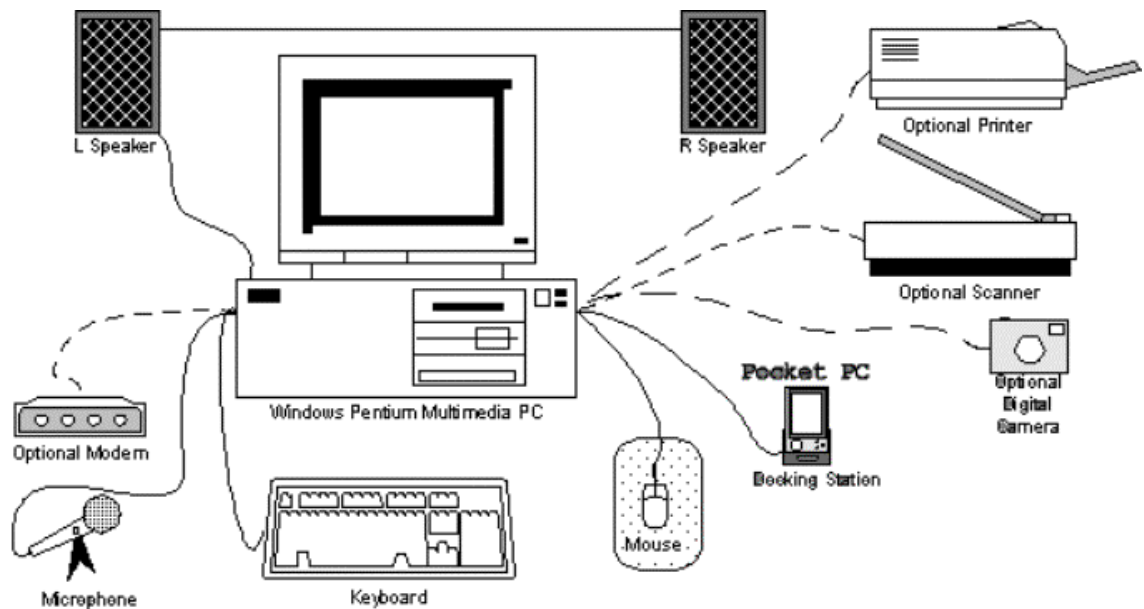
Activities: Handwrite a letter in correct format (for later typing).



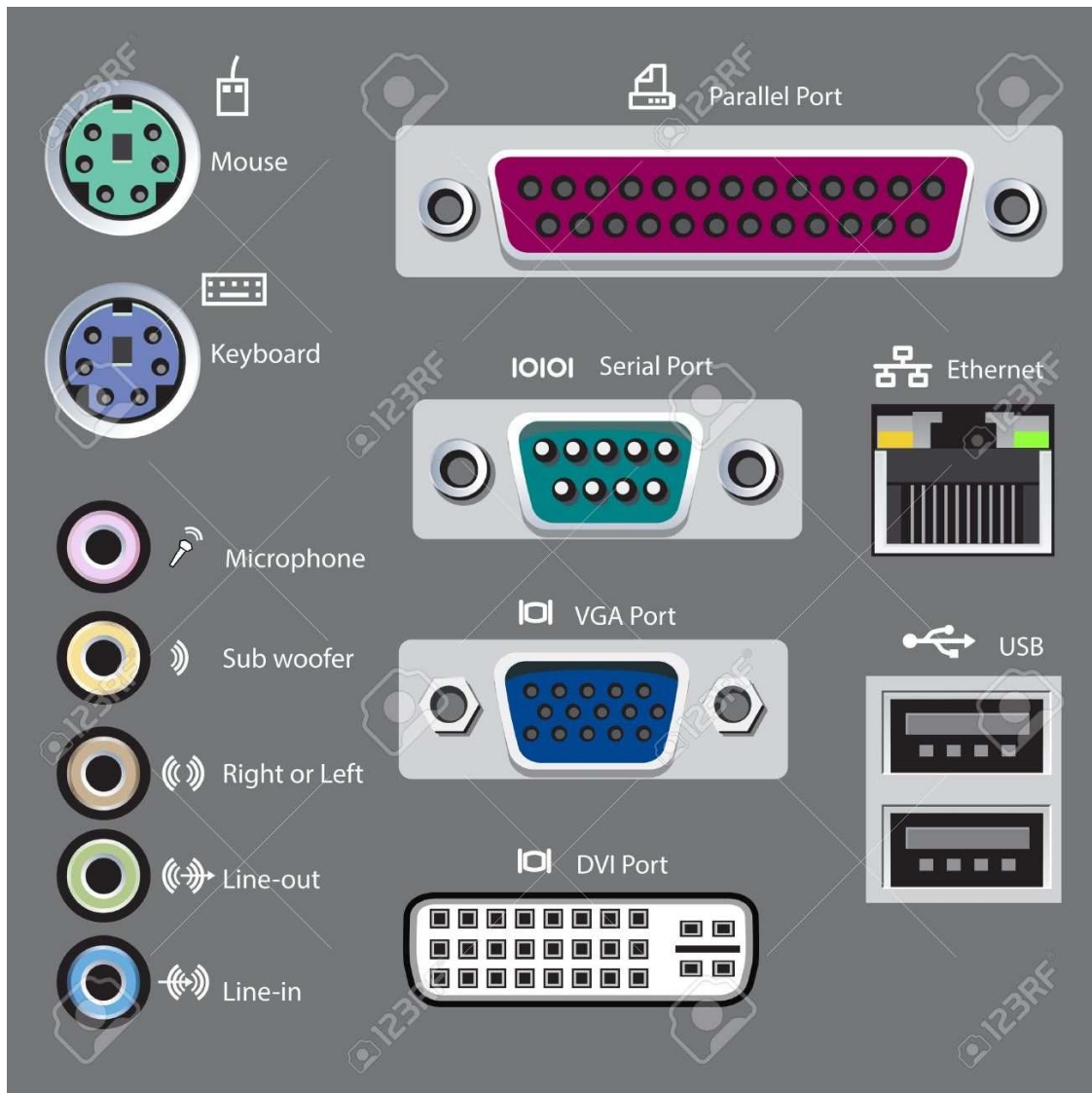
## Computer Review

### ACTIVITY

- Identify all the parts of the computer.
- Turn computer on/off safely
- Practice mouse use. Move the mouse around the screen, selecting various icons.
- Practice left-click and right-click. Practice left hold-drag.
- Explore the pull-down menus.
- Open and close a program.
- Find and write a list of the programs on your computer.
- Check out the pull-down menus and any other hidden features.









## Computers, continued

Organizing your material on the computer – If you organize your work carefully, it will make retrieval of information much easier and more efficient. The way you name files will also make a difference in your ability to find things easily.

- Naming your documents – Use descriptive file names in order to identify them easily without opening them. It is also useful to develop a method for naming which includes either the date or the version of the file. For example, I often end the file name with my most recent editing date: ThomasBook-20170815. This quickly allows me to see that the file is my book, version August 15<sup>th</sup>, 2017. Save documents to the correct folder (Do NOT save them in “My Documents”) – If you organize folders within folders, you will find it easier to retrieve documents later, especially once you have hundreds or thousands of documents.
- Files and file extensions – Computer file names are followed by a period (full stop). The letters after the period indicate what sort of file the document is. Each program uses different “**file extensions**” to identify the type of document. These help the computer know which program to open in order to “**open**” and “**read**” a particular file. Do not change the file extension. If you do so, the computer will not recognize the file and will not be able to open it. The most common file extensions are shown below:























Extension	Program/Type/Use
.txt	Generic text file
.odt	Libre text file (Writer)
.ods	Libre spreadsheet file (Calc)
.odb	Libre database file (Base)
.odp	Libre presentation file (Impress)
.odg	Libre drawing file (Draw)
.doc	old Microsoft Word file
.docx	more recent Microsoft Word file
.xls	Microsoft Excel file
.ppt	Microsoft Powerpoint file
.pdf	PDF proprietary graphics file
.htm / .html	Web file (with special code)
.jpg	Jpeg graphics or photo file
.tiff	TIFF graphics file
.wav / .aiff	Uncompressed audio
.au / .pcm	Uncompressed audio
.flac / .alac	Lossless compressed
.mpg	Compressed audio
.wma	Windows media audio
.flv	Flash video file
.vob	Based on MPEG
.avi	Widely used
.mpeg	Widely used
.wmv	Windows video file
.mov	Quicktime video



### **Folder organization ('Explore')**

- Put folders inside folders inside folders.
- Have a 1data folder for your primary folder. It will make backup easier. Within 1data, choose an organizational system with categories that make retrieval easy. My system for organizing folders might give you some ideas. You will see that I labeled each folder with a number followed by a hyphen. I did this in order to force the folders to be organized sequential the way I like them:
  - 0 = General, personal and family stuff
  - 1 = International stuff
  - 2 = Church stuff (congregational and denominational)
  - 3 = Messiah College stuff (course materials and records)
  - 4 = Music stuff (copies of songs; original compositions)
  - 5 = My research (documents, field notes, etc.)
  - 6 = Backups for computer backup files
  - 7 = Documents related to websites, computer and utilities
  - 8 = Financial stuff (personal and otherwise)
  - 9 = Miscellaneous Stuff
  - Below = various temporary files



Name	Date modified	Type
 0a-GoogleContacts-CalendarsBackups	12/28/2015 3:...	File folder
 0b-Family-dwtcmt	3/6/2017 7:02 ...	File folder
 0c-dwt-Personal+Professional	3/7/2017 5:24 ...	File folder
 0-SEM Scan Project - Visitor Scans	6/14/2017 11:...	File folder
 1-International	3/7/2017 5:24 ...	File folder
 2-Church(EBI-BIC)	3/7/2017 5:19 ...	File folder
 3-Messiah	3/7/2017 5:25 ...	File folder
 4-Hymns-Songs-Chorales	3/7/2017 5:25 ...	File folder
 5-Research-History	3/25/2017 5:0...	File folder
 6-Backups	9/13/2015 9:0...	File folder
 7-WebSites-Computer-Utilities	3/6/2017 7:02 ...	File folder
 8-Financial	3/14/2017 2:5...	File folder
 9b-ThesisMentor	12/1/2016 4:3...	File folder
 Craigslist	3/11/2017 5:0...	File folder
 dwt Comps 2 Revisit	3/7/2017 8:29 ...	File folder
 dwt-OldMusicStuffs	3/18/2017 5:4...	File folder
 Endnote.Temp.Data	2/8/2017 8:07 ...	File folder
 Ridge Road	7/18/2017 8:0...	File folder
 Sydney 201603	4/16/2016 12:...	File folder
 1zam-Zambia	3/28/2017 4:3...	Shortcut
 405-245R-BeforeTheMarvel.pdf	12/19/2016 6:...	Foxit Phar
 1911-love-feast-prep.jpg	8/20/2016 6:1...	JPG File



## Backing up your work

It is extremely important to “**backup**” your work in some form outside the computer. If your computer crashes, having an external backup will save you weeks or months of time. The backup can be to a flash drive, a hard drive or some other data storage device (such as an SD memory card). Do regular backups (at least once a week).

## Saving your work to a flash drive

A so-called “**flash drive**” or “**thumb drive**” is a USB storage device which can plug into your computer. They can be useful for backing up data or for moving data from one computer to another. Be careful, however, flash drives are a primary carrier of computer viruses in Zambia. Be sure to “**scan**” or “**clean**” them before using them on your computer.

## Working from a flash drive versus working from computer drive

Some users prefer to use flash drives as their primary working medium. They store all of their work files on a flash drive, allowing them to use different computers at different locations by merely carrying their flash drive around. This is fine, but if you operate this way, be sure to: 1) back your flash drive up regularly, and 2) scan it regularly to be sure you have not unknowingly acquired a computer virus.

- To transfer files from a computer to a flash or *visa versa*, follow these steps:
  - Plug your flash drive into the computer.
  - Open it (you might need to navigate to the computer drive to this).
  - Left-hold the folder or file you wish to transfer and “**drag**” it to the flash or the computer (depending on which direction you are moving).

## Special keys

- Special keys give multi-functionality to the computer keyboard
  - “**F keys**” or “**function keys**” are used for a variety of functions. Most function keys are defined by the particular computer, but a few are universal
    - In general, for example, F1 = help
  - Ctrl key – The “**control key**” (“**Ctrl**”) is located near the space bar at the bottom of the keyboard. It is normally associated with a variety of so-called “shortcuts.”
  - Alt key – The “**Alt key**” is similar to the control key and often helps users quickly navigate programs. For example, in Word, the Alt key activates the menus, allowing the user to select the desired feature.



## Computer Shortcuts: and explanation of how they work and their purposes

Combining special keys with alpha-numeric keys give a wide range of shortcuts for various computer operations. For example, the control key (Ctrl) can be used with letters of the alphabet for common operations such as save, print, copy, etc.

- Ctrl-c = copy
- Ctrl-s = save
- Ctrl-p = print
- Ctrl-v = paste

Computer “**shortcuts**” are simply one-, two-, or three-key combinations which execute a particular function. Most of these functions can be executed in other ways, too, but shortcuts are MUCH more convenient. Take the time to learn the basic ones and you will not regret it. There is variation in the function of various shortcuts from program to program, but many of the primary ones are universally used. In some programs, users can define their own shortcut keys. This can be especially useful in making these programs more user-friendly and making you more efficient.

The primary shortcut keys:

Ctrl-a	Select all. In word processors, this shortcut selects all of the text in a document.
Ctrl-b	Bold. In word processors, this shortcut turns selected text into bold.
Ctrl-c	Copy.
Ctrl-d	Delete.
Ctrl-e	Center text. In word processors, this shortcut centers selected text.
Ctrl-f	Find.
Ctrl-g	Go to.
Ctrl-h	Search.
Ctrl-i	Italics. In word processors, this shortcut puts selected text in italics.
Ctrl-j	Full justify.
Ctrl-k	Link. In word processors, this shortcut creates a live link to the internet.
Ctrl-l	Flush left
Ctrl-m	Indent.
Ctrl-n	New.
Ctrl-o	Open.
Ctrl-p	Print.
Ctrl-q	Quit.
Ctrl-r	Flush right.
Ctrl-s	Save.
Ctrl-t	
Ctrl-u	Underline.
Ctrl-v	Paste.
Ctrl-w	Close document or window.
Ctrl-x	Cut. In word processors, this shortcut saves selected text while deleting it from its current location.
Ctrl-y	Redo the last action.
Ctrl-z	Undo the last action.

**ACTIVITY:** memorize the computer short-cuts and know their purposes



## Typing, continued

### Qwerty Exercise

<b>Exercise 1:</b> qwert yuiop qwert yuiop poiuy trewq poiuy trewq qwert yuiop qwert	<b>Exercise 2:</b> till quail tight yell; will those feat lake hash till quail tight yell; will
<b>Exercise 3:</b> wire this flay queue; there rail sale gypsy is wire this flay queue; there	<b>Exercise 4:</b> usher wake yaw tide; quash their light rash that usher wake yaw tide;
<b>Exercise 5:</b> slit guide tale rage; the depth quest your these slit guide tale rage;	<b>Exercise 6:</b> tale trash slide day; take urge wages wake typist tale trash slide day;
<b>Exercise 7:</b> play rest jaw quail; why fell its well peat two play rest jaw quail; why	<b>Exercise 8:</b> typed sure peep sill; ogre rate quell paw yap use typed sure peep sill;
<b>Exercise 9:</b> if do pit dug wary; quaff law stop lair gate here if do pit dug wary;	<b>Exercise 10:</b> go her with hit; fight tug quill day saw yippee go her with hit; fight tug



## Editing and co-editing your work

- Good writing and production of written materials requires careful “**editing**.” You should work hard to be sure that your work has very few errors. The place to begin is to edit your own work, both while you are typing it and after you finish.
- A second helpful thing to do is to ask someone to read your work and provide feedback and input. It is easy to miss something, and having a second set of eyes look over your work is very useful.
- Modern word processors also have ways to help you with editing. They have built-in **dictionaries** that know when a word is spelled wrong. They also know when your grammar is incorrect. Here are some ways to use word processors to help proofread:
  - A misspelled word will appear with a red line under it.
  - Wrong grammar will appear with a green line under it.
  - Use the built-in “**spell check**” to search incorrectly spelled words.
  - Use the built-in **thesaurus** to check for other words in order to make your writing more interesting.
  - Use the “**word count**” feature to monitor how many words are in a particular document. Some institutions require a minimum of words and this feature can help you know how many words you have.

## Reports

- Sections of a good report
  - Heading (with reporting body’s name); date
  - Body of report
  - Closing: “Respectfully submitted”
- Heading
  - Reporting body’s name (e.g., “2017 Report of the Educational Committee”)
  - Name of the body to which the report is being given
  - Date of the report
- Body of report
  - Subheadings can be helpful to guide the reader
  - Keep the reporting to the point.
  - Closing: “Respectfully submitted” (date is optional if it is also at the beginning of the report).

ACTIVITY: Handwrite a report. Correctly type the report.



## Organizing Your Work

As stated above, organizing your work carefully helps you retrieve materials quickly and reliably rather than wasting time search through hundreds of documents to find the one you want. The key to this is to design your own system of folder organization and be diligent about placing files and documents in their appropriate location. It is really no different than administrative organization in a school or a business. Computers allow users to “**nest**” folders inside each other, resulting in folders inside folders inside folders. This can help you categorize where everything should go. There are many ways you might organize. In a previous lesson, I showed my own organization, but you might want to develop your own. Below is an example of “**nesting**” folders in order to organize work.

- 0-General folder
- 1-Personal folder
  - Family pictures
    - 2016
    - 2017
      - April@Zambia
      - May@Japan
      - June@Sikalongo
      - July@Nahumba
  - Family history
    - Thomas family
    - Martin family
  - Travel documents
    - Thomas Dwight
    - Thomas Carolyn
    - Thomas Matthew
- 2-Work folder
  - Professional materials
    - Vita, Degrees & Certifications
    - Promotional photos
    - Business cards, etc.
  - Current projects
    - ZACU
    - Sikalongo Bible Institute
  - Old projects
- Create two folders on your desktop.
  - Name one folder ldata.
  - Name the other folder zacu2019.
  - Move the zacu2019 folder into the ldata folder.



## Word Processing, continued

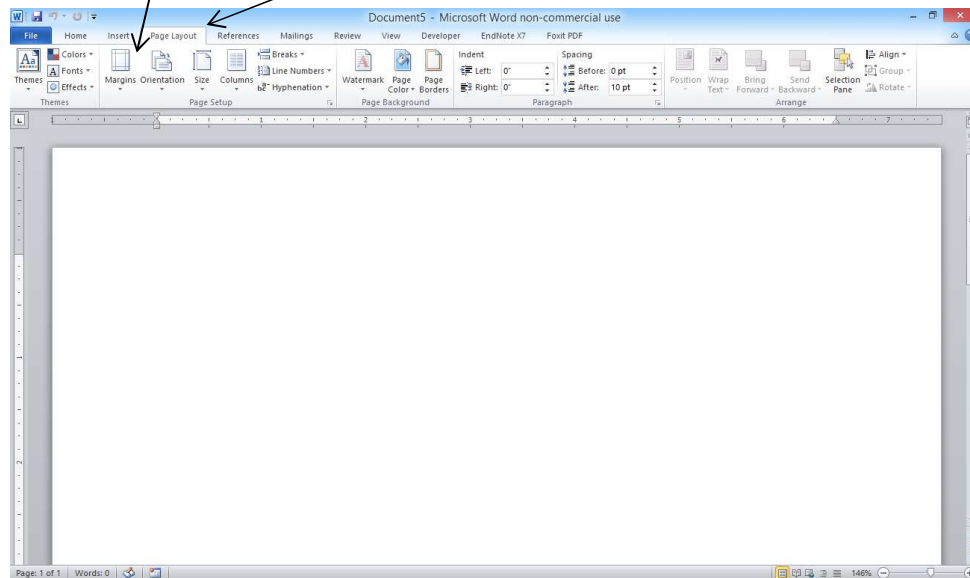
Open your word processing program and create a new document.

- Adjust the paper size and margins. This can be done in **Libre Writer** or in **Word**.
- Type words from your letter (from previous lesson) into the document. You may look at the keyboard for this assignment.
- Practice shortcuts on the words in the document: bold (Ctrl-b), italics (Ctrl-i), underline (Ctrl-u), flush left (Ctrl-l), flush right (Ctrl-r), center (Ctrl-c).

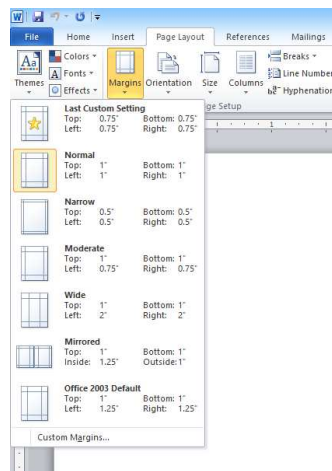
In Microsoft Word, left click the “**Page layout**” “**tab**,” then left click the “**Margins**” feature from the menu. Continue to choose the margins you want.

Choose “Margins” from the choices on the menu.

Set margins by selecting the “Page layout” tab.

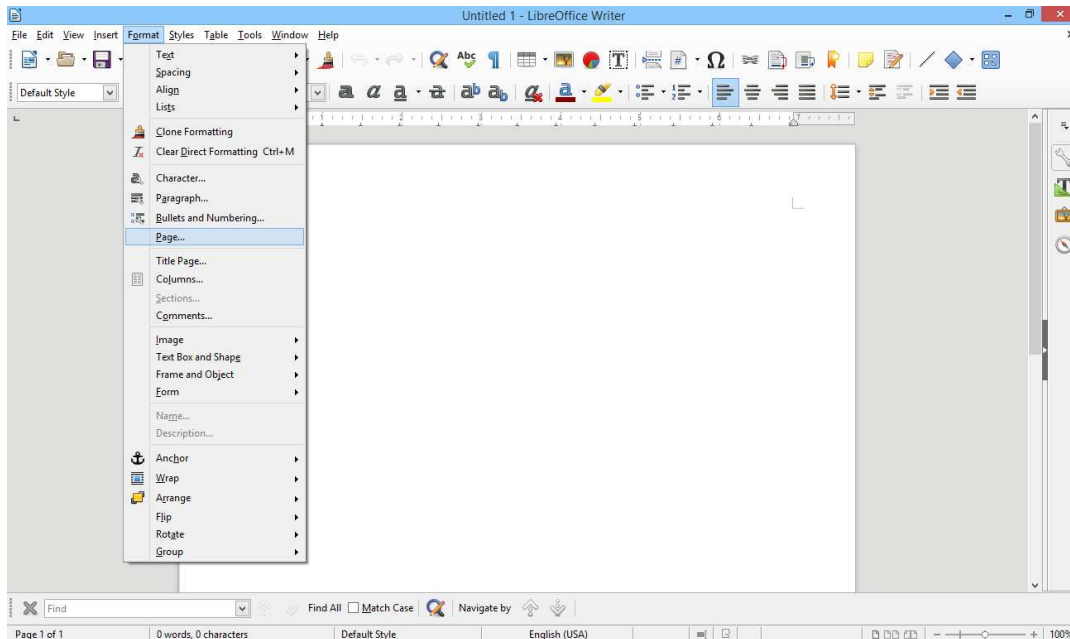


You will see a “**pull-down menu**” under “**Margins**.” Select a pre-set margin or customize your own:

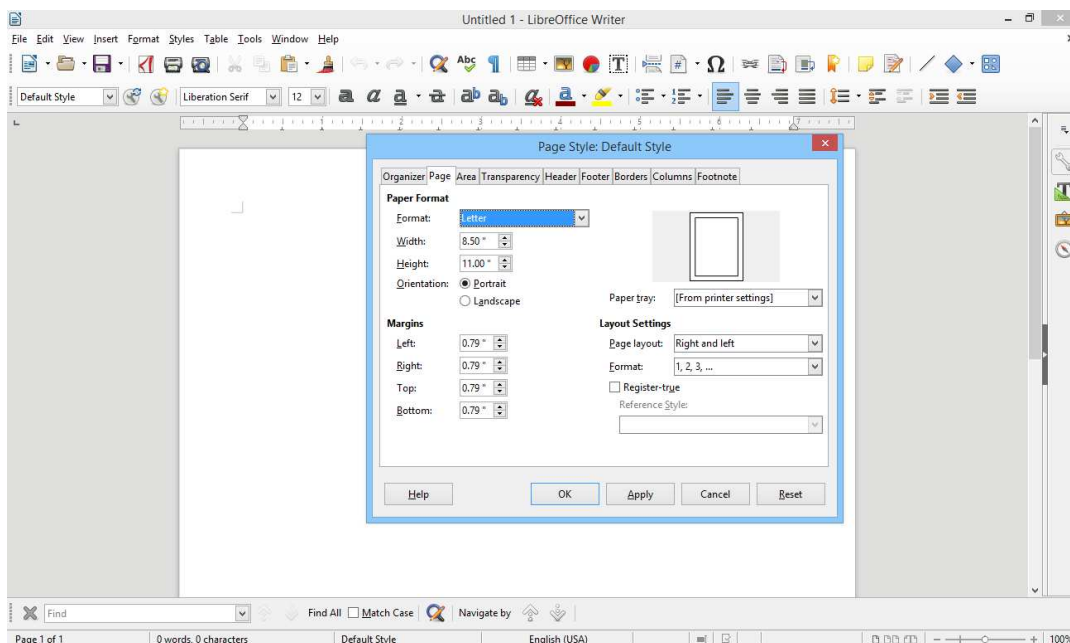




In Libre Writer, the process is similar. The “**Format**” pull-down menu allows many different changes in settings. Margins can be set by selecting “**Page**” from the pull-down menu.



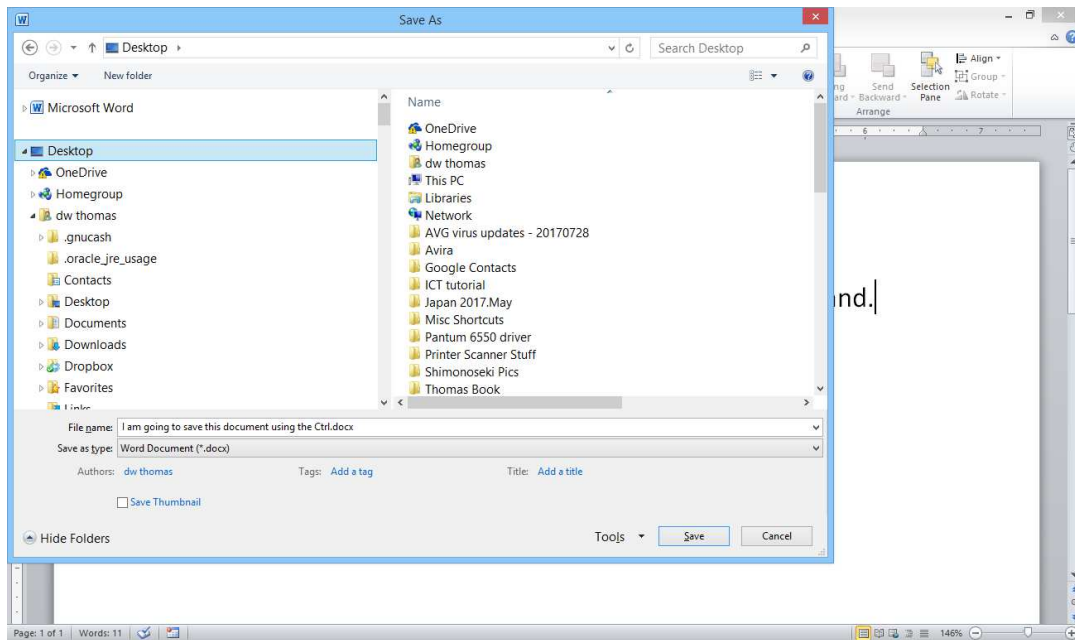
After selecting Page, a “**dialog box**” will appear which gives various page settings: paper size (format), Margins, Layout settings, etc. It is here that you also set “**Portrait**” versus “**Landscape**” (or, vertical versus horizontal orientations). Notice also that the “**tabs**” at the top of the dialog box: Organizer, Page, Area, Transparency, Header, Footer, Borders, Columns, and Footnotes. Each tab will give you a variety of formatting choices.



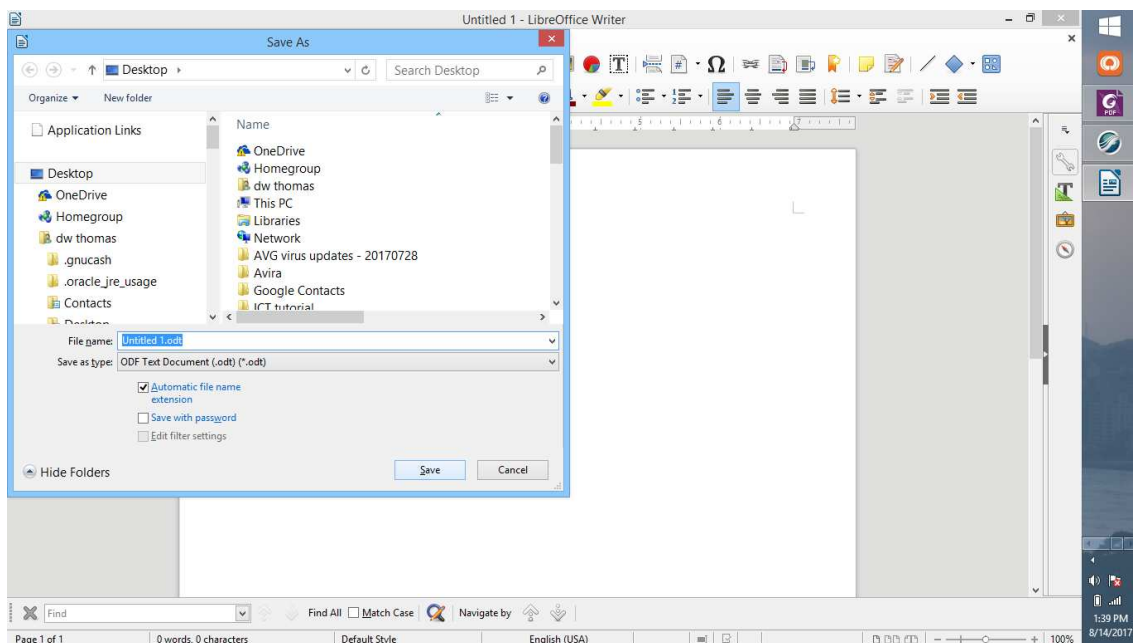


Save your document:

- Save (Ctrl-s) to an appropriate folder on the computer.  
Both Libre and Word save in similar ways and both use the Ctrl-s command as a shortcut. After keying Ctrl-s, Word brings up a dialog box which allows you to save the document to any folder you wish. Notice, too, that you can change the name to whatever you want by left clicking in the “File name” box.



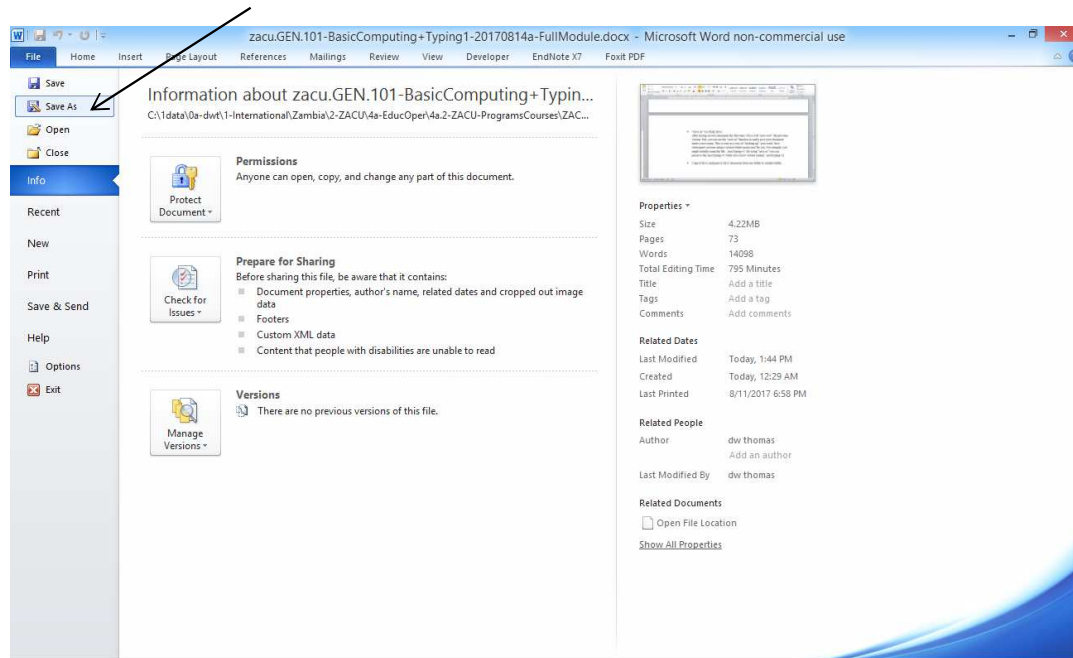
Libre Writer functions in a nearly identical fashion:



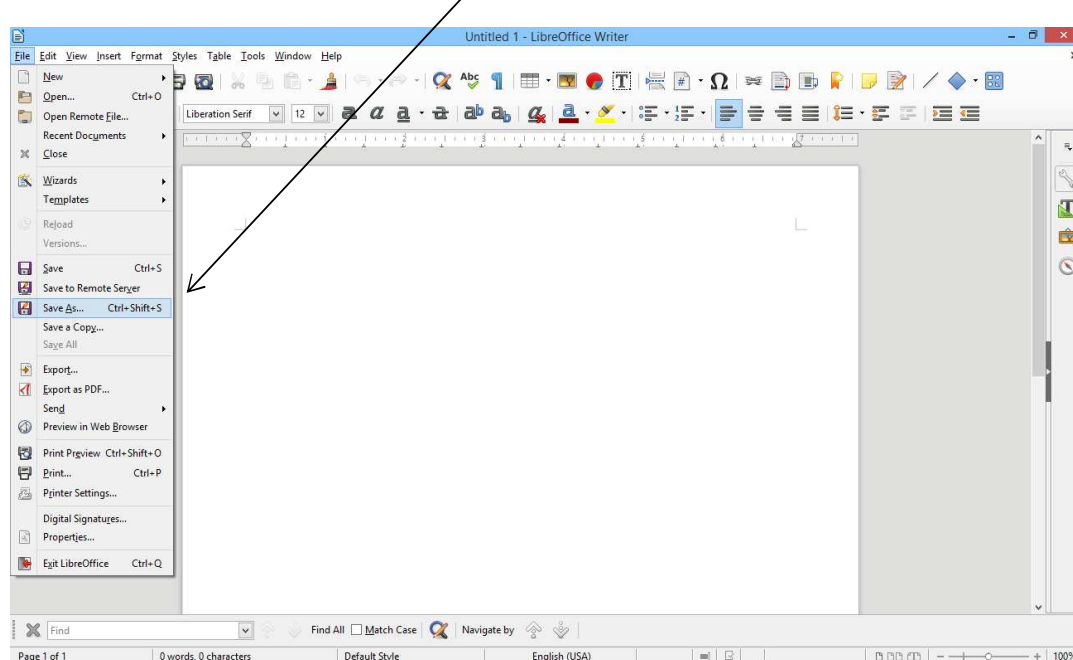


After having saved a document the first time, Ctrl-s will “**save over**” the previous version. But, you can use the “**save as**” function to easily save your document under a new name. This is wise as a way of “backing up” your work. Save subsequent versions using a system which seems easy for you. For example, you might initially name the file: zacuTyping-v1. By using “save as” you can preserve the zacuTyping-v1 while save a new version named: zacuTyping-v2.

In Word, you will find the “save as” command under the File tab:



In Libre Writer, you will also find the “save as” command under the File menu:





Copy (Ctrl-c) and paste (Ctrl-v) document from one folder to another folder.

- The “copy” command (Ctrl-c) will work for words, characters, images, files and even folders. Its companion is the “paste” command (Ctrl-v). After copying something, you simply navigate to the location where you want to paste it, and key Ctrl-v in order to paste the item in the new location. It will remain at the old location as well because you “copied” it.
- For example, select a portion of your text:

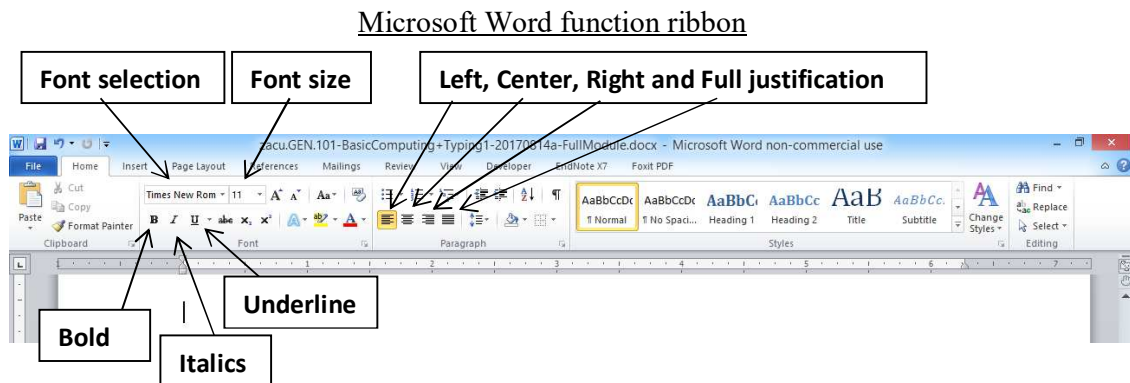
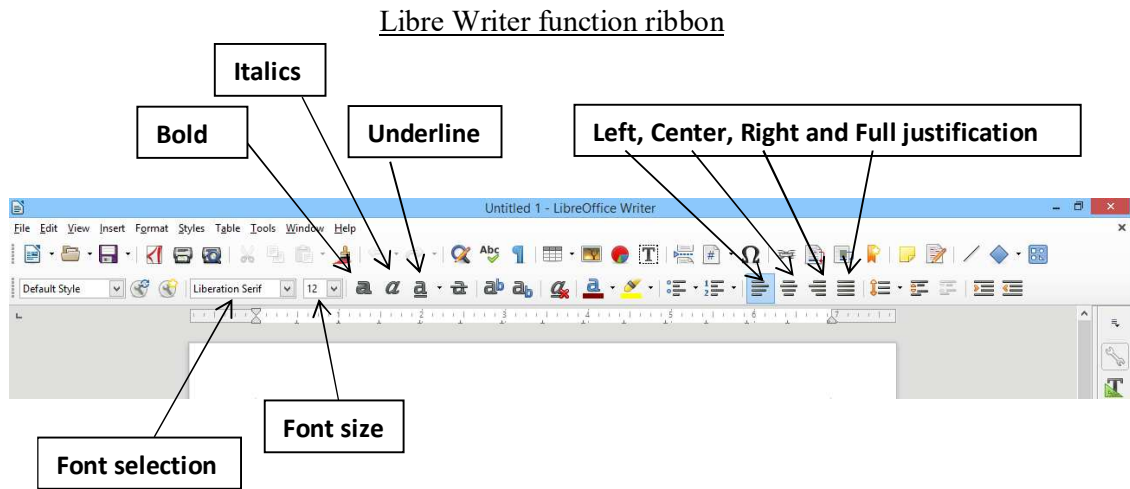
Copy (Ctrl-c) and paste (Ctrl-v) document from one folder to another folder.

- The “copy” command (Ctrl-c) will work for words, characters, images, files and even folders. Its companion is the “paste” command (Ctrl-v). After copying something, you simply navigate to the location where you want to paste it, and key Ctrl-v in order to paste the item in the new location. It will remain at the old location as well because you “copied” it.
- For example, select a portion of your text:

- Then, copy it (Ctrl-c), move your cursor, and paste it at another location in the document. These commands work identically in Libre Writer and Microsoft Word.



Practice other shortcuts such as bold, italics, underline, flush right, flush left, and center. Remember these and other functions appear on the “**function ribbon**” at the top of Libre Writer and Microsoft Word.



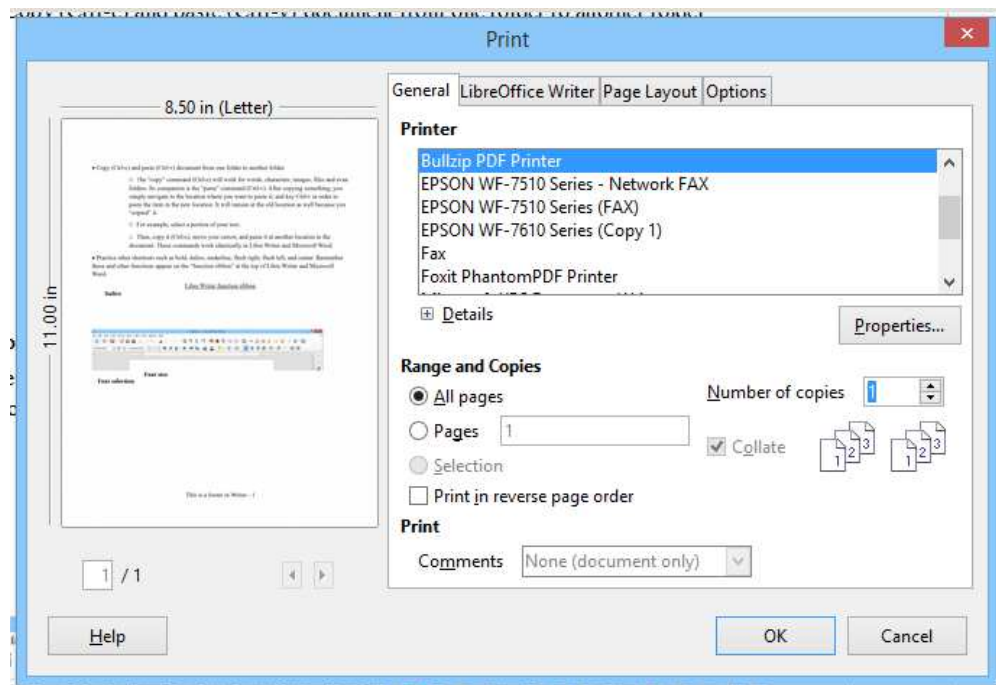
## Printing and Outputting your documents

After creating a document, you will naturally want to “**output it.**” Output take the form of “**hard copy**” (physical) form or “**soft copy**” (electronic).

- To print a hard copy version of your work, select the print function. You can do this from the File menu or with the shortcut, Ctrl-p. After keying in Ctrl-p, a new screen or dialog box will appear which gives you a variety of choices.
- Below is the dialog box for Libre Writer. Notice that the use can choose which printer to use, which pages to print and how many copies to print. In this dialog box, if you choose to do more than one copy, the “**Collate**” feature will become bold (meaning it is activated). This feature allows you to automatically print the document with the pages in the correct sequence. This is especially helpful for



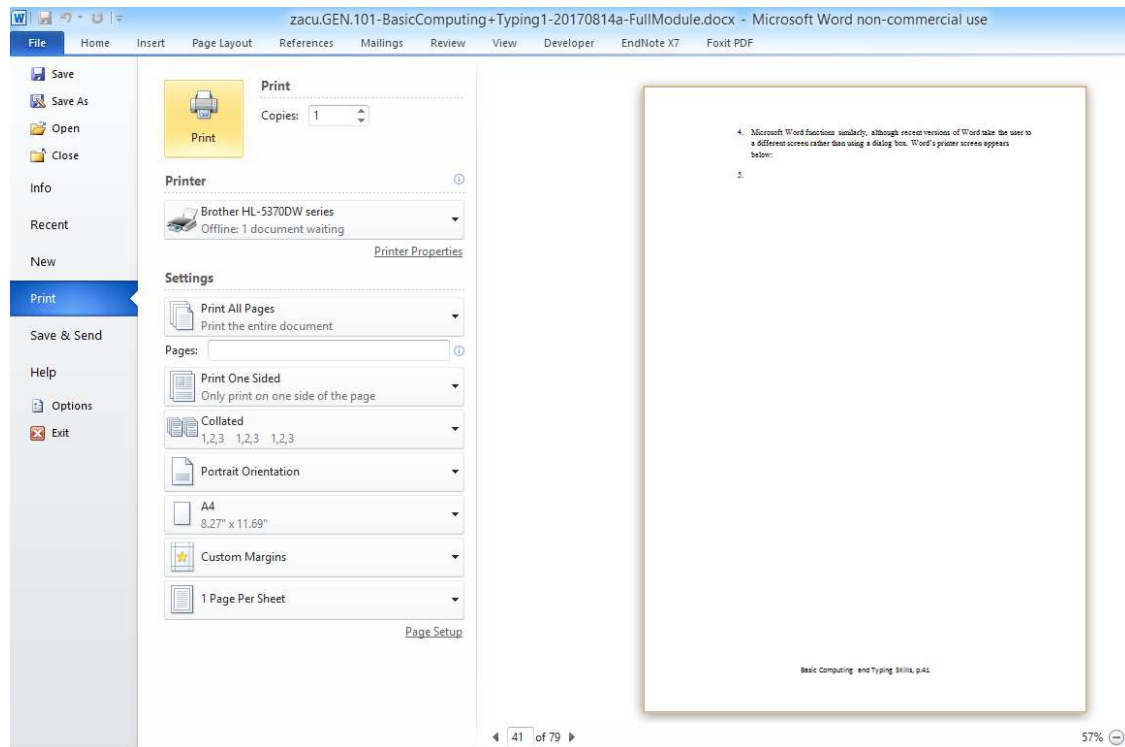
long documents (such as this module), where you might have 20+ pages. Failing to use this feature would force to “**hand collate**” all the sets of the document.



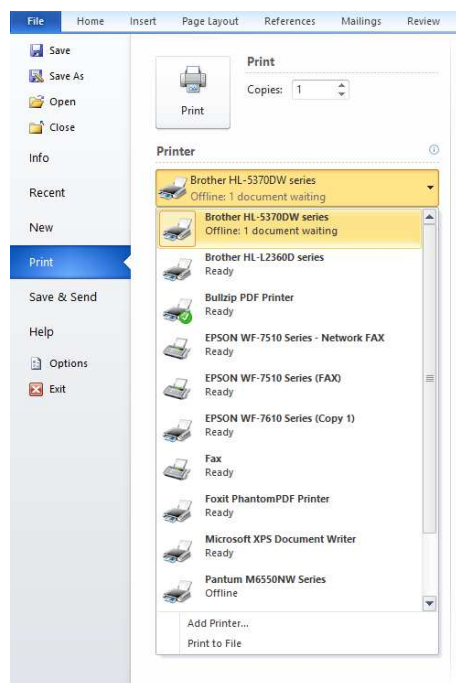
You can also output a soft copy (electronic). There are several ways to do this. Most soft copy output is produce in so-called “**pdf format.**” PDF is a special file type which cannot be edited. It is also quite easy to attach to emails and copy to flash drives. Some software has a built-in “**pdf printer,**” however you also output to a “**virtual printer**” such as Bullzip. Look at the dialog box above and you will notice one printer is named “Bullzip PDF Printer.” Selecting this printer would produce an electronic version of your document which can be saved to computer or to a flash drive. For my recent book, the editor sent final “**proofs**” of the chapters in PDF form for me to review and make corrections.



Microsoft Word functions similarly, although recent versions of Word take the user to a different screen rather than using a dialog box. Word's printer screen appears below. In order to select the printer, left click on the downward triangle to view the various printer options. As you can see, users can print all pages, some pages, set the number of copies, and collate,



Here are the printers on my system as they appear in Word:

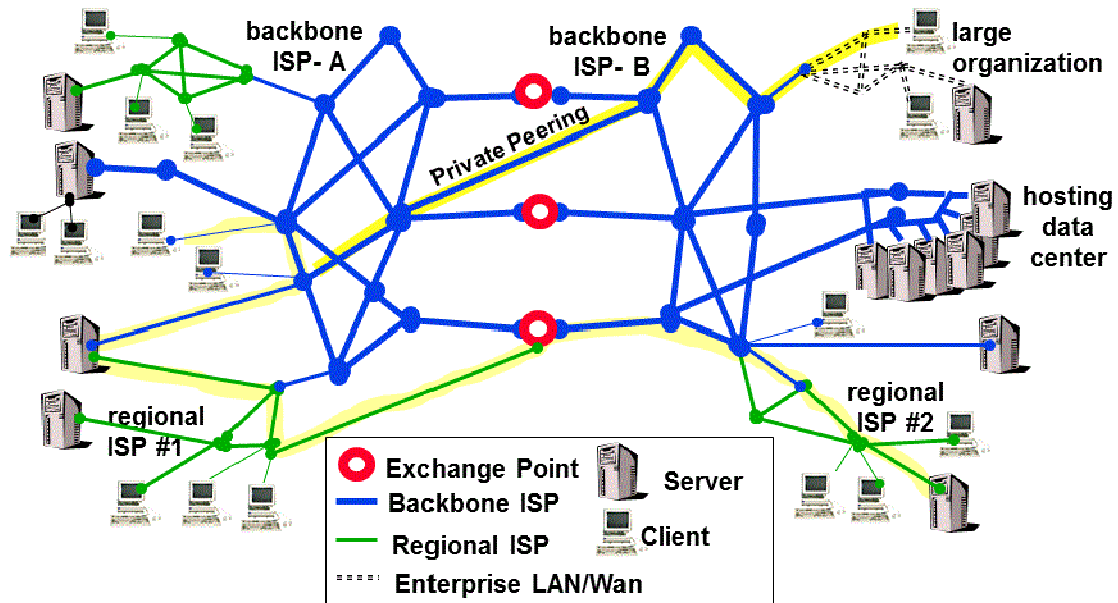




## World wide web and Internet fundamentals (terms, concepts, possibilities)

The “**internet**” (also known as the “**world wide web**”) is a connection of thousands of computers around the world which are linked by satellite signals, land lines and cellular signals permitting the transfer of computer data from one computer to another (eventually reaching into private homes).

**For a complete picture, initiate traceroutes from within several different backbones**

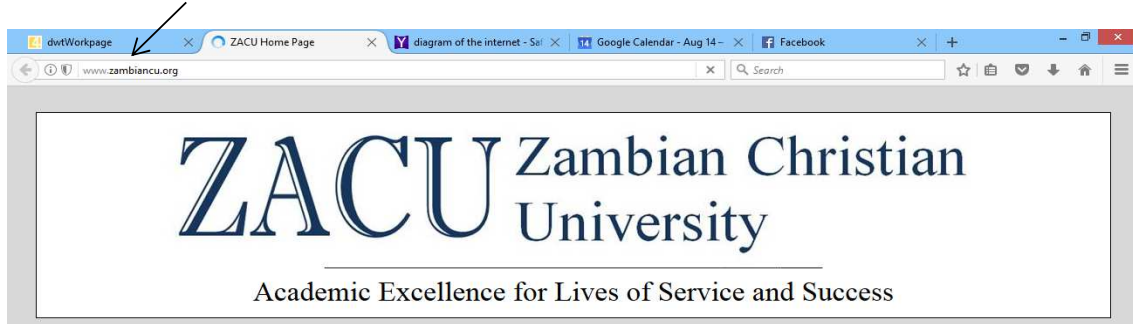




## Locations and content

- “**Domains**” (e.g., [www.zambiancu.org](http://www.zambiancu.org))
- **Web addresses** (e.g. [www.zambiancu.org/zacumoodle](http://www.zambiancu.org/zacumoodle))
- **Web sites** – the entirety of a particular organization’s web pages
- **Web page** – a single internet content window (which users can often “**scroll**” down to view additional content)

Domain name and web address



Web “**browsers**”– the software program which assists users to view internet content. A number of different browsers exist. All of them function similarly but are aimed at particular devices and have unique strengths. The most common are: Mozilla Firefox, Google Chrome, Microsoft Explorer, Apple Safari and Opera.





## Types of web sites you should know about

- Search engines – “**Search engine**” sites allow users to type something in the “**search box**” and search the entire internet for it. The best known search engine is Google ([www.google.com](http://www.google.com))
- Informational websites – These sites are sometimes called information “**portals**” because they have a variety of informational links. One of the best known is Yahoo ([www.yahoo.com](http://www.yahoo.com)).
- University and College websites – Every major institution of higher learning has a website where they highlight their school’s activities and achievements. Examples include: Messiah College, UNZA, Yale, University of Tokyo, etc.
- Research websites – A variety of websites exist which can aid students and researchers in their scholarly work. Some provide downloadable digital information; others merely provide information. Several of the best known are: Worldcat, Google Scholar, Gutenberg Project
- News websites – Global news companies maintain websites which have daily updates of global and local news. The BBC, for example, has a website which gives good information about global events ([www.bbc.com](http://www.bbc.com)). Zambia has several news websites which feature national news from Zambia.
- Corporate websites – Most large corporations have websites where users can find information about their products or services. Companies such as Coca Cola, Toyota, Microsoft, and South African Airways all have highly-developed websites with lots of information.
- NGO websites – Most non-profits agencies also have websites where people can learn about their activities, get involved, and donate money. Examples would include: World Vision, Brethren in Christ USA, UNICEF
- Government websites – Every country’s government has an embassy or consulate website dedicated to providing information about the country. Visa requirements and immigration policies can be found on these websites.
- Blogs – Private or institutional websites which highlight the activities of a particular individual or entity. For example, some pastors and academics maintain “blogs” in order to post their opinions on various things.
- Social media websites – Facebook is the best known of these websites, but there are others: Twitter, Instagram, Youtube, Pinterest, LinkedIn, Flickr, Skype, and Google Plus. Each social media website has advantages over the others. Skype, for example, is one way some people stay connected over the internet. It is possible to “audio Skype” (almost like a phone call) or “video Skype” (talking to someone else while seeing them on the screen). For example, my son Skypes from Australia to the United States to stay in touch with friends and associates.



Webpages are designed in such a way as to help users navigate to information or services in the easiest possible way. Below are some of the typical design features of websites:

- Usually, a “**masthead**” appears at the top showing the organization or company
- The most important feature of webpages are the “**links**.” Users can left click a link and their browser will direct them to another web page or service. Words can be links, but images can also be links. Move the cursor over around the page and you will see it change from and arrow to a “pointer finger.” When the cursor appears as a pointer finger, you will know that you have discovered a link. The arrows below indicate links on this webpage.

Also try: [amazon prime](#), [amazon books](#), [amazon smile](#), [amazon india](#)

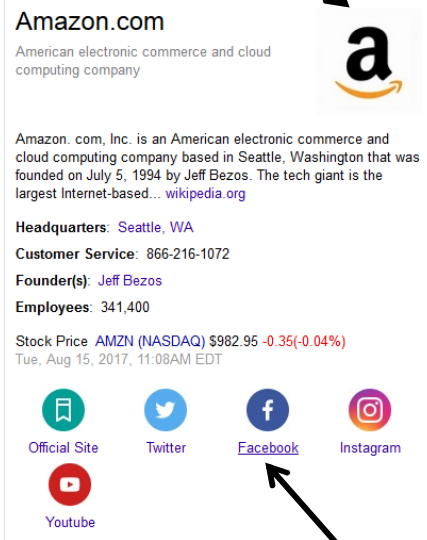
Ads related to: amazon

**HIFI MC SPEAKER now 75% off - SALE \$24.99 for a limited time**  
[www.amazon.com/Shop](#) · Site secured by Norton  
4.0 ★★★★★ rating for amazon.com  
amazon.com has been visited by 1M+ users in the past month  
Originally 99.99, HIFI MC: Ultra Portable Wireless Bluetooth Speaker on Sale Now  
BRAND NEW Available Now - Introducing HIFI MC by Modern Portable - UI  
HIFI MC by Modern Portable, A Wireless, Bluetooth Speaker with ...  
Ratings: Customer Service 3.5/5 · Delivery 3.5/5 · Price 3.5/5

**Free Ebooks - BookBub.com**  
[www.BookBub.com](#)  
Free Mystery, Romance, Fantasy, Biographies & more!

**Amazon - Official Site**  
[www.amazon.com](#) ✓  
Online shopping from the earth's biggest selection of books, magazines, music, DVDs, videos, electronics, computers, software, apparel & accessories, shoes, jewelry ...

**Amazon.com - Wikipedia**  
[en.wikipedia.org/wiki/Amazon.com](#) ✓  
Amazon.com, Inc. (*ˈæməzɒn*) is an American electronic commerce and cloud computing company that was founded on July 5, 1994 by Jeff Bezos and is based in ...



The screenshot shows the Amazon.com homepage. At the top right is the Amazon logo (a stylized 'a' with a curved arrow underneath). Below the logo is the text 'Amazon.com' and 'American electronic commerce and cloud computing company'. Further down is a paragraph about the company's history, followed by 'Headquarters: Seattle, WA', 'Customer Service: 866-216-1072', 'Founder(s): Jeff Bezos', and 'Employees: 341,400'. Below this is the stock price 'AMZN (NASDAQ) \$982.95 -0.35(-0.04%)' and the date 'Tue, Aug 15, 2017, 11:08AM EDT'. At the bottom are five social media icons: 'Official Site' (green), 'Twitter' (blue), 'Facebook' (blue), 'Instagram' (purple), and 'Youtube' (red). Four black arrows point to specific links: one to the Amazon logo, one to the 'HIFI MC SPEAKER' ad, one to the 'Amazon.com - Wikipedia' link, and one to the 'Facebook' social media icon.

**ACTIVITY:** Browse the internet via one of the above browsers.



## Proof-reading and correcting your work

Correcting your work is extremely important. Everyone makes mistakes, so take time to check your work before presenting it to someone else.

“**Proof-reading**” is the process of reading your work after typing to find errors in order to correct them. Many publishing companies employ full time “**proof readers**” to check their publications before they print them. Proof reading involves: checking spelling, grammar, punctuation and formatting

Professional proof readers use a series of common markings to make corrections easier and faster. Many university professors use the same markings when grading student papers. Below are a few of the common markings used for proofreading.

PROOFREADING MARKS		
Marks & Meanings		Examples
≡	capitalize	They fished in lake tahoe. ≡ ≡
/	make it lowercase	Five \$tudents missed the \$us.
sp.	spelling mistake	The day was cloudy and cold. sp.
⊙	add a period	Tomorrow is a holiday ⊙
↶	delete (remove)	Kim knew the the answer.
^	add a word	pups Six ^ were in the litter.
^,	add a comma	He ate peas ^ corn ^ and squash.
↷	reverse words or letters	An otter swam in the bed kelp.
✓	add an apostrophe	The child's bike was red.
“”	add quotation marks	“Why can't I go?” she cried.
#	make a space	He read two#books.
○	close the space	Her favorite game is soft ball.
¶	begin a new paragraph	We had fun. ¶ Next we went to



Examination of an academic “class paper” – Anyone who attends university will need to write and prepare academic papers. Although the format differs slightly in various institutions, disciplines or countries, many of the elements are the same. Be sure to check with your lecturer or the institutional guidelines for exact details. Here are the basic sections of an academic paper:

- Title page
  - Paper title
  - Class or institution
  - Professor
  - Date
  - Author
- Introduction
  - Aim of the paper (or the problem to be addressed), thesis, etc.
  - Review of the literature (i.e., a summary of previous research)
  - Methodology, approach or background
- Body of the paper
  - Organized in some logical fashion
  - In some disciplines, this will include the “findings”
- Conclusion
  - Recommendations or observations
- References or Bibliography
  - Organized alphabetically by last name
  - Format must follow the form given by the lecturer, institution or journal.
- Endnotes (some institutions or disciplines require footnotes)
  - Activities: Handwrite a short class paper (for later typing). The topic of this paper should be a description of the place where you grew up (village, neighborhood, etc.). Include the names of people who are part of the community and interesting details about the place.

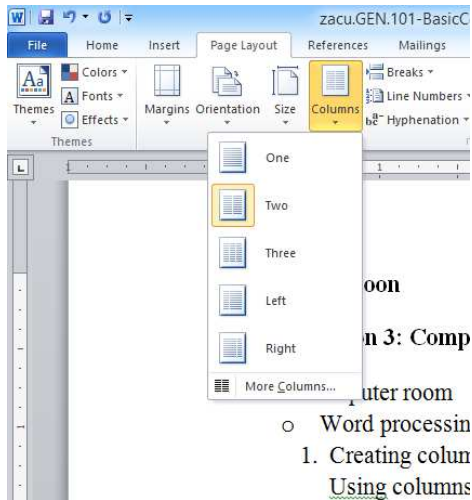


## Word processing, continued

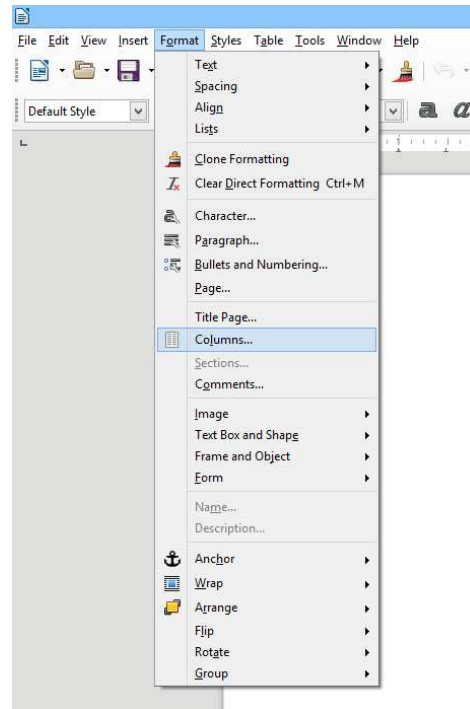
### Creating columns, changing the column width, forcing the next column

Using “**columns**” is a great way to consolidate more information on one page, thus saving paper and making information immediately seen by readers. The columns feature can be found on the page layout menu in both Libre Writer and Microsoft Word. I created columns just for this region in order to compare the Libre and Microsoft processes for creating columns. The “**column width**” can be changed to suit your needs. A shortcut exists in Word to force text to the next column. It is: Ctrl+Shift+Enter.

#### Microsoft Word columns



#### Libre Writer columns



### Inserting headers or footers, adding text to them

It is sometimes useful to add a “**header**” or a “**footer**” to a document. I frequently do this when I am writing a long document in order to add page numbers and document name. You will notice a footer at the bottom of this page which indicates the course title and the page number. The feature is under “**insert**” in both Word and Libre Office and the commands and features are nearly identical.



### **Inserting graphics, changing their size, cropping them.**

You will notice many graphics in this document. They were created and modified using the “**insert graphics**” feature. The easiest way to insert a graphic is simply to copy it into memory and then paste it into your document. For example,

- Find a graphic on the internet.
- Right click and copy it.
- Go to your document.
- Paste it where you want it.
- Modify it as necessary (“crop” it or enlarge or reduce it).

### **Inserting a table, changing column widths, and putting information into the table.**

“**Tables**” are grids with text boxes arranged in columns and rows. Below is an example of a table with six columns and three rows.


After having inserting such a table, users can easily add information to each “**cell**” (i.e., the term we use for each box). If the column widths must changed, it is easily done by “**dragging**” the column lines to the desired location. So, for example, we might want to have a table with a column for LastName, FirstName, Gender, Age, Class and Telephone. We would want the column widths to vary according to the category.

<b>LastName</b>	<b>FirstName</b>	<b>Ge n</b>	<b>Ag e</b>	<b>Class</b>	<b>Telephone</b>

Text in each cell can be centered, flush left, flush right, bold, italics, underlined, etc. The size and font can also be changed.

### **ACTIVITIES:**

- Open your word processor.
- Create a new document. Set the correct page size and margins.
- Try to do all of the processes above: columns, headers, footers, graphics, table.



## Basic email terms and concepts

- “**Email clients**” are software programs which help users organize and send emails. Thunderbird is a freeware email client which can monitor multiple email accounts, allowing you to send and receive thousands of emails.
- “**Email account**” and “**email address**” refer to the the account to which emails are sent and the electronic “address” which identifies that account.

Email addresses usually take the following form:

name@domain.com / name@domain.org / name@domain.net

So, for example, the ZACU Vice Chancellor’s email address is:

zacu.vc@zambiancu.org

- ZACU’s domain is www.zambiancu.org  
All ZACU students will be issued official email addresses.  
Student email addresses, for example, might look like this:  
mudenda.mutinta2017@zamabincan.org

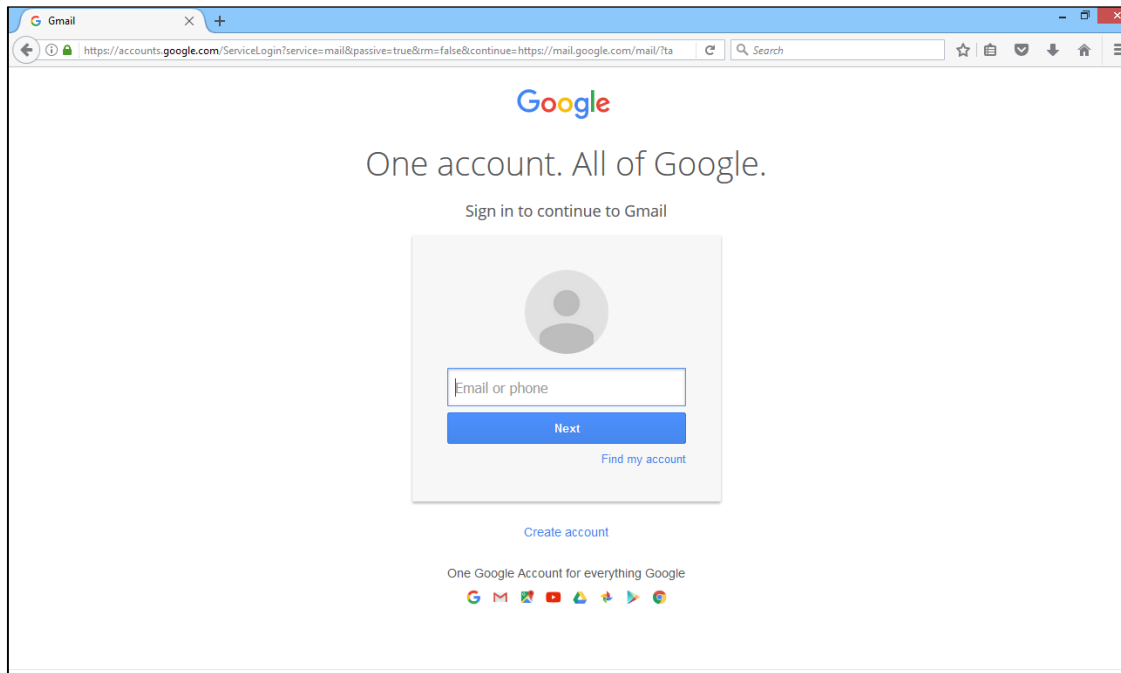
Various commercial companies offer email accounts for free. The best known of these are: “**Google**” and “**Yahoo**,” but there are others. Remember, of course, that company policies and features change over time, so the current features might not be available in the future, and companies might begin to charge a fee for their use. On the other hand, one can take advantage of free features while they are available.

- The most common email features include the following:
  - “**Write**” or “**compose**” (to create the email)
  - “**Reply**” (to reply to the sender of an email)
  - “**Reply all**” (to reply to all those who were included in an email)
  - “**Forward**” (to send the email to someone else for review)
  - “**Delete**” (to delete the email from the account)
- Sending and Receiving Email – Once you have established an email account, the email process involves the following:
  - Open your web browser.
  - Enter the correct web address into the web address box.
  - You must first “**Login**” to your account from a “**login page**.” using your “**account ID**” and your “**email password**”
  - Begin to write (or “compose”) an email.
  - Send it.
  - When you are finished, you can “**Log out**.”

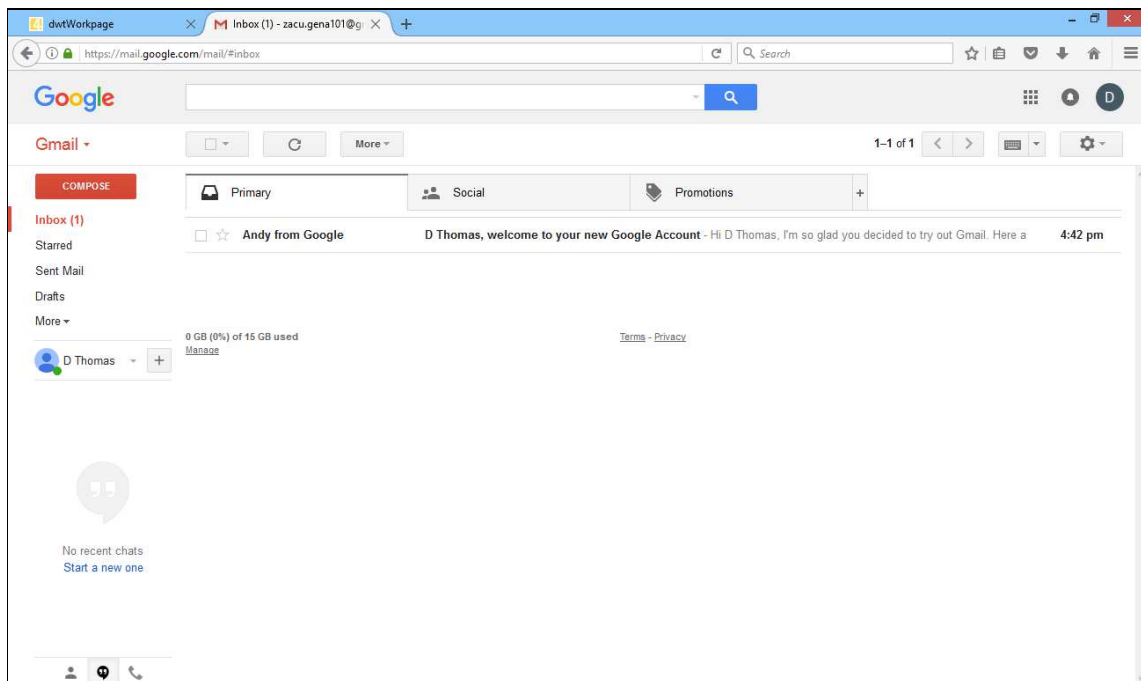


- I have created a Gmail account for this course.
  - The login is zacu.gena101
  - The password is gena-101

The login screen looks like this:



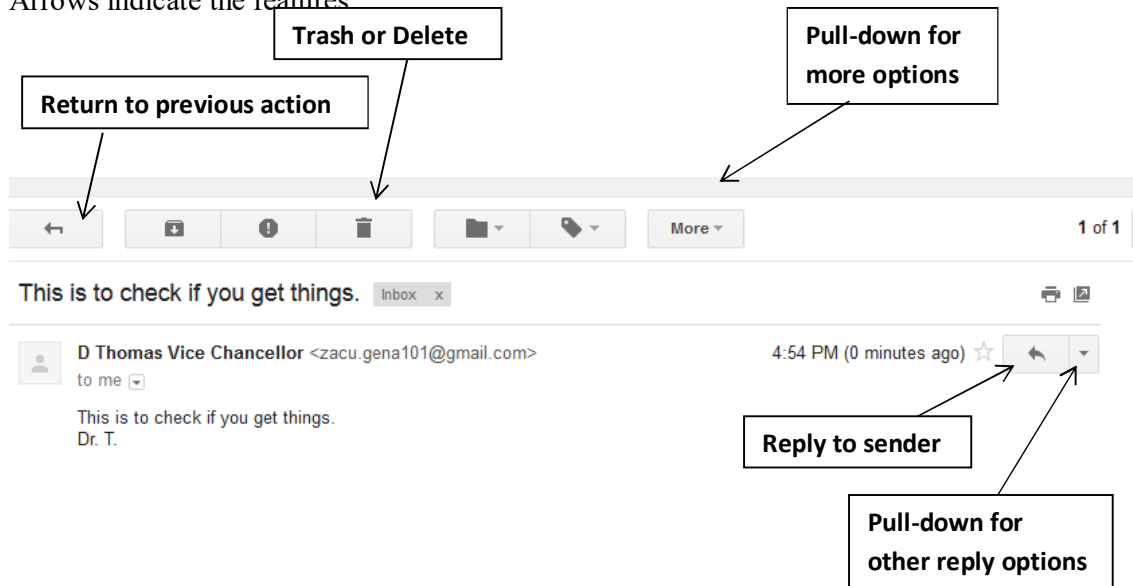
The email account screen looks like this:



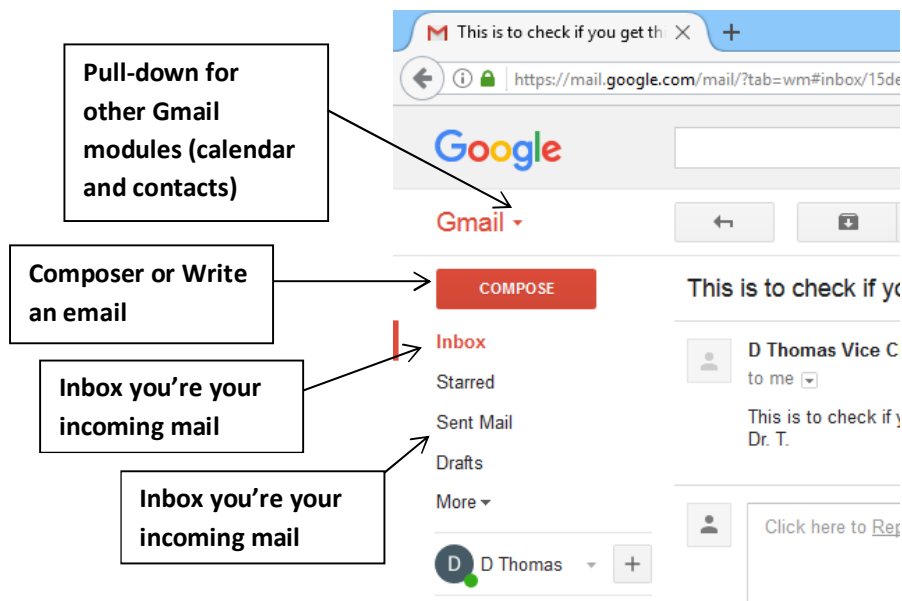


All email accounts have basically the same features. You must simply search to find where they are. This can take some time, but with diligence, you will find all the features.

Below is an email I wrote to myself. It shows the Gmail icons with the various features. Arrows indicate the features



On the left side of the Gmail email screen, you will see the following:



Notice also the words “**Inbox**,” “**Sent Mail**,” and “**Drafts**.” The Inbox contains your newly-received email. The Sent Mail contains emails you have sent to others. The Drafts folder contains emails you have begun but did not finish. You can resume composing these drafts at any time and send them at a later time.

Other email clients (Yahoo, etc.) have similar functions with slightly different procedures.



## Plagiarism and Citations

“**Plagiarism**” is the act of stealing someone else’s ideas, words or other “**intellectual property**” and presenting them (in writing or otherwise) as your own. In the academic world, this is considered to be a VERY serious offense. In most universities, this alone is grounds for failing a class. Routinely doing this would lead to expulsion from the best educational institutions. Most academic institutions will not tolerate plagiarism and will treat offenders accordingly. Be ready to be expelled if you plagiarize.

“**Citations**” acknowledge where writers have gotten their material and avoid accusations of plagiarism. Citations can take several different forms depending on the discipline one is pursuing. However, the essence is always the same:

When you use someone else’s words, put “**quotation marks**” around the text. For example, you might write the following:

In his article, Dr. Thomas wrote: “Contemporary worship music among the Tonga people in the Southern Province is being influence by Western popular trends.”

After such a quotation, you must include information indicating the source. One of the most common ways to do this is with “**footnotes**” or “**endnotes**.” Most word processors will enter these automatically for you. For example, with the quotation above, it would look like this:

In his article, Dr. Thomas wrote: “Contemporary worship music among the Tonga people in the Southern Province is being influence by Western popular trends.”<sup>1</sup>

(Note the “**superscript**” number after the quotation and the footnote at the bottom of this page.)

In addition to this sort of citation, many books include “**Bibliographies**” at the end of the book which list all of the sources used in the book. They are usually arranged alphabetically by last name and include the basic information: author’s name, book title, publication location, publisher, date. There are several universally-accepted formats used around the world.

Below is a typical bibliographic entry for the humanities:

Thomas, Dwight W. *Blest Be the Tie That Binds: Studies in Global Brethren in Christ Faith and Culture*. Grantham: Brethren in Christ Historical Society, 2017.

---

<sup>1</sup> Dwight W. Thomas, “Inyimbo Zyabakristo: Chitonga Hymnal of the Zambian Brethren in Christ” in *Blest Be the Tie That Binds: Studies in Global Brethren in Christ Faith and Culture* (Grantham, PA: Brethren in Christ Historical Society, 2017), pp.133-162.



## Invitations & Certificates

You might want to produce an invitation or a certificate. Both of these use similar techniques and features of word processors.

- They commonly use a decorative font with other fonts.
- They often have a decorative border
- They often include graphics which must be inserted.



Like other tasks, invitations can be easily produced using either Libre Writer or Microsoft Word. Above is an example of a wedding invitation. Appropriate graphics can be added to make a professional-looking invitation.

**ACTIVITY:** Handwrite an invitation or certificate and type it in a word processor.



## Spreadsheets

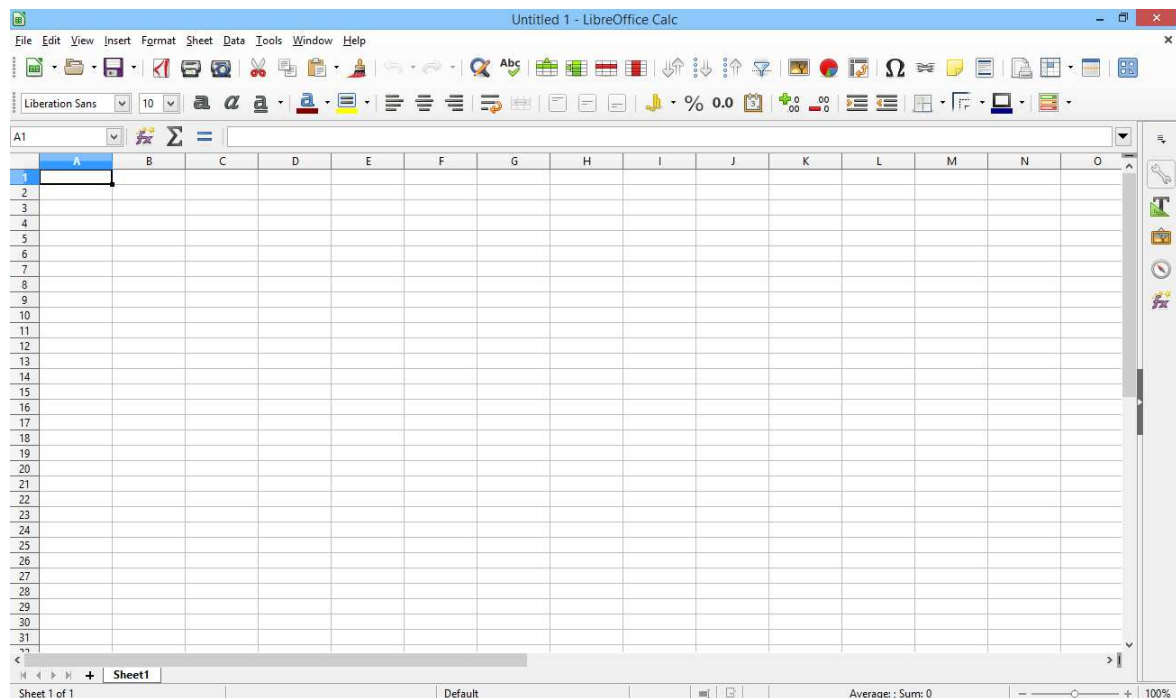
“**Spreadsheets**” are extremely useful for calculating a variety of operations. The central ideas of a spreadsheet are simple:

- A grid which includes columns and rows, thus creating boxes.
- Boxes which are called “**cells**” into which plain text, “**real numbers**” or “**formulas**” can be entered.
- A wide variety of mathematical formulas and functions which permit the user to do complicated mathematical operations.
- Sheets which can link to each other, thus permitting interconnecting operations and the production of report pages for printing.

Both Libre and Microsoft office suites include a spreadsheet module.

The Libre spreadsheet is called “**Calc**” and the Microsoft is called “**Excel**”

Libre Calc looks like this:

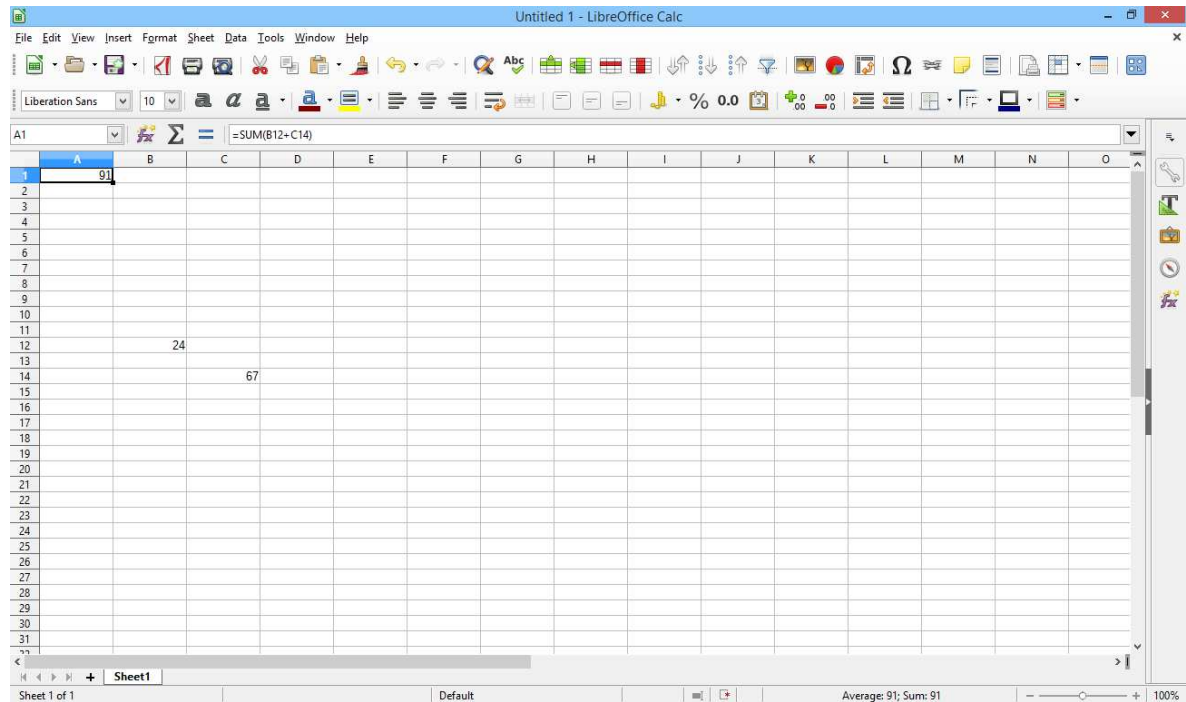


Notice that the columns are identified with letters while the rows use numerals. Thus, a particular cell would be identified by the column followed by the row: B12

- The most basic formula is: =sum(cell+cell)  
So, to add cell B12 to cell C14 and place the result in celle A1,  
you put the cursor in cell A1 and type: =sum(B12+C14)  
Now, whatever values appear in B12 and C14 will be added and entered into A1.

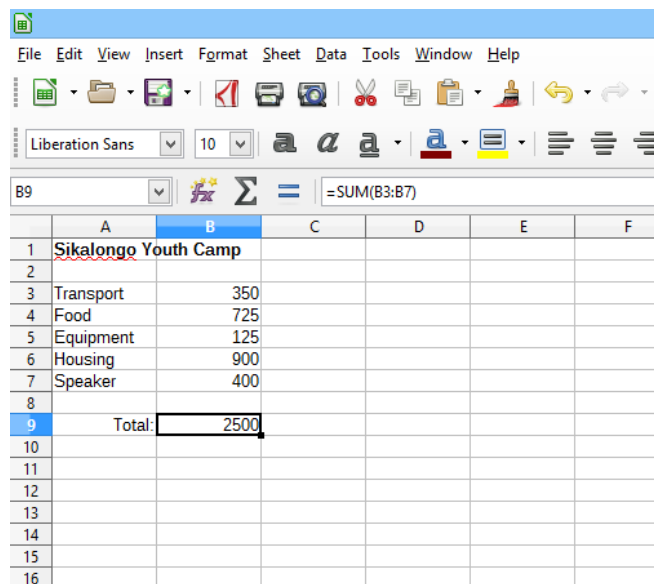


The result might look like this:



Notice that the numeral 24 appears in B12 and 67 appears in C14. They have been added together by the spreadsheet formula in A1, resulting in the number 91.

A more complicated table might show the costs for a Youth event, where there is food, transport, housing, equipment rental and speaker honorarium.



Notice the formula is” =SUM(B3:B7)

This indicates that the spreadsheet should add the numbers cells from B3 to B7 together.

**ACTIVITY:** Create a spreadsheet; enter a simple addition table



## Anti-virus software explanation and procedures

As mentioned above, computer “**viruses**” can damage your computer or your files. “**Anti-virus software**” finds these viruses and deletes them, thus saving your data. There are a number of types of virus. You do not need to understand all of these, but you should know how to use anti-virus software. The companies mentioned above produce reliable anti-virus protection and you can use any of these on your computer.

AVG is one of many good anti-virus software programs. The software interface looks like this:



In order to be effective, anti-virus must be “**updated**” regularly because new viruses are being created every day. Notice that the window above is saying that the program is “out of date” and should be updated. If you do not spend much time online, you can update weekly. If you are a “**heavy user**,” you should update “**virus definitions**” daily. Most programs will do this automatically when you are online. Remember, however, that these updates are costing you money in data transfer. Some programs permit “**offline**” updating which saves money.

Additionally, you must “**scan**” your computer regularly so the anti-virus software can discover and eliminate viruses hiding on your computer. Every program has a button somewhere which activates a scan. You can also set you anti-virus up so that it scans on a regular schedule.

**ACTIVITY:** Scan your computer; scan and clean a flash drive



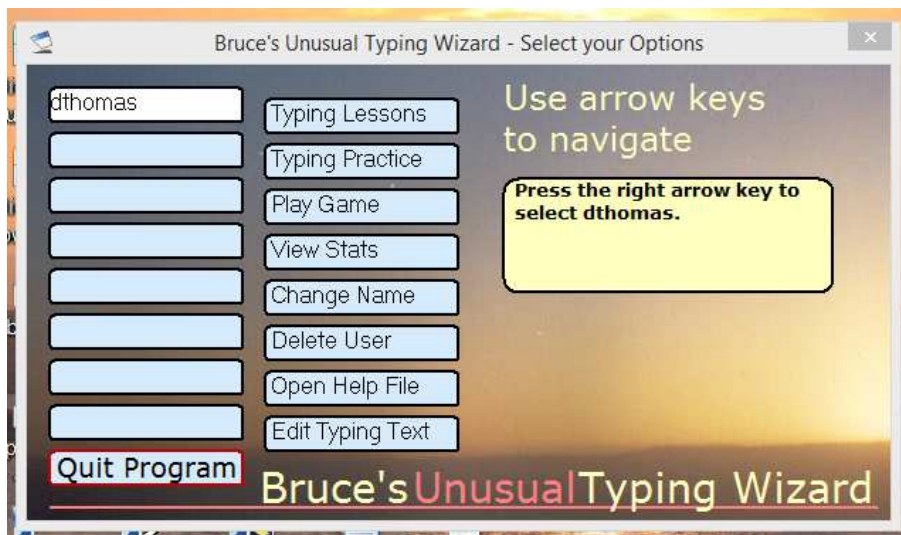
## Typing, continued

### The Shift Key

The “**shift keys**” are essential for any finished typing project. Conventional English grammar begins every sentence with a capital letter. Proper names, such as Zambia or Kaunda also demand capital letters. Producing such capital letters requires the use of the Shift Key. While the little finger of one hand holds down the shift key, the other hand types the desired letter. This means that the typist switches shift keys from right to left depending on which letter is to be capitalized. Practice the following:

- Thomas = right shift key + the “t” key followed by the rest of the word
- Zambia = left shift key + the “z” key followed by the rest of the word
- Practice typing your name and the names of your friends.
- Some mixed sentences:
  - The Lord spoke to Paul while he was on the road to Emmaus.
  - Religious leaders accused Jesus Chris in Jerusalem, resulting in his crucifixion at Golgotha.

Bruce’s Typing Wizard is an open source typing program which can help improve your typing speed and accuracy. The main window of the program looks like this:



As you can see, you can practice with typing lessons, typing practice or with a typing game. The typing practice will calculate your typing speed and let you know how fast you are.



## Typing Adverts

As you are aware, adverts are important for letting people know what we are doing or informing them about the services we offer. Word processors can produce interesting adverts in color or in black and white. Naturally, you should include the basic information:

- Event name, product or service offered.
- Information about it (where, when, who will be there)
- Cost
- Contact information

Supporting graphics: “**clip art**,” photographs, decorative fonts – There is a wide variety of free clip art on the internet. It is not difficult to find images which you can include in adverts or other documents.

- For example, imagine the ZACU wants to offer another short-term intensive course in November in music. We would begin by asking key questions. Potential students would want to know:
  - Who is eligible to enroll in the course?
  - What will I learn?
  - Who is the lecturer?
  - Where will it be?
  - What is the cost? Is there an application fee?
  - When will it begin and end?
  - What items must I bring?
- We would also want to be sure that key information about ZACU is included:
  - The ZACU logo
  - ZACU phone number and name of the contact person.
- We would search for appropriate music-related graphics to enhance the advert:
  - Someone singing
  - Notated music
  - Decorative versions of musical terminology

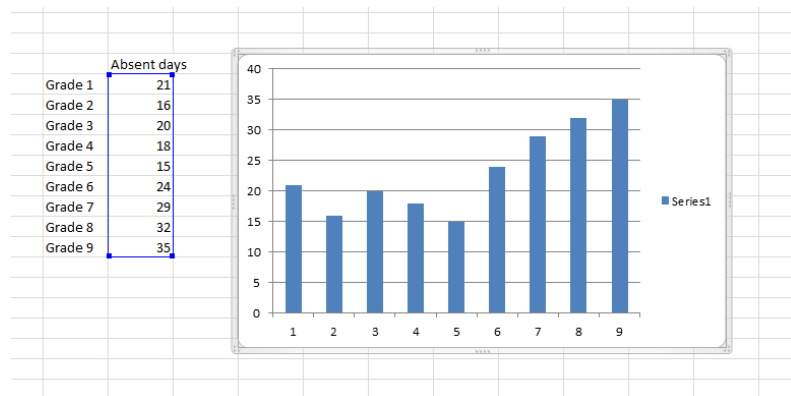
**ACTIVITY:** Handwrite an advert and then produce it in Libre Writer or Microsoft Word.



## Spreadsheets, continued

Computing (spreadsheet #2): A few more-advanced features

- Many different (and complex) formulas
  - Multiple “**sheets**”
  - Quasi-reports
  - Graphs
- **Many different (and complex) formulas exist**
    - $\text{=SUM}(x+y)$  is the most basic, but many variations exist  
 $\text{=SUM}(x+y)/\text{SUM}(a*c)$
    - Multiple functions:
      - AVERAGE (averages a range of cells)
      - IF, OR, AND
      - SIN and COS
      - INTRATE, PMT, YIELD
  - **Multiple Sheets**
    - Spreadsheets can have multiple “**sheets**.” This allows users to link those sheets together, making large-scale analysis possible. Choma Secondary, for example, uses multiple sheets to organize its classes. The composite results are calculated and shown final report sheets.
  - **“Reports”**
    - Although technically not a “**report**” in the database sense, spreadsheets can be manipulated to produce quasi-reports which draw information from many different sheets and summarize them on a final sheet which can be thought of as a report.
  - **Graphs**
    - Spreadsheets can also produce a variety of graphs to help people understand the data represented in the spreadsheet.
    - For example, an administrator might compile attendance figures from all classes, and compare them by using a graph.



14:30 – Break



## 15:00 – Session 4: Review and Q&A

- Library
  - Review and Q&A

### Budgets

- Elements:
- Using spreadsheets to assist the process

### Tab & characters

- The “**tab key**” is especially useful for several common purposes.
  - First, it simply jumps ahead on the page (screed) by a pre-determined amount. You can set the default amount and you can set different tab settings for different purposes. The tabs can easily be reset in the ruler at the top of the window. Tabs can be set as left-tab, center-tab, or right-tab. Notice how the use of different tabs in the example below enables the creation of a nicely-spaced document.

<u>Name</u>	<u>Grade</u>	<u>Teacher</u>
Mutinta Munsaka	8	Mr. Silekingombe
Gift Mulenga	7	Mrs. Chibinga
Thomas Soda	2	Mr. Chulubantu

- Second, a tab is often used to indent the beginning of a paragraph.
- Third, it jumps between cells of spreadsheets or tables, allowing the typist to move quickly around the page.
- Fourth, in conjunction with the “**Alt-key**,” tab can toggle between open windows or programs. This is a very useful time-saving shortcut.



## Outlines

Anyone who speaks or prepares agendas or committee minutes must know how to produce an outline. Modern word processors help make this an easy task. You can produce the outline using a variety of combinations of numbers and/or bullets and other symbols. You will notice, for example, that this entire document utilizes various types of bullets in a staggered manner. Although much of the text is in prose form, the presentation of the material is influenced by outline processes.

- It is very common in Zambian settings to produce minutes or reports and other such documents using tiered numbering. Below is an example which was created using Libre Writer.

1. Preamble
  2. Need, Context and Scope
    - 2.1. Need for this study
    - 2.2. Context
    - 2.3. Scope
  3. Review of Literature and Research Methods
    - 3.1. Review of Previous Research
    - 3.2. Methodology
      - 3.2.1. Assumptions and Influences
      - 3.2.2. Approach
      - 3.2.3. Survey Tool
      - 3.2.4. Sample
  4. Findings
    - 4.1. By Ethnic Group
    - 4.2. By Gender
    - 4.3. By Age
  5. Recommendations
    - 5.1. For immediate implementation
    - 5.2. A 5-year recommendation
    - 5.3. A long-term strategy
  6. Resources
    - 6.1. Books
    - 6.2. Articles
    - 6.3. Reports
- 

ASSIGNMENTS: write an outline / enter a budget in the spreadsheet



## **Glossary of Computer and Typing Terminology**

Access – Microsoft’s database program

Anti-Virus – A type of program which protects computers against malicious attacks from malware or other such scripts.

Apple - Company which produces the second most common operating system in the world. They also produce a very popular cell phone.

Backup – The process of saving one’s data in a format which can be retrieved at a later time should the computer crash or be stolen. This can be done on an external drive, a flash, a memory card, or to some virtual storage location.

Base – Libre’s database program

Bit – Smallest unit of measurement for computing.

Byte – A unit of measurement for the computer. It consists of 1000 bits.

Calc – Libre’s spreadsheet program

Caps Lock – Key which locks the keys into capital letters. It “toggles” back and forth

CAT5 – A high-speed data cable used to connect computers to other devices.

Cell – Small rectangular boxes in spreadsheets into which users can put real numbers or formulas.

Chip – Internal electronic part which "drives" the computer. It is sometimes referred to as "the processor."

Click – The action which initiates a direct response from a computer (such as starting a program, opening a file, or selecting an item on the screen).

Computer Desktop – The primary screen view on a computer which represents the organization of one’s programs and data.

Control Panel – The control panel is the primary location for changing settings and adjusting various computer devices.

Copy – An action which allows users to duplicate text or files in computer memory. Once in memory, it can be “pasted” into another location.

Cursor – The small pointer (or other icon) which can be moved around the screen to select or activate files or programs.

Cut – Operation in word processing which allows users to copy a word or phrase and delete it at the same time.

Database – A program category which allows users to enter data and search, sort and relate the data in a variety of ways. Microsoft’s database program is called “Access.” Libre’s is simply called “Base.”



Delete – This action permits users to delete a file, icon or text. Items which have been deleted are placed in the “trash bin” where they can be permanently discarded when desired.

Desktop Computer – A stationary computer which is not portable and is often found in offices.

Download – copying programs or files from the internet to one’s computer

Drag – This operation is accomplished by "left-holding" and then moving the mouse with the right hand.

Draw – Libre’s draw program

Driver – A programmatic file which provides computers with the necessary information to operate hardware devices such as printers, scanners, hard drives, etc.  
Without installing the correct driver for a particular printer, a user will not be able to print to that printer.

ESC – The escape key helps users “escape” from a particular circumstance.

Excel – Microsoft’s spreadsheet software

Extension – The 3-character suffix following the dot in a file name.

Flash – A storage device which can be "plugged into" a computer via a USB connection.

Folder – A virtual filing folder into which users can place documents or other computer files for later retrieval.

Freeware – Computer programs which can be used at no cost at all. All kinds are available. Libre Office (which includes word processing, spreadsheet, presentation, and database modules) is one such program.

GB – Abbreviation for gigabyte.

Gigabyte – A measure used for representing the storage capacity of hard drives and other memory devices. It is equivalent to 1000 megabytes.

Hard Drive – A device which stores data such as files and programs. They can be internal or external. The size is usually measured in gigabytes. Currently, anything less than 300 gigabytes is considered too small.

HDMI - A rather new video input connection which is capable of higher quality signals than the earlier VGA connection. It stands for High Definition Media Input.

Icons – The small images representing various computer functions, programs, etc.

Impress – Libre’s presentation program

Kilobyte – 1000 bytes. Abbreviation is KB

Laptop – A portable small format computer which can fit easily on one’s lap.

Libre – An open source office suite which includes word processor, spreadsheet, database, presentation, and draw programs

Megabyte – Abbreviated MB, this is 1,000,000 bytes or 1000 KB



- Microsoft – The dominant company producing the Window operating system and office software (Microsoft Office)
- Monitor – The display device which is used to show the software programs and desktop screen.
- Mouse – A computer device which allows users to move the cursor around the screen. The mouse incorporates two click buttons (left-click and right-click), which permit users to initiate actions or find out information.
- Open source – software which is free and available for downloading to anyone. An active community of supporters exists which promotes open source software.
- Operating system – The foundational software upon which all other software operates. Microsoft Windows is the best-known operating systems. Others include the Apple OS and Linux.
- Powerpoint – Microsoft’s presentation software
- Presentation software – Software which permits users to create “slides” which can be projected for purposes of instruction, church or otherwise. Microsoft’s program is called “Powerpoint.” Libre’s is “Impress.”
- Print – The action of printing a document. The shortcut is: Ctrl-P
- QWERTY – The key arrangement traditionally found on most computer keyboards, before computers it was used for many decades as the keyboard arrangement for typewriters.
- Restore Point – In Windows, this point can be created whereby the computer will “remember” the exact setup and data from a specific point in time. It is an important tool for protecting one’s computer programs and data.
- Save – Feature which allows users to save documents under a specific name and location. Saving a document “overwrites” the earlier version with any newly-added editing. The shortcut is: Ctrl-S
- Save as – Feature which allows users to save an existing document under a different name, while still preserving the earlier version.
- Shift – Two keys (one on either side of the keyboard) which change a letter to capital when the shift key is depressed while typing the appropriate key.
- Spreadsheet – A software category which features a grid of “cells” and helps users calculate numbers by using real numbers and formulas. “Excel” is Microsoft’s spreadsheet program; “Calc” is Libre’s spreadsheet program.
- Start menu – In Microsoft Windows, this icon is usually located in the corner. Left-clicking the icon takes users to a screen which allows them to choose programs.
- Tab – A key which forces text in a word processing document to jump ahead by a pre-set number of spaces.
- Task bar – This appears on the side or top of the screen and includes program and system icons.



Terabyte – Abbreviated TB, it is equivalent to 1000 gigabytes.

Toggle – To alternate back and forth.

Trash bin – The location where deleted files are put after deletion. Items in the trash bin can be permanently deleted when desired. They can also be “restored” to their former location if so desired.

Upload – copying programs or files from one’s computer to another location via the internet

USB – A type of cable ending which is often used to connect the computer to other devices. USB cables now come in normal, mini, and micro sizes.

Virus – Refers to a number of computer “infections” which can damage computer data or collect private information without the users knowledge.

Wipe – The erasing of data from a hard drive, flash drive or memory card.

Word – Microsoft’s word processing program

Writer – Libre’s word processing program

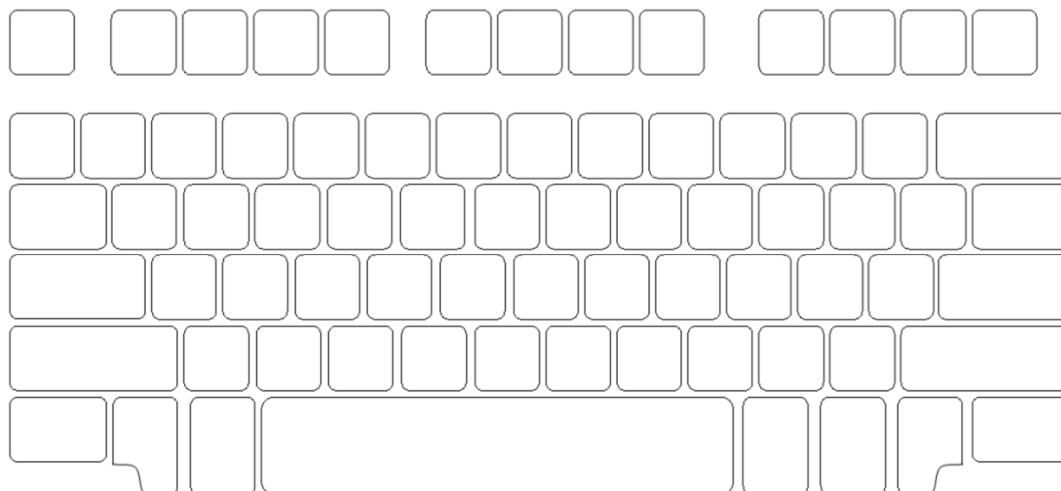
WYSIWYG – Stands for “what you see is what you get” and indicates that the image on the computer screen is an exact representation of what will appear when a document is printed.





# Typing Exercises

by  
Dr. Dwight W. Thomas, Ph.D.



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## Typing Exercises – Home Row

<b>Exercise 1:</b> asdfg hjkl; asdfg hjkl; ;lkjh gfdsa ;lkjh gfdsa gfdsa hjkl; gfdsa hjkl; adsfdg ;kljkh adsfdg ;kljkh	<b>Exercise 2:</b> ah had lag add dad slag sad fad lad had lag slag ah fad had dad gad sad had dash lash add ah had lag add dad slag fad
<b>Exercise 3:</b> hash flash ask has ask has hash flash hash ask flash hash hash flash ask has	<b>Exercise 4:</b> dash gash lash lash dash gash gash lash dash dash gash lash
<b>Exercise 5:</b> lad sash flag sash flag lad flag lad sash lad sash flag	<b>Exercise 6:</b> fall gall hall lass fall gall hall lass fall gall hall fall fall gall hall lass
<b>Exercise 7:</b> glass adds alfalfa alfalfa adds glass glass alfalfa adds glass adds alfalfa	<b>Exercise 8:</b> sad shall salad shall salad sad salad sad shall sad shall salad
<b>Exercise 9:</b> ash glad alas glad alas ash alas ash glad ash glad alas	<b>Exercise 10:</b> all flask half flask half all half all flask all flask half



## Typing Exercises – Querty Row

<b>Exercise 1:</b> qwert yuiop poiuy trewq qwert yuiop poiuy trewq qwert poiuy qwert poiuy trewq yuiop trewq yuiop yuiop trewq yuiop trewq	<b>Exercise 2:</b> qewret piouiy qewret piouiy qwepoi treyui qwepoi treyui qpwoeiruty tyrueiwoqp qetpiy wruo qetyip wruo
<b>Exercise 3:</b> quip try wet trip wet trip quip try quip trip try wet quip try wet trip	<b>Exercise 4:</b> tip pot rot tree rot tree tip pot pot tree tip rot ip pot rot tree
<b>Exercise 5:</b> yet pie tow up it tot tow it up yet pie tot pie tow up yet it tot yet pie tow up it tot	<b>Exercise 6:</b> to you it quit were it quit were to you you were to quit it were you to quit it
<b>Exercise 7:</b> put up rip tree write it write it up rip tree put rip it up put write tree put up rip tree write it	<b>Exercise 8:</b> try true power to up it up power to try it true power it up true to try it try power to true it up
<b>Exercise 9:</b> you wrote or quit to rope or quit to rope you wrote wrote you rope or to quit you wrote or quit to rope	<b>Exercise 10:</b> peter root it up to put wet rope root it up to put peter wet rope wet peter rope it up to put root peter root it up to put wet rope



## Typing Exercises – Querty Row + Home Row

<b>Exercise 1:</b> qwert yuiop poiuy trewq qwert yuiop poiuy trewq qwert poiuy qwert poiuy trewq yuiop trewq yuiop yuiop trewq yuiop trewq	<b>Exercise 2:</b> till quail tight yell will those feat lake hash those lake feat will hash hash those quail feat hash
<b>Exercise 3:</b> wire this flay queue; there gypsy sale rail is this wire flay the queue to this lake hash the wire for this gypsy	<b>Exercise 4:</b> usher the wake to the yaw tide; quash their quail at the light rash; that usher wake yaw tide;
<b>Exercise 5:</b> slit guide tale rage; the depth quest your these slit guide tale rage;	<b>Exercise 6:</b> tale trash slide day; take urge wages wake typist tale trash slide day;
<b>Exercise 7:</b> play rest jaw quail; why fell its well peat two play rest jaw quail; why	<b>Exercise 8:</b> typed sure peep sill; ogre rate quell paw yap use typed sure peep sill;
<b>Exercise 9:</b> if do pit dug wary; quaff law stop lair gate here if do pit dug wary;	<b>Exercise 10:</b> go her with hit; fight tug quill day saw yippee go her with hit; fight tug



## Typing Exercises – ZXCVB Row

<b>Exercise 1:</b> zxcvb nm,./ zxcvb nm,./ /.,mn bvcxz /.,mn bvcxz zxcvb nm,./ zxcvb	<b>Exercise 2:</b> zcbn,/ xvm. zcbn,/ xvm. z/x.c,vmbn bnvmc,x.z/
<b>Exercise 3:</b> zmb bbc nbc cbn nbc cbn zmb bbc zmb cbn bbc nbc zmb bbc nbc cbn	<b>Exercise 4:</b> nnn vvv ccc ,,, zzz /// xxx ... ,,, zzz /// xxx ... nnn vvv ccc nnn /// xxx ... vvv ccc ,,, zzz nnn vvv ccc ,,, zzz /// xxx ...
<b>Exercise 5:</b> bnbn c,c, z/z/ cmcm mxxx z/z/ cmcm mxxx bnb c,c, bnbn mxxx c,c, z/z/ cmcm bnbn c,c, z/z/ cmcm mxxx	<b>Exercise 6:</b> /// mbb czz cv zm xxxc. cv zm /// mbb czz xxxc. cv /// mbb czz zm xxxc. /// mbb czz cv zm xxxc.
<b>Exercise 7:</b> zc zm zx zn zv zb. zx zn zc zm zv zb. zc zb zm zx zn zv. zc zm zx zn zv zb.	<b>Exercise 8:</b> cx cbb nbc bbc mc n zmm mc n cx cbb nbc bbc zmm nbc bbc cx cbb mc n zmm cx cbb nbc bbc mc n zmm



### Typing Exercises – ZXCVB Row + Home Row

<b>Exercise 1:</b> mad ham lamb dam lad nag; lamb dam mad ham lad nag; dam lad nag mad ham lamb; mad ham lamb dam lad nag;	<b>Exercise 2:</b> glad flag madam chad sham, madam glad flag chad sham chad sham glad flag madam, glad flag madam chad sham,
<b>Exercise 3:</b> clam black flack back knack / flack back clam black knack / back knack clam black flack / clam black flack back knack /	<b>Exercise 4:</b> a black van can fan a lad. a lad can fan a black van. can a lad fan a black van. can a black van fan a lad.
<b>Exercise 5:</b> dad has a bad can and a sax. can dad man a can and a bad sax a dad and a man had a lax sax. a bad sax can ham a sad dad.	<b>Exercise 6:</b> a glad madam had a mad dad. a glad dad has a glad madam. mack a jazz sax and glad madam. a lad had a flask and a can.
<b>Exercise 7:</b> glad man jazz man glad man / madam black class madam / sad class had a lamb and a van / a black man can fan a jazz sax.	<b>Exercise 8:</b> a black man can fan a jazz sax; can a jazz sax ban a mad dad. hand a jazz sax a black can; and a class van as land.
<b>Exercise 9:</b> land a man, and ban a lad, and flask a glad jazz madam. a man, a madam, a van, and a can; can ban a black jazz sax.	<b>Exercise 10:</b> alas, a lass and a lad can fall sad. a lad can fall sad; and a lass mad. can a lass clad black jazz sax a lad, alas, can fan cash.



**Typing Exercises – ZXCVB Row + Home + Qwerty Rows  
Commonly-used words**

<b>Exercise 1:</b> the, the, the book. this, this, this man. that, that, that woman. There, there, there are; these, these, these were; the this that there these this is the day the lord has made.	<b>Exercise 2:</b> a a a / an an an / and and and is, is, is / are, are, are was, was, was / were, were, were another, another, another. can a man serve two masters a woman can have a class
<b>Exercise 3:</b> it it it / is is is if if if / in in in into into into / its its its up up up up / down down down right right / left left	<b>Exercise 4:</b> to to to / out out out no no no / yes yes yes he he he / she she she they they they / we we we us us us / them them them
<b>Exercise 5:</b> have have have had had had has has has has this man had a van that woman has a jazz sax. can the boy have two saxes the men shall have tea.	<b>Exercise 6:</b> when when when what what what why why why who who who where where where which which which how how how
<b>Exercise 7:</b> see / saw / seen do did does done eat ate eaten eating go went gone going make / made / making cook cooked cooking work worked working run / ran / running	<b>Exercise 8:</b> boy boys boy / girl girls girl man men man; woman women woman; child children child. Teacher, teachers, teacher; Student, students, student. pastor, pastors, pastor; farm / farmed / farming / farmer



**Typing Exercises**  
**ZXCVB Row + Home + Qwerty Rows + Shift key**  
**Short Sentences for easy practice**

<p><b>Exercise 1:</b>  There was once a rabbit.  He was very smart.  He had friend.  She was a small girl.  Her name was Mutinta.  One day, the rabbit ran away.  And the little girl was very sad.</p>	<p><b>Exercise 2:</b>  Use correct spelling when typing a paper.   If your grammar or spelling are not correct, your grade will suffer.   Take time to correct your work.  In the end, you will do better.</p>
<p><b>Exercise 3:</b>  Good typing is very important.  It critical for students and teachers.   Without good typing, your work will go slower.   With good typing, you will finish everything faster.</p>	<p><b>Exercise 4:</b>  There are two cardinal rules for good touch typing.   First, stay in home position.   Second avoid looking at the keyboard.</p>
<p><b>Exercise 5:</b>  The Lord is my shepherd.  I shall not want.  He makes me lie down in green pastures.  He leads me beside still waters.  He restores my soul.</p>	<p><b>Exercise 6:</b>  Great is the Lord.  He is greatly to be praised.  God reigns in majesty in heaven.  Let everyone serve the Lord.  Bow down before him.  Worship him with all your heart.</p>
<p><b>Exercise 7: Shift symbols</b>  ??? / &gt;&gt;&gt; / &lt;&lt;&lt; / :::  : &lt;&gt; ? / : &lt;&gt; ? / : &lt;&gt; ?</p>	<p><b>Exercise 8:</b>  Did you see that cow?  Was the girl at the school?  Why did you not sing?  Are you going to Choma today?  How often do you go home?</p>



**Typing Exercises**  
**ZXCVB Row + Home + Qwerty Rows + Shift key**  
**Short Sentences for easy practice #2**

<b>Exercise 1: School</b> Cholwe is my best friend. Chilobe went to school today. Is Mr. Mudenda a good teacher? Our school team won the game. Do you have exams tomorrow? My results are due next month.	<b>Exercise 2: Zambia</b> Zambia has many great people. Victoria Falls is beautiful. Is Choma is a busy place? Kenneth Kaunda struggled hard. The Zambezi is a long river. Kariba Dam produces electricity.
<b>Exercise 3: Church</b> Our pastor serves the church well. The youth choir sings on Sunday. We put a new roof on our church. Should the offering be higher? When will the service begin? We recently go new benches. Is that your new deacon?	<b>Exercise 4: Business</b> How much does this cost? I would like to buy some maize. This shirt has some damage. Can you deliver this today? The school needs more envelopes. Please service this vehicle soon. May we have the check, please?
<b>Exercise 5: Village and Family</b> The chickens look healthy. How many cattle do you have? Where is your Mother? Your garden looks great. We have four children. Did you harvest a lot of maize? I see you have begun to plant.	<b>Exercise 6: Music</b> That song was really nice. How often do you practice? Please sing another hymn. I love <i>Inyimbo Zyabakristo</i> . Your drummer did great job. The women will sing next. Can the keyboard play softer?
<b>Exercise 5: Travel</b> When does the bus leave? Transport has become too costly. How long does it take to Choma? Our car broke down near Batoka. The road to Chikanta is very bad. The bridge at Kalomo collapsed.	<b>Exercise 6: Food</b> Nshima and fish is my favorite. Does Spar sell chicken and chips? Ground nuts are available now. The oranges are ripe and ready. Cook that meat well. Where can we find good bread?



## Typing Exercises – Numbers Row

<b>Exercise 1:</b> 12345 67890 / 12345 67890 09876 54321 / 09876 54321 135 086 2479 / 135 086 2479 111, 222, 333, 444, 555 666, 777, 888, 999, 000 12d. 14x. 15j. 88s. 99b.	<b>Exercise 2:</b> 0974 573 043 / 0977 322 012 2017, 2020 , 1994 , 1906  a1 b2 c3 d4 e5 f6 g7 h8 i9 j0 k11 l12 m13 n14 o15 p16 q17 r18 s19 t20 u21 v22 w23 x24 y25 z26
<b>Exercise 3:</b> A1 S2 D3 F4 G5 H6 J7 K8 L9 ;0 9l 8k 7j 6h 5g 4f 3d 2s 1a	<b>Exercise 4:</b> 8th August 2017 25 <sup>th</sup> December 2016 15 <sup>th</sup> April 2018
<b>Exercise 5:</b> Chapter 23, page 36 You can find it on page 79. Look at chapter 12, page 58. There are 923 students at school. Did you ask for 456 books?	<b>Exercise 6:</b> Our address is 435 Main Street. We are at 3 <sup>rd</sup> Avenue, Lusaka. Send it to box 3598. The postal code is 630013.
<b>Exercise 7:</b> If 25 students study 7 hours, how many total hours did they all study?	<b>Exercise 8:</b> 9 time 3 equals 18 24 divided by 6 is 4 88 plus 11 is 99
<b>Exercise 9:</b> Go to room 35 in building 7. The book is number 386.24 The number is 5193.002 You paid 1,500 kwacha. Tution will be be 6,500 kwacha. The books cost 2,000 kwacha.	<b>Exercise 10:</b> 3,428 people attended the rally. Zambia has 10 provinces. There are 35 chieftancies. We have 26 head of cattle. I sold 122 chickens to Spar. We need 97 bags of maize.



## Typing Exercises

### Numbers Row with Shift

<b>Exercise 1:</b> ! @ # \$ % ^ & * ( ) _ + + _ ) ( * & ^ % \$ # @ ! ! @ # \$ % ^ & * ( ) _ + + _ ) ( * & ^ % \$ # @ !	<b>Exercise 2:</b> ; ; ; : : : ; ; ; : : : ' ' ' ' " " " " ' ' ' ' " " " " / / / / ? ? ? ? / / / / ? ? ? ? p p p p [ [ [ [ ] ] ] ] P P P P { { { { } } } } 9 9 9 9 ( ( ( ( ) ) ) ) 0 0 0 0 ) ) ) ) - - - - _ _ _ _ = = = = + + + +
<b>Exercise 3:</b> I'll be there. Don't worry. Can't you going to town? "One Zambia One Nation" 23 < 44 but 89 is > than 15 This is Rev. Nseemani's home. BIC (Brethren in Christ) "He was a [very] slow runner." "You did'nt order anything?"	<b>Exercise 4:</b> #15 @ \$56.80 = 17%, 15*(12+3)=15 ^2, 2- !=4-2 if(\$totalqty=0) if(document.images) sum=(D4*E14) 85% of our students graduate. You are in Room #3. Wow! What a great picture!
<b>Exercise 5:</b> zacu.vc@zambiancu.org hamukangandu@yahoo.com messiahcollege@messiah.edu	<b>Exercise 6:</b> Munsaka & Mudenda, LTD Muleya & Matapo Incorporated
<b>Exercise 7:</b> Your name: _____ Dr. Wanda Thuma-McDermond I want _____ books. This (*) is an asterisk. 23 + 45 equals 68.	<b>Exercise 8:</b> >>> for n in [1, 2, 3]: print n; %d x 7 = %d % (j,j*7) if (index >= size) throw new ArrayIndexOutOfBoundsException if(chair \$where){ #we got there } else { #not }



## Typing Exercises – Short Phrase

<b>Exercise 1:</b> a boy a girl the woman the man my friend my son his wife his daughter that student that driver this teacher this farmer	<b>Exercise 2:</b> our home our town our church your car your book your food his bike his bag his pigs her skirt her hair her choir	<b>Exercise 3:</b> their school their fields our dog our chickens his fence his maize that tree that building an apple an orange my belt my hat	<b>Exercise 4:</b> these people these songs those roads those leaders which way which side what time what paper
<b>Exercise 1b:</b> a young boy a smart girl the old woman the strong man my new friend my first son his young wife his last daughter that lazy student that good driver this excellent teacher this trained farmer		<b>Exercise 2b:</b> our first home our home town our biggest church your red car your own book your best food his old bike his big bag his five pigs her blue skirt her nice hair her talented choir	
<b>Exercise 3b:</b> their high school their maize fields our little dog our young chickens his garden fence his fresh maize that guava tree that brick building an apple pie an orange drink my leather belt my brown hat		<b>Exercise 4b:</b> these young people these slow songs those bad roads those skilled leaders which way which side what time what paper	



## Typing Exercises

### Short Sentences from the Alphabet

<b>Exercise 1: A-C</b> Lots of apples are available. Actually, all the boys are around. Beware of bees in your barn. Smell before you buy the bread. Can Choma cows climb trees? It is crazy to contemplate crime.	<b>Exercise 2: D-F</b> Can Donald drive to Dambwa? Daring drama digs deeper. Every event earns enough. Entertaining energy enters us. Flee from failure forever. Fry the filling fish on the fire.
<b>Exercise 3: G-I</b> Goats love grass and grain. Give a gift to the gracious girl. How heavy is his hammer? Has Howard had a heart attack? I imagine I will invite Innocent. Innovate rather than imitate.	<b>Exercise 3: J-L</b> Jazz in Japan is just jumping. Jacob and Jane are joining us. Kaunda keenly knew Kalomo. Mr. Katengo killed the snake. Let the Lusaka ladies leave late. Lead the Livingstone little ones.
<b>Exercise 3: M-O</b> Maybe my Mother can mend it. Mr. Makwamba makes money. Might Macha Mission manage it? The Nyumbu name is new to me. It is never nice to needle nuns. Open our outside oven, please. Were other options overlooked?	<b>Exercise 3: P-R</b> Prayerful pleas promptly prevail. Play a pleasant tune on the piano. Quails are quite quick. Quit squeezing the quiet squid. Read the rules before the rally. Remember no right turn on red.
<b>Exercise 3: S-V</b> She sang slowly at Sikalongo. Shall Susan show Sam the song? Taonga told Thuma to make tea. That terrible tumble cut my toe. Uttering useless understatements. Unless others upset us, we win. Various versions violate veracity. Every valley has vibrant views.	<b>Exercise 3: W-Z</b> When will the warnings weaken? Whatever do the women want? An extra sax would be excellent. Except for exams, I like school. Your yearning might yet yield. Yes, we use yeast every year. Zambians zip and zoom around. Zambezi rapids test crazy zealots.



## Typing Exercises – Excerpts for practice

<u>EARLY DAYS</u>	<u>Words</u>
<p>Among the “factory hands” at the Blantyre Cotton Works, situated on the beautiful river Clyde, a little above Glasgow, was a lad who entered as “piecer” when about ten year old, and at the age of nineteen was still there, having advanced through the intermediate stages to the full dignity of a cotton-spinner!</p> <p>Davie, as his companions called him, was silent and thoughtful, even when a boy ; and as he grew up to manhood he became more so, yet was he not sullen or morose; ever ready to do a good turn for any one, civil and obliging, he was generally liked, although he shared but little in the sports and pastimes of the lads with whom he worked at first, or in the amusements of the weavers, male and female, in whose society he afterwards had to pass his hours of labour, which were from six in the morning till eight at night, with short intervals for breakfast and dinner.</p>	53
<p>This, with most young people, would have given little time for mental improvement; but the thirst for knowledge was strong in Davie, and he managed to lay in a good store of information, by stealing hours from the night, and letting no odd moments pass by unimproved.</p> <p>From a biography of David Livingstone: Adams, H. G. <i>David Livingstone: The Weaver Boy Who Became A Missionary</i>. London: Henry Frowde, 1879.</p>	109
<p>You can calculate your speed by timing yourself with your phone. Simply divide the number of words by the number of minutes. For now, round off your time to the tenth of a minute (i.e., 6” = one tenth of a minute). So,</p> <p>1.2 minutes by your phone calculator = 2 min. and 20 sec. = 1.3 minutes (by %) Hence, divide 47 words by 1.3 = 36 words per minute</p>	47