

Foundation Computer Studies
for Primary Schools

Book 5

UBE Edition

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UNIT ONE

Classes of computers

Types of computers

There are three types of computers. They are

- 1 the **analog computer** which is used for measuring things. Examples are the thermometer, car speedometer, rain gauge, blood pressure machine and scale machine.



thermometer



car speedometer



- 2 the **digital computer** which is used for counting. Examples are the digital wristwatch, calculator and digital thermometer.



calculator

- 3 the **hybrid computer** which is used for both counting and measurement. An example is the electronic fuel dispenser.



electronic fuel dispenser



Activities

- 1 Give more examples of analog computers.
- 2 Give more examples of digital computers.
- 3 Name other hybrid computers that you know.

Sizes of computers

There are four different sizes of computers.

They are

- 1 microcomputers
- 2 minicomputers
- 3 mainframe computers
- 4 supercomputers

Microcomputers are the smallest computers while the supercomputers are the largest.

Generations of computers

Each new computer was better than the one before it. Each new type of computer is therefore known as a generation of computers.

Generations of computers are the stages



the computer has passed through before becoming what we now have as computers.

There are five stages of development or generations of the computer. Each stage of development is a generation of the computer.

First generation computers

When computers were first made, they were large and costly. They gave out heat when used. They were also slow in making calculations and could only store very few items of information. They also needed much electricity before they could be used.

Second generation computers

Soon, the large, costly and slow computers were no longer used by many people. New computers which were cheaper and smaller than the first ones had been made. These were the second generation computers.

These new computers stored many more



items of information than the earlier computers. They also used less electricity. These second generation computers worked faster than the first generation computers.

Third generation computers

In the third generation computers, the electric pathways were all joined as one, inside the computers. This was called an **integrated circuit**. Electricity therefore moved very fast through the computers.

The third generation computers were cheaper, smaller and faster than the second generation computers. They also used less electricity and gave out less heat when used. Many people soon began to use the third generation computers.

Fourth generation computers

The type of computers we use today are the fourth generation computers. The electric pathways are even more completely joined



inside the computers. They are therefore said to have large-scale integrated circuits.

The large-scale integrated circuits have made the fourth generation computers better than all the earlier ones. They are smaller, cheaper and store more items of information than the third generation computers.

The fourth generation computers have made computers to be well known all over the world.



Fifth generation computers

The makers of computers are still working hard to make even better computers. These are the fifth generation computers.

They are the next generation of computers. Scientists think that these computers will act like human beings.

Activities

Your teacher will take your class on a visit to offices where computers are used.

- 1 Write down the names of these offices.
- 2 What are computers used for in these offices?
- 3 Which generation of computers is being used in each of the offices?
- 4 How do you know which generation each computer is?



UNIT TWO

The different sizes of computers

There are four different sizes of computers.
They are:

- 1 microcomputers**
- 2 minicomputers**
- 3 mainframe computers** and
- 4 supercomputers**

Microcomputers

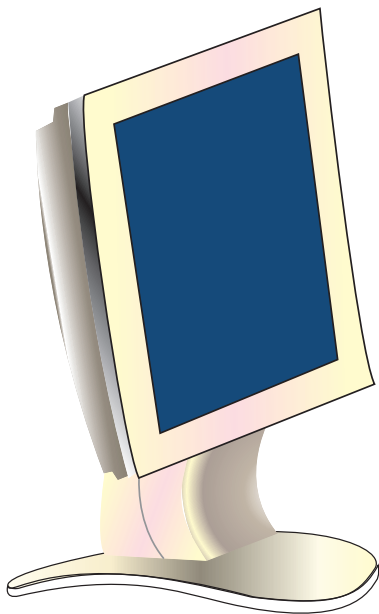


Theme: Computer appreciation

Microcomputers are the most widely used type of computers. They are the smallest type of computers. They are also the cheapest type of computers. They are used in schools, offices and at home.

The desk-top computer and portable computers, such as the laptop, notebook and palm top computers are examples of microcomputers.

Minicomputers



A minicomputer is larger than a microcomputer. The minicomputer also works faster and is more expensive than the microcomputer.

Minicomputers are used in medium-sized factories and companies.

Mainframe computers



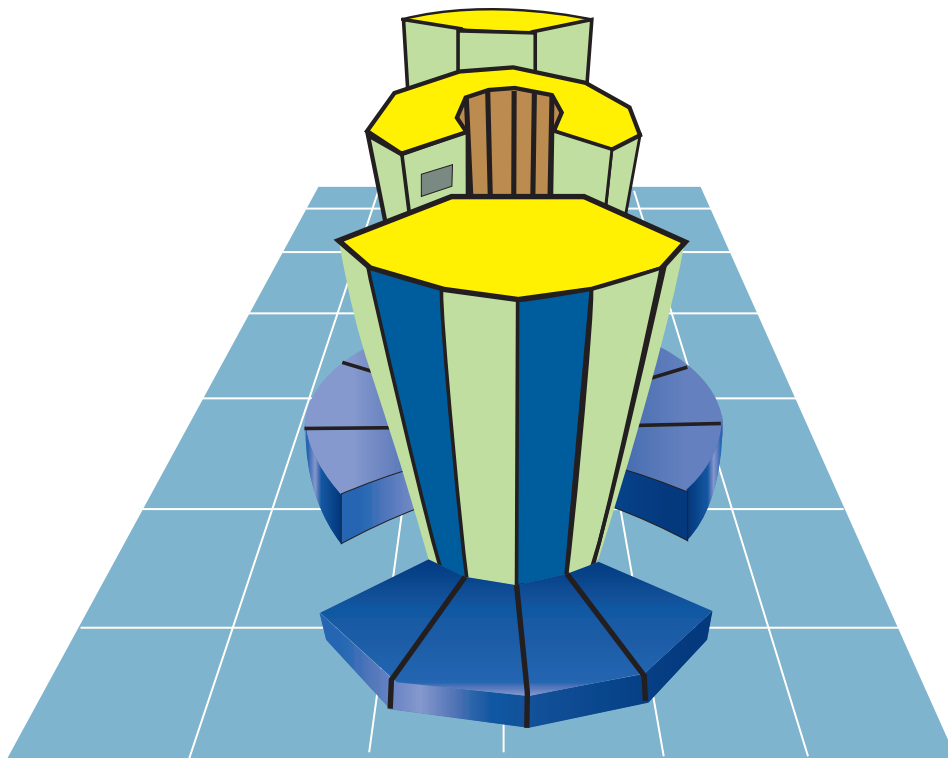
Mainframe computers are much bigger, faster and more powerful than minicomputers. A mainframe computer is made up of separate



units. The separate units are combined together to form a network.

Mainframe computers are more expensive than minicomputers. They are mainly used in government departments, banks and universities. Mainframe computers are used in NECO, JAMB and WAEC offices.

Supercomputers



Supercomputers are the most powerful and expensive computers. They process billions of instructions in one second. They are also the largest type of computers.

Supercomputers are used in big organisations like the military, airports and other scientific organisations.

Activity

Again, your teacher will take you on a visit to organisations where computers are used. Such organisations include banks, supermarkets, universities, business centres, offices and factories.

- 1 What are computers used for in each of the offices you visited?
- 2 Which type of computers are used in each of the offices you visited?
- 3 How are these computers different from one another?



- 4 Why is a particular type of computer used in one organisation and not in another?
- 5 Which type of computer do you use in your school?
- 6 Name the organisations that use more than one type of computer.



UNIT THREE

The computer system

A computer is an information machine that can store, retrieve and process data.



A computer is also an electronic machine which **accepts data as input, processes data** and **gives out information** as results or **output**.

Data are **figures, words** and **symbols** which



the computer works upon. An example of data is the Computer Studies marks of all students in a class.

Look at this set of data:

58, 90, Dayo, 72, Nkechi, Hassan, Aminat, 69, 45, Dubem.

Does it mean anything?

Sometimes, we look at data but we do not understand what it means. Data becomes meaningful and useful when the computer processes it.

When data is processed, we get **information**. This is the result of data processing. Therefore, another name for information is **processed data**. This is data that has been given **meaning** and has become useful to the user.

Look again at the set of data shown above. The data does not have any meaning. But when processed, we may have the following:
The marks of 5 students in a Computer Studies class are:



Dayo	90
Nkechi	72
Hassan	69
Aminat	58
Dubem	45

The data, which has become information, has meaning and is therefore useful. For example, it is now clear that Dayo scored the highest marks while Dubem scored the least.

Components of the computer system

The computer system has three components. These are the **hardware**, the **software** and the **users**.

Hardware components

The hardware components of the computer system are the parts that we can see, feel or touch.

The three types of hardware components of the computer system are:



- i) input devices
- ii) system unit
- iii) output devices

Input devices

We enter data into the computer through the input devices. We learned all about input devices in Theme 2, Unit 1 of Book 3. These input devices are the keyboard, mouse, joystick, microphone and light pen.



keyboard





mouse



microphone



light pen



joystick



System unit



The system unit is made up of the central processing unit (CPU), and the main memory. Data is processed in the CPU and it has two parts. These are the:

- i) arithmetic and logic unit
- ii) control unit

Output devices

Through the output devices, the computer gives out information to the user. This information is the



result of the processing activities in the CPU.

We learned about the various output devices and their uses in Theme 2, Unit 2 of Book 3. The monitor, printer and speakers are these output devices.



monitor



speakers



printer



Software components

A computer solves a problem **only** when it receives **instructions**. These instructions are the software of the computer. A set of instructions is called a **program**.

There are three types of software. These are the **system software, programming languages** and **application software**. We learned much about these three types of software in Unit 4 of Book 4. We shall learn more about them later in this book and Book 6.

Users

The third component of the computer system is the **user**. Users are the people that use the computer. The computer cannot function by itself if not operated by human beings. This component is also known as the **peopleware**.





There are different types of computer users. Some of them are:

- 1 **Computer policy makers:** These are people that make laws concerning the making of the computer.
- 2 **Programmers:** These are people that write instructions for the computer to perform certain operations.
- 3 **Operators:** These are the people that have direct contact with the computer, and they use it on a daily basis.



Theme: Basic computer operation and concepts

Activity

In your school's computer room, your teacher will provide you with the following hardware components of the computer system: keyboard, monitor, system unit, mouse, printer and a pair of speakers.

- i) Connect all these parts, and then connect to the source of electricity.
- ii) List each of the parts under input devices, processing unit or output devices as in the following table:

Input devices	Processing unit	Output devices

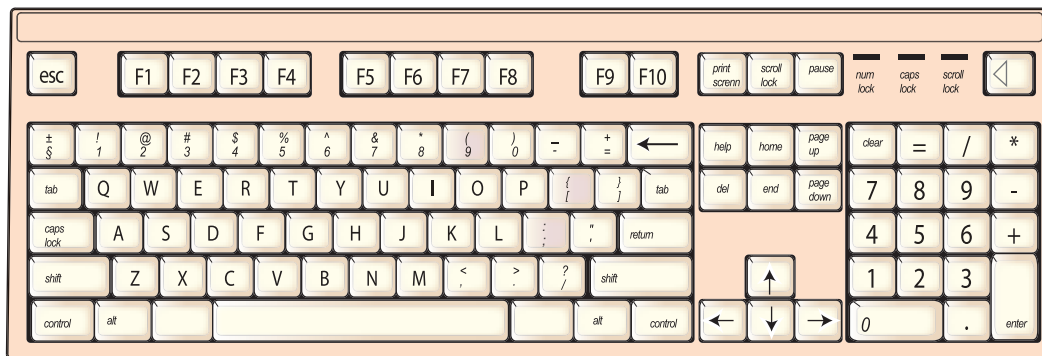
- iii) Name other hardware components that are not provided in this activity. Can you list them as in (ii) above?



UNIT FOUR

Using the keyboard

Keyboards are one of the most important input devices. A computer keyboard is used to input words or numbers into the computer. Each key has a label that shows the character it represents, or the function it performs.

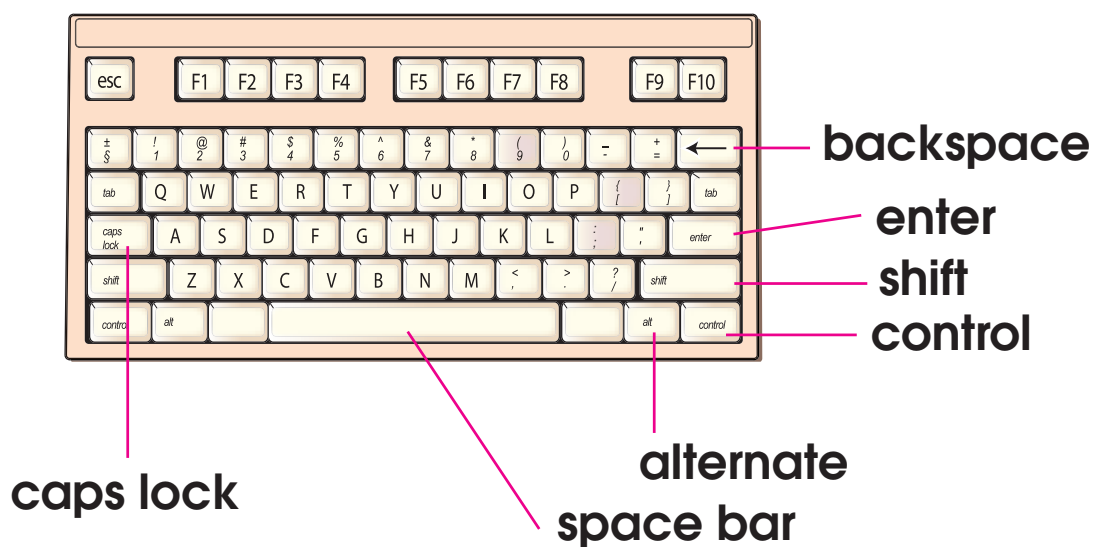


The keys on a keyboard are divided into the following sections:

- 1 Alphanumeric keys

- 2 Function keys
- 3 Numeric keypad keys
- 4 Cursor control keys
- 5 Other special keys

1 **Alphanumeric keys**



This section of the keyboard is also known as the **typewriter area** of the keyboard because it is similar to the keys on the keyboard of a typewriter.

This section is made up of the following keys:

- i) **Alphabet keys:** These are keys that are used

to enter letters of the alphabet into the computer. These are a, b, c, d, e, f, g, h, i, j, k, l, m, n, o, p, q, r, s, t, u, v, w, x, y and z.

- ii) **Space bar key:** moves the cursor to the right when pressed.
- iii) **Caps lock key:** causes the letters of the alphabet, a-z, to be written in capital letters when pressed once: A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, X, Y, Z.
- iv) **Enter or return key:** returns the cursor to the beginning of a new line. Its use may be changed when certain software are being used.
- v) **Backspace key:** erases the character that precedes the cursor. The cursor, therefore, moves one position to the left when the backspace key is pressed.
- vi) **Alternate and control keys:** are special keys for giving commands to the computer. They



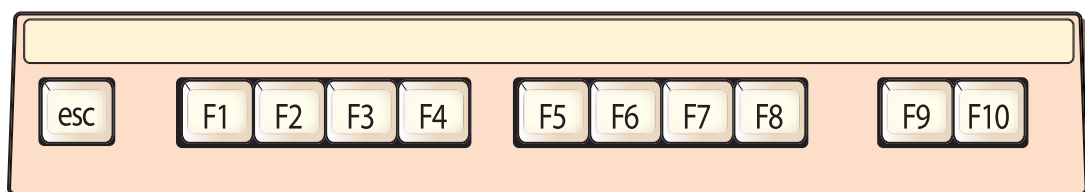
are found on the right and left sides of the space bar.

The use of these keys depends on the software being used at a particular time.

vii) **Tab key:** moves the cursor to the next tab stop when pressed. It is used for creating paragraphs in a text.

viii) **Shift keys:** There are two shift keys in the typewriter area of a computer keyboard. There is one on the left and another one on the right. By pressing anyone of these two, one can change to capital letters or enter punctuation marks into the computer. They are also used to enter the characters on the top of the 'numeric' keys.

2 Function keys



These are the keys labelled F1, F2, F3, F4, F5, F6, F7, F8, F9, F10, F11 and F12. They can be found above the alphanumeric keys. A function key performs a special task. The task each of the function keys performs depends on the software being used.

3 Numeric keypad keys

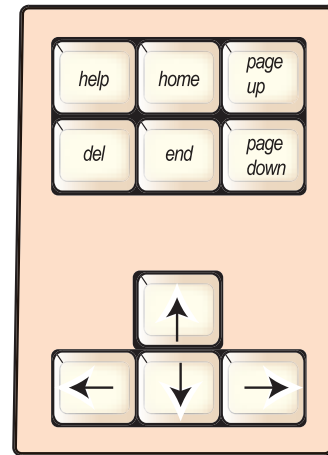


These are keys that are used for entering numbers 0, 1, 2, 3, 4, 5, 6, 7, 8, 9 into the computer. It also has arithmetic keys like +, -, ×, ÷.

Numeric keypad keys can be found at the extreme right of the keyboard.



4 Cursor control keys



Cursor control keys allow the cursor to be moved in a direction and to a position the computer operator wants it to move. These keys are between the alphanumeric keys and the numeric keypad keys.

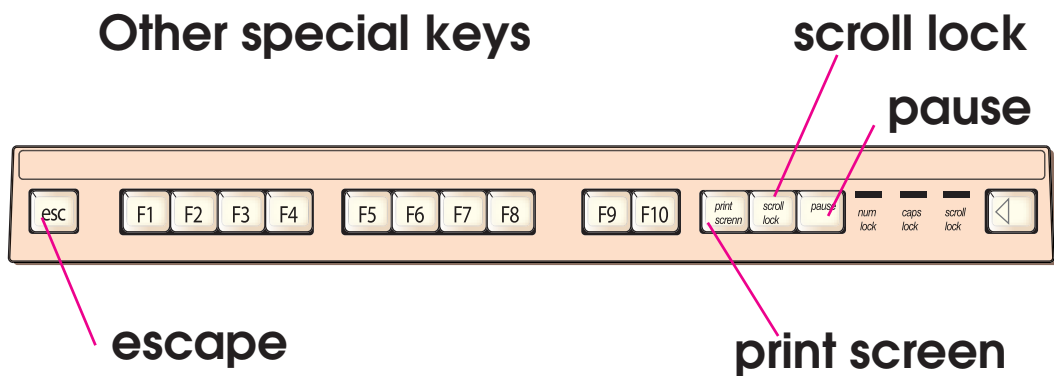
The various types of keys in this section of the computer keyboard are as follows:

- i) **Insert key** allows you to add characters in the middle of a line when pressed. When this key is pressed again, the operator is returned to normal operation.
- ii) **Delete key** allows you to delete the character at the current cursor when pressed.

- iii) **Home key** moves the cursor to the top left corner of the screen when pressed.
- iv) **End key** moves the cursor to one position after the right of the last character on the line when pressed.
- v) **Page up key** moves the cursor one page up at a time.
- vi) **Page down key** moves the cursor one page down at a time.
- vii) **Cursor up key (cursor upward key)** moves the cursor one line up in the text.
- viii) **Cursor down key (down arrow key)** moves the cursor one line down in the text.
- ix) **Cursor right key (right arrow key)** moves the cursor one character position to the right of the screen.
- x) **Cursor left key (left arrow key)** moves the cursor one character position to the left of the screen.



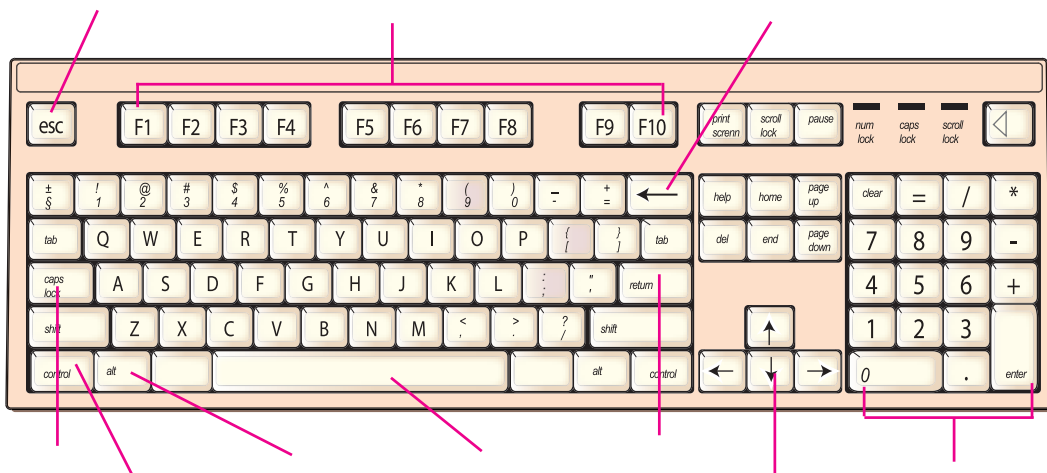
5 Other special keys



There are other special keys on the computer keyboard. These are **escape**, **print screen**, **scroll lock** and **pause** keys.

The use of the four keys depends on the software being used at a particular time.

Activity



Label the various keys on the keyboard shown in the above diagram.

UNIT FIVE

Using the mouse



We can communicate with the computer using a mouse, and without having to type commands. A mouse is a hand-held input device that moves a pointed arrow on a computer screen. The arrow is known as the **cursor**.

A mouse has two or three buttons on it. Commands are entered into the computer by clicking on these buttons. The mouse also has a ball at its bottom. This ball is known as the **mouse track ball**. When the mouse is moved over a flat

surface the ball rotates. This is translated into the movement of the cursor.



Generally, a mouse comes with a **mouse pad** on which the user moves the mouse. A mouse pad is a soft and flat material. A mouse is connected to the system unit by a cable attached to it.



The buttons on the mouse function as follows:

- 1 **Clicking:** This is done by pressing and releasing the left mouse button quickly. This is used for selecting a menu or an item on the screen.
- 2 **Double clicking:** This is done by pressing and releasing the left mouse button twice. This is used for opening a document or program.
- 3 **Dragging and dropping:** This is done by placing the pointer over an item on the screen and clicking and holding down the left mouse button. While still holding the button, the object can be moved or dragged to another location on the screen. The button is then released. This is often used for copying a document into a floppy disk.
- 4 **Right clicking:** When the right mouse button is pressed, a list of commands is displayed on the screen. The application in use determines the type of commands displayed.





UNIT SIX

Windows as an operating system

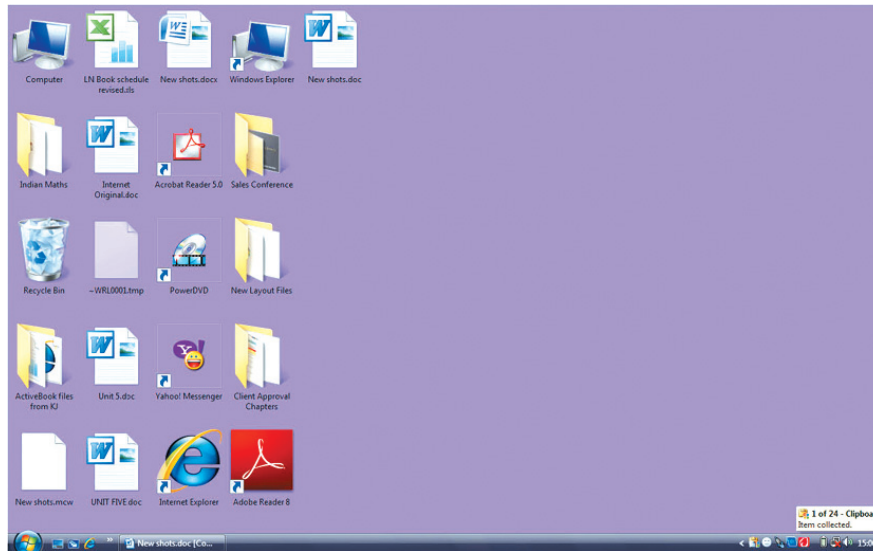
An operating system is a type of computer software that directs the operation of a computer. Without an operating system, the computer cannot function. Therefore, operating systems are switched on as soon as you turn on, or boot, the computer.

The term **booting** refers to the process of starting the computer and loading the operating system software into the computer's main memory. The operating system remains in the main memory until you turn off the computer. In Unit 6 of Book 4, we learned how to boot a computer system and the two types of booting.

Nowadays, in most personal computers, the operating system is the **Windows**. In this unit, we shall learn how to use the computer with Windows as the operating system.



After booting the computer, the Windows **desktop** appears.



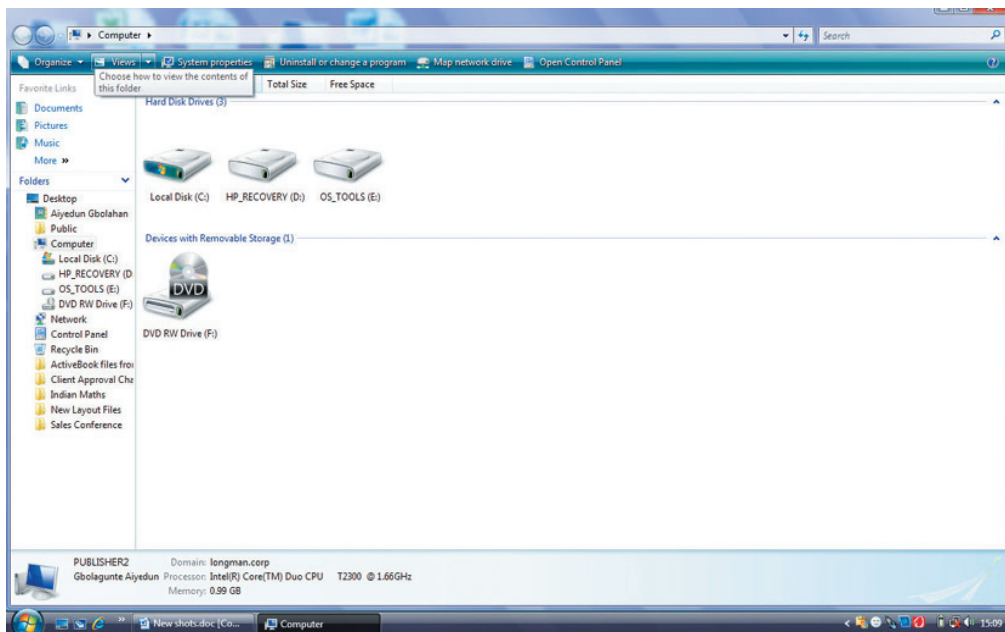
The Windows desktop is the starting point for all Windows operations, and it contains the **icons**, **start button** and the **task bar**.

Some of the common icons you will find on a typical PC desktop and their functions are:

1 **My computer**

When this icon is opened the contents of your computer such as the hard drive, floppy disk drive, CD drive, application packages, folders and files are displayed.





2 Recycle Bin

This is where objects (files, programs, etc) that are no longer needed are placed by the computer until you empty the bin. Items in the bin can be retrieved if you realise that you may still need such items. However, once the bin is emptied, you can no longer retrieve the items.

3 Internet Explorer

This is an application package that you can use to access (get onto) the internet.



4 **Outlook Express**

This software allows you to send and receive e-mail.

5 **My documents**

This is a **folder** for storing other folders, files and documents.

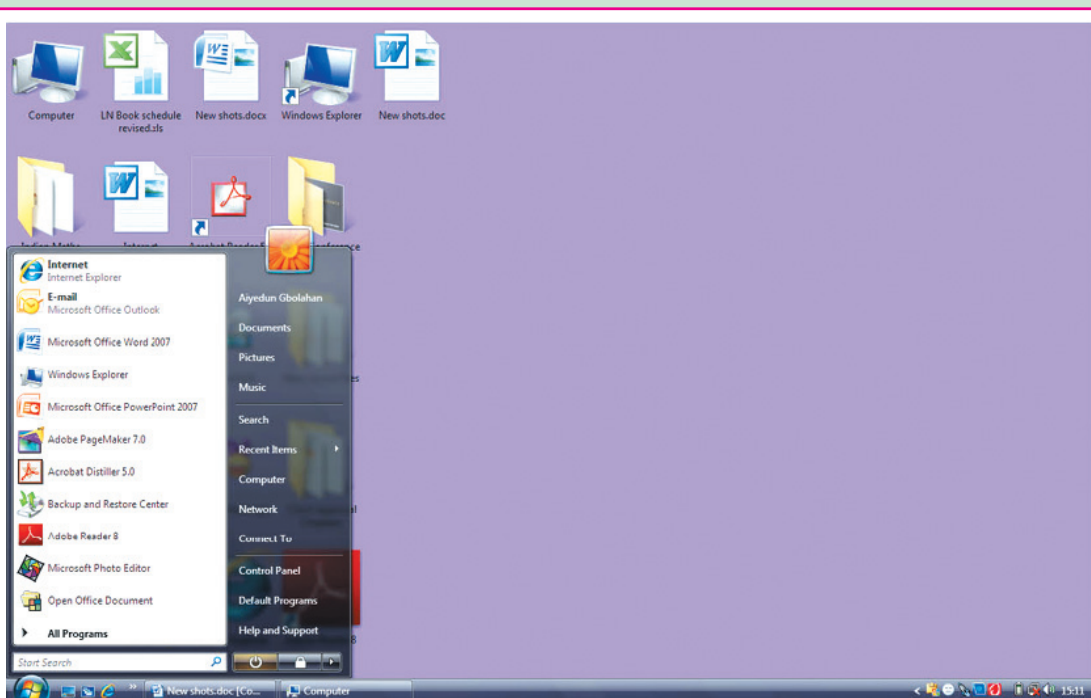
6 **Task bar**

At the bottom of the screen, you will find the task bar. This contains the **start** button and rectangles that represent any applications that are being used on the system.

7 **Start button**

Clicking the start button displays a menu from which you can choose to open an application, open a document, find a file or folder, get help, or shut down the computer.





Files and folders

Each file in a computer has to be given a name.

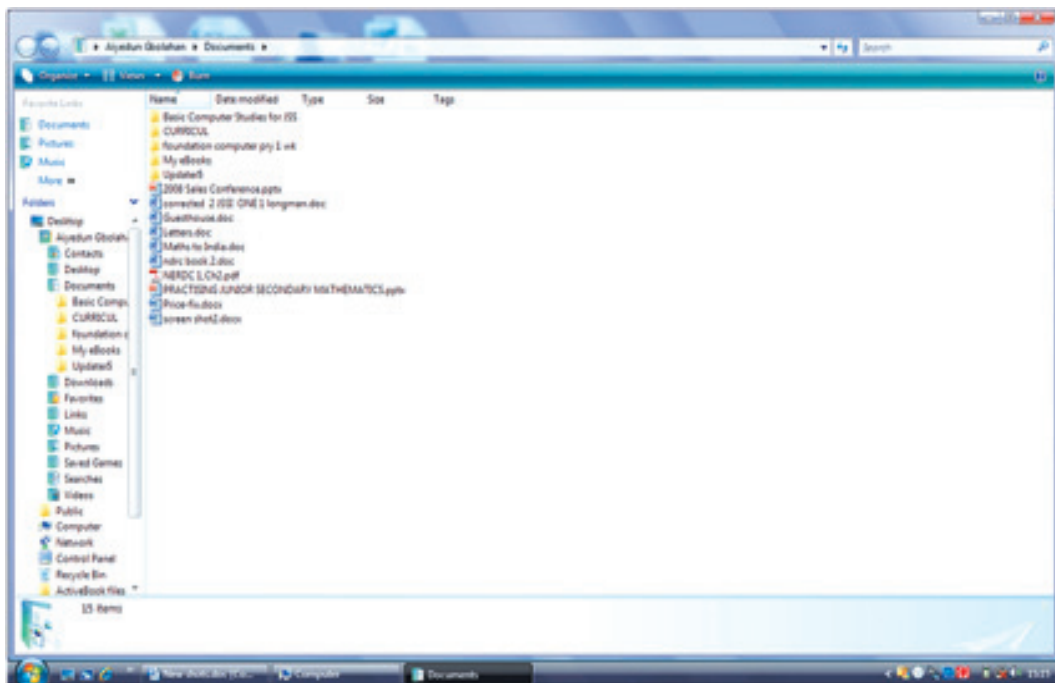
Folders or **directories** are used for holding documents. They allow users to group together documents and files that are similar. That is, similar files are grouped together in a folder.



Getting into Windows Explorer

- i) Click on the **Start** button.
- ii) Click on **Programs**.
- iii) Select **Windows Explorer**.

The Windows Explorer screen will then be displayed.



Creating a folder in Windows Explorer

Once the Windows Explorer window is opened, select **File** and click on **New**.



- 3 On this box, select **Shut down the computer?**
- 4 Then click, **Yes.**

Activity

Boot the computer system again. Select other application packages in your school's computer system to see the first page of all these packages. Shut down the computer properly, each time. In your notebook, list all the application packages in your school's computer system. Also, make another list of the ones you saw their first pages.





UNIT SEVEN

The internet

The internet is a set of computer networks that communicate with each other. It connects individual networks of computers situated in different parts of the world. Any authorised user from any part of the world can access the internet for mailing or sharing information.

The internet helps individuals, schools, companies and various government departments to share information across the world. Today, the internet is used in over 150 countries of the world.

Connecting to the internet

To connect to the internet, both hardware and software items are required. The hardware



requirements are

- 1 A personal computer
- 2 A modem
- 3 A telephone line
- 4 An account with an **internet service provider (ISP)**

An ISP is a company that has a direct connection to the global network and gives internet users access to the internet for a fee. When a user dials into the network of an ISP, he gets connected to the internet.

The software requirement for connecting to the internet is the **Transmission Control Protocol/Internet Protocol (TCP/IP)**. TCP/IP is a set of rules that determine how computers within the global network of the internet communicate with each other to transfer data from one computer to the other.



Electronic mail (e-mail)

E-mail is the most popular application of the internet. It allows you to communicate with friends, family and businesses all over the world.

An e-mail program enables you to send, receive and manage electronic messages (text, sound, video and graphics).

Advantages of e-mails

- 1 It is much faster than the traditional postal system.
- 2 Sending e-mails is cheaper than the traditional postal system.
- 3 Receiving e-mails is convenient, as the receiver does not have to be present at a particular place and time. E-mails sent to someone can be received in any part of the world and at any time the receiver chooses to check his in-box.



E-mail addresses

An e-mail can only be sent and/or received if the user has an e-mail address. An e-mail address is unique to a user in the same way the home address is unique to someone sending or receiving mails through the traditional postal system.

The e-mail address has two parts. The two parts are separated by the symbol @ (at). The first part is the **name of the user**, which can be a real name, nickname or any name made up by the user. The second part is the **domain name**. A domain name is the name of the ISP to which the user is connected.

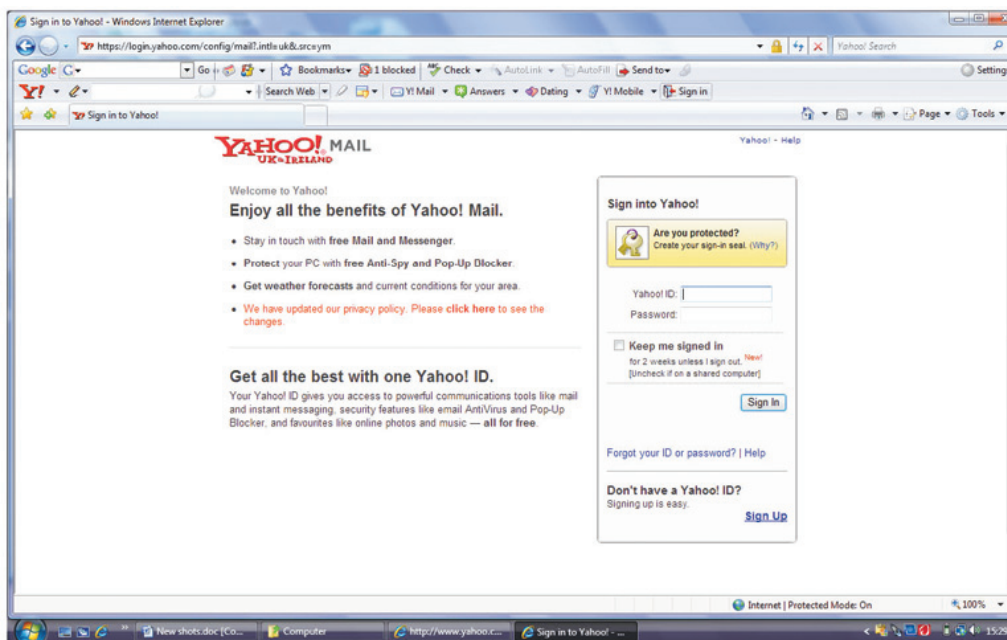
An e-mail address, therefore, is of the form:

username@domainname

In addition, free e-mail services offered by some web sites may be used. Examples of such web sites are Yahoo and Hotmail. An e-mail



address can be created on such web sites by just filling an on-line form.

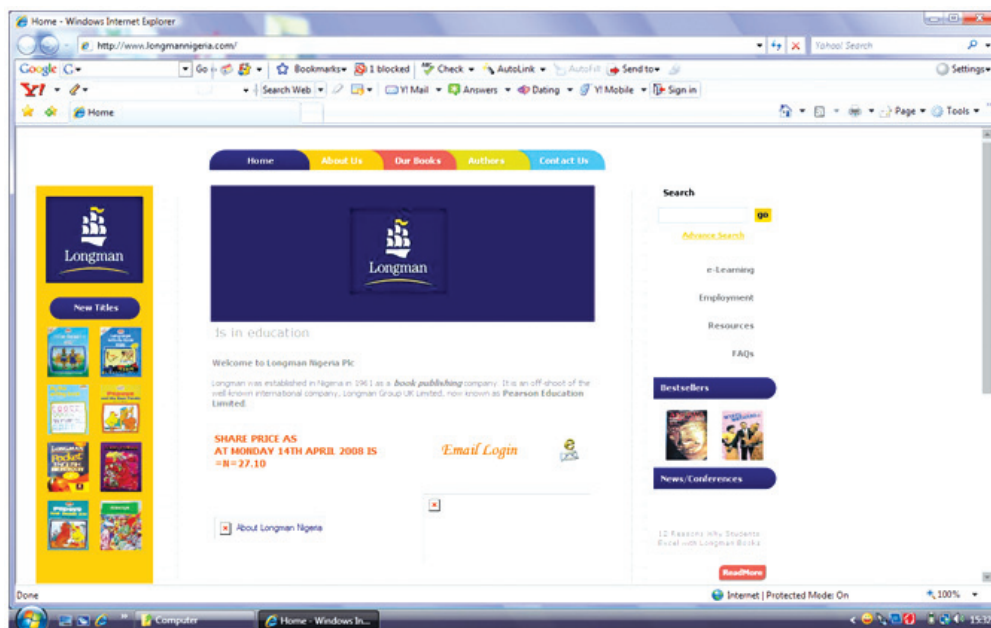


Worldwide Web

The worldwide web, also called the **web**, is a part of the internet. It is made up of millions of pages, and each page is called a **web page**. Individuals and organisations like schools and companies can create their own web pages.



These are then put on the internet for others to see. The opening page of the web pages for any organisation is known as the **homepage**.



Browsers

Browsers are programs that help a computer user to view the web pages. Examples of browsers are Internet Explorer and Netscape Navigator.



Browsers are used for surfing the web pages to obtain information on many aspects of life such as education, business, aviation, law, travel, football, religion and many more.

Chatting on the internet

Many people now enjoy chatting on the internet. There are thousands of chat rooms on the internet.

A chat room is made up of a group of people that have common interests, and they communicate with one another live.

There are chat rooms for various subjects such as education, health, movies, fashion, sports, religion and many more.

Uses of the internet

The internet is useful to us in many ways. Some of the uses of the internet have been mentioned in this unit. These are communicating



throughout the world using the e-mail, the use of the web by individuals and organisations, and chatting on the internet.

In addition to all these, the internet is also very useful in the following ways:

- 1 Products and services can be advertised worldwide on the internet. This is electronic advertisement (e-advertisement).
- 2 Information can be obtained from various libraries of the world using the internet.
- 3 We can make travel plans to any part of the world on the internet.
- 4 All kinds of goods and services could be purchased and paid for on the internet.
- 5 An internet user can learn a lot from any chosen field on the internet. The internet contains abundant information on all aspects of learning.

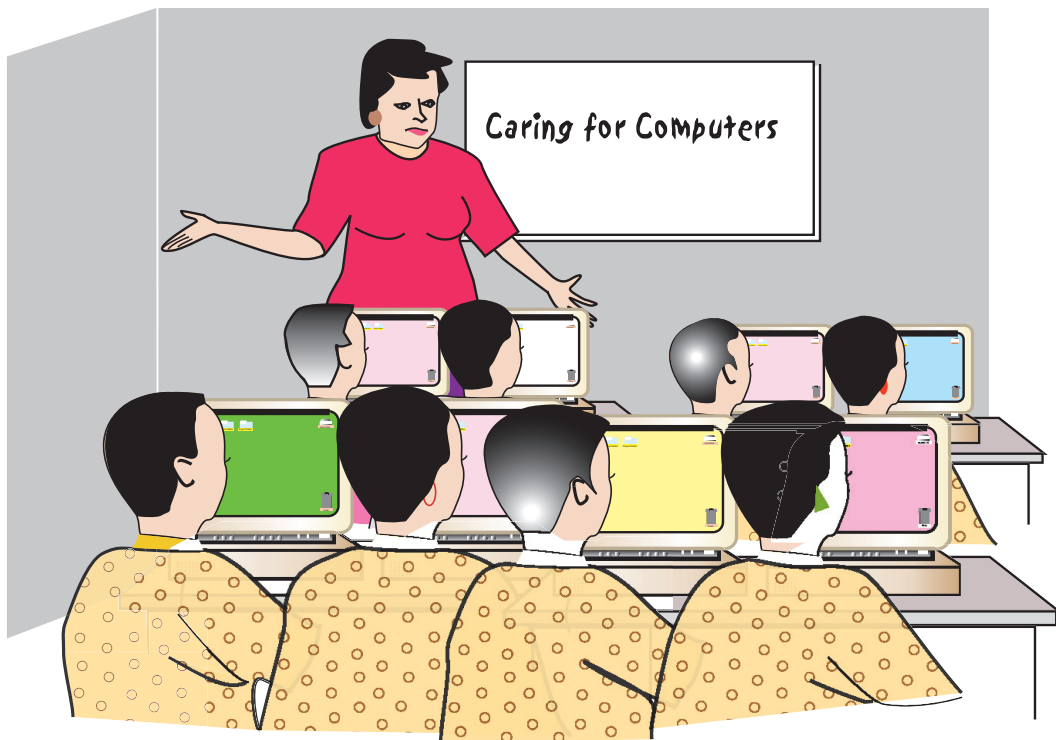


Advantages of the internet

- 1 Messages and information are sent or received easily, quickly and cheaply.
- 2 Internet services are always available throughout the day and night. This is unlike other services like the postal service.
- 3 There are always millions of people on the internet. Therefore, goods and services advertised on the internet will reach millions instantly.
- 4 The internet has made many human activities easier and convenient. Such activities include banking, money transfer, ordering goods and search for information.



- 4 Only a few people should be in the computer room at the same time, so that accidents may not happen.



- 5 Computer systems must be placed on stable desks so that they will not topple over.
- 6 Do not drink anything while using the computer. Liquids and computers do not mix.



- 7 Do not eat while using the computer, as crumbs from food can damage your keyboard.
- 8 Computer systems must be removed from the source of electricity when not in use for a long time.

Activities

- 1 Which of the precautions mentioned in this Unit do you take in your school's computer room?
- 2 What are the functions of the following in a computer room?
 - i) Air-conditioners
 - ii) Ceiling fans
 - iii) Dust covers
- 3 Is it allowed to take food and drinks into the computer room? What are the reasons for your answer?

