COMPUTER STUDIES NOTES

FORM 1

**Computer Laboratory**

**Objectives**

1. Define a computer laboratory
2. State the rules, safety precaution and practices in a computer laboratory

**Computer Laboratory**

In this lesson, we shall define the computer laboratory, and learn how the laboratory is set up. We shall also look at rules and safety precautions to be observed while working in the laboratory.

**What is a Computer Laboratory?**

It is a specially prepared room to facilitate installation of computers and to provide a safe conducive environment for teaching and learning using computers.  
  
**Setting up a Computer Laboratory**

The following are some of the factors to consider when setting up a computer laboratory:

1. Security of the computers
2. Availability of stable Electric Power
3. Number of computers to be installed
4. Number of users to be accommodated at ago.

**Rules and Safety Precautions**

A laboratory without rules and regulations is like a public road without traffic rules. Rules and regulations ensure safety and security for the users and machines. They minimise damage to the machines and ensure health of the user, bringing about good conducive learning and working environment.

**Rules and regulations**

Whenever working in the computer laboratory, always shut down the computer using the correct procedure to minimise damage. Do not allow unauthorized persons in the laboratory .Do not carry any foodstuffs or fluids into the computer laboratory. The may spill and get into the computer parts and damage them. Avoid unnecessary movements that may lead to accidents. Do not open computer parts without permission   
  
**Safety Precautions in the Laboratory**

Computers are expensive and costly to maintain. They are also delicate and therefore require good care in order to last long. Some of the safety precautions to be observed are:

1. They must be covered after use to avoid dust settling on the components
2. The laboratory should be locked and fitted with burglar proof grill to prevent unauthorized access
3. The cables should be properly insulated and laid well to avoid exposing users to electric shock and short circuit.
4. The laboratory should have fire extinguishers in case of outbreak of fires
5. There should be stable power supply for the computers i.e use of Uninterruptible Power Supply (refer to UPS)
6. Storage media should be scanned before using. This will minimize the spread of computer viruses.

**UNINTERRUPTED POWER SUPPLY**  
**Safety Precautions for the users**The health of the computer user is also as important as the safety of computers. It is therefore important to observe practice in order to be more productive. Some of these precaution are:

1. We should have standard furniture to ensure comfort and avoid strain.
2. The laboratory should have a good lighting system to avoid straining of eyes
3. There should be good ventilation to allow fresh air into the room both for the user and to cool the computers
4. Computer monitors must be fitted with antiglare devices to aid in filtering light to care for eyes.
5. Start, restart and shut down a computer
6. Use the mouse and the keyboard effectively

**HANDS ON SKILLS**

In this lesson, we shall learn various hands on skills including the mouse, mouse terminologies, start-up, cold boot, warm boot, shutting down and keyboard skills.   
Mouse skills

A computer mouse is a hand held input device which is used to select commands on the screen. It controls the movement of the pointer (cursor) on the screen and the buttons are pressed or clicked to perform specific tasks. In this lesson it is assumed you are Right handed. The correct way to hold a mouse is as seen below  
.  
  
The mouse pointer is the symbol that indicates the position of mouse on the monitor.  
The wrong way to hold a mouse is as shown below.   
Is the symbol that indicate the position of mouse on the monitor.

**Mouse terminologies**

Mouse terminologies explains various mouse techniques. Selecting an item involves Clicking on the item. While selecting a text involves selecting an item then hold down the mouse button and drag over the text. This process is done to select an item. Double clicking is used to initiate an action, such as opening a file.  
  
**Starting up a computer**

To ensure the safety of a computer system, the following steps should be followed when starting up:

1. Ensure that all the cables are properly connected.

2. Switch on main power supply.

3. Switch on the power backup (UPS)

4. Switch on the monitor.

5. Switch on the system unit.

6. Wait for the computer to finish the starting up process.  
  
The standard power switch with most electronic devices is represented in the diagram below.   
  
**The starting up process is also referred to as booting.**  
During booting, the computer checks all the basic parts to determine whether they are working properly. This process is referred as POST (Power on self test).  
Booting is controlled by a special program called BIOS (Basic input output system).

**Booting can be classified into two:**

1. **Cold boot**
2. **Warm boot**

**Shutting down**

This is a process where a computer which is on is Turned Off. The procedure to Turn off when using Windows 2000 and XP is:

1. Click on the start button
2. Click Turn Off Computer button
3. Select Turn Off button and click.

NB: It is possible to shut down the computer using short cuts e.g. alt+F4   
The correct shut down procedure should always be followed to avoid damage to the computer.  
Keyboard  
A keyboard is an input device used for entering data such as text ,numbers and symbols by tapping the keys ( keying in)  
The arrangement of keys (text, numbers and symbols) on the computer's keyboard is known as keyboard layout.  
  
**Keyboard Skills**

1. Sit upright
2. Place the material to be typed on your left.
3. Place both hands on the keyboards Home Keys
4. Use all the ten fingers to start typing slowly at first.
5. Speed will be improved gradually with a lot of practice.

**Special keys**These are keys used in conjunction with other keys to issue commands that are specific to the application program being used.  
They include the:  
  
Cursor movement and editing keys  
Cursor movement keys are used for moving the cursor around the text. They include:Roll the mouse pointer over the named key to observe its function.   
Editing Keys are used for making corrections in a text. They include:  
Keyboard layout  
Keys on the keyboard can be categorised into five groups namely:-

1. Alphanumeric keys
2. Function keys
3. Cursor movement and editing keys
4. Special PC operation keys
5. Numeric keypad

**Numeric Key Pad**These are keys found on the extreme right of the keyboard. They are used for entering numeric data and performing calculations when the Num Lock key is turned on. They consist of 0 to 9, mathematical symbols addition(+), subtraction(-), multiplication(\*) and division(/).  
They can also be used for cursor movement and editing keys when the Num Lock key is turned off.  
  
**Alphanumeric Keys**These are keys with letters A to Z, numbers 0 to 9, symbols (@, #, %, &, \*, <, >,/, punctuation marks etc used for typing in text and other data.  
Other typing of keys include:

1. Caps Lock key- used for changing between lower case and upper case
2. Enter (Return) key- used to execute commands e.g. to start a new line in word processing programs
3. Space bar- creates a space between words when typing
4. Backspace - deletes characters and spaces to the left of the insertion point
5. Tab key- moves the insertion point at set intervals on the same line

**Function keys**These are keys labeled F1, F2, F3 upto F12. They are used to issue commands specific to an application program being used. For example in windows operating system,

1. F1 is used for help
2. F2 is for editing file names
3. F5 is for refreshing
4. F8 is for choosing OS while rebooting

Different keys can be used for different functions depending on the application being used.   
Cold boot  
Cold booting is when a computer that was off is started. The process of cold booting is used to start up your computer.

NB: Next time you start the computer be keen and note the process. You will see the keyboard lights go on as an indication of POST.

**Warning:**Avoid frequent cold booting. This causes the electronic parts to contract and expand rapidly thereby damaging them.   
Warm booting   
Warm booting is the process where a computer that is on is forced to restart by use of the restart button or restart option in the Turn Off option (Window 2000 and later versions).   
Warm booting is used in case the computer hangs.   
  
**By the end of the lesson, you should be able to;**Define a computer system  
State and explain the functional organization of the elements of a computer system

**COMPUTER SYSTEMS**

In this lesson, we shall learn more about input devices, central processing unit, output devices, secondary storage devices and setting up and cabling tasks.

1. Define a computer system
2. State and explain the functional organization of the elements of a computer system

**What is a Computer System?**

A system is a set of related components that interact together with an aim of achieving common goals.   
A Computer system is composed of Hardware, Software and Liveware that interact to process data into information.

Components of a Computer system  
The components include:

1. Hardware
2. Software
3. Liveware (computer user).

The components interact together to perform a task.  
Hardware components  
These are the physical devices of a computer system.  
They consist of the mechanical, electrical and electronic parts which can be grouped as:

1. Input devices
2. Processing and memory devices
3. Output devices
4. Communication devices

examples of hardware components   
Software components  
These are programs that enable a computer system to perform a variety of tasks.   
These programs are written in computer language.  
They are further grouped as:

1. System software
2. Application software

**The following are examples of system software:**

Examples of software components include:   
**1. Microsoft office suit**- word  
- excel  
- access  
- power point  
- Frontpage  
- Outlook express   
**2. Microsoft CorelDraw graphics suit**-Corel draw  
-Corel paint  
**3. Adobe Creative Suite**-Photoshop  
-llustrator  
-In-design  
-Dreamweaver  
-Flash  
-Fireworks  
Liveware Components  
These are computer users. The users vary according to training and areas of specialisation. Liveware is also referred to as Orgware.   
  
Examples of liveware include:

1. Computer operators
2. Computer technicians
3. Computer programmers
4. Database administrators
5. Network administrators

Input devices capture and convert human-readable data into a computer readable form. The human-readable form may be words like the ones in these sentences. Computer readable form consists of binary 0s and 1s.  
Input devices are classified into five categories according to the way and type of data they capture. The categories are:

1. Keying devices
2. Pointing devices
3. Scanning devices
4. Speech recognition devices
5. Digital devices

**By the end of the lesson, you are expected to;**describe keying input devices  
describe pointing input devices  
describe scanning input devices  
describe speech recognition input devices  
describe digital input devices.

**INPUT DEVICES**

Input devices refer to the entry point to the computer. Input devices are classified as keying devices, pointing devices and scanning devices.