



Know Your Computer



SNAP RECAP

1. What is a computer?
2. Explain the terms – input, process and output.
3. What is computer hardware?
4. What is software? Discuss the various types of software.
5. Using suitable examples, explain the difference between computer hardware and software.
6. What is an operating system?



LEARNING OBJECTIVES

You will learn about:

- input devices – keyboard, mouse, joystick, light pen, touch screen, scanner, barcode reader, digital camera and web camera
- output devices – monitor, printer, plotter and speakers
- the central processing unit
- primary and secondary memory
- specific applications of computers
- limitations of computers

Introduction

You use different parts of a computer to get information. The words you read on the computer screen are written using the signals from the keys you press on the keyboard. The file you save or open is on the hard disk. Different parts of a computer are used to obtain different types of information.

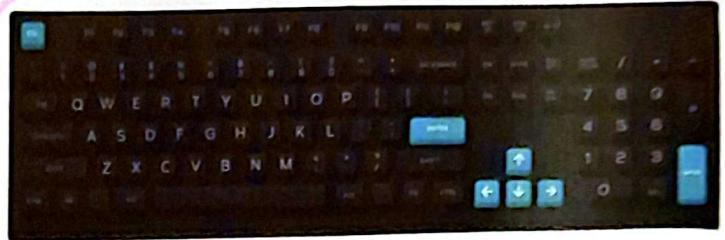
You will now learn more about the basic parts of a computer and their functions.

Input devices

The devices that give data or instructions to the computer are called **input devices**. The most commonly used input devices are the keyboard and mouse.

Keyboard

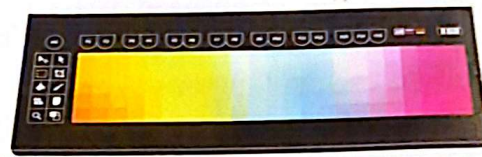
The keyboard is a commonly used input device. It allows the user to input letters, numbers and other characters into a computer. It operates like a typewriter, but has many additional keys. It can do many things that a typewriter cannot.



Keyboard

FACT FILE

Unlike other keyboards, the Optimus Tactus keyboard does not have any physical keys and has no fixed size and shape. Any part of the keyboard can be programmed to perform any function or display any image.



Mouse

As you move the mouse on a mouse pad, a small arrow moves on the screen. The arrow you see on the screen is the pointer. The mouse is also known as a **pointing device**. The pointer follows the movement of the mouse.

There are various types of computer mice. Here you will learn about two basic types of computer mice.

Mouse with a roller ball: A roller ball allows the mouse to move on a flat surface.

Optical mouse: Optical mice are much more commonly used now. They use a light source to detect the movement of the mouse. This in turn allows movement of the pointer on the screen.



Pointer

The pointer follows the movement of the mouse

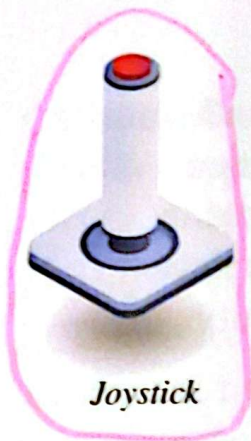


Roller ball

Mouse with a roller ball



Optical mouse



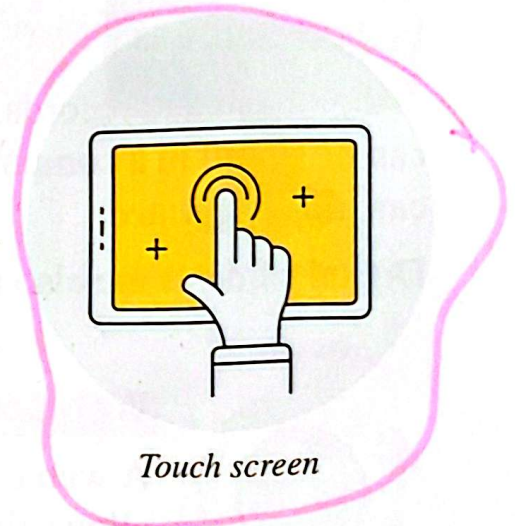
Joystick

Joystick

A joystick is a vertical handle which can be moved forwards, backwards and sideways to control a machine. It is a pointing device that works like a computer mouse as it is used to move the pointer on the computer screen. It is often used for playing computer games.

Touch screen

A touch screen is a computer screen that acts both as an input and output device. It is sensitive to the touch of a finger or stylus. We interact with the computer by touching text or pictures displayed on the screen. This is another way of giving input to the computer. Based on the selection made on the screen, you will get the output. A good example is an ATM screen. You can touch different options to help you take money out of the bank. Many laptops are now available with touch screens to make our work easy.

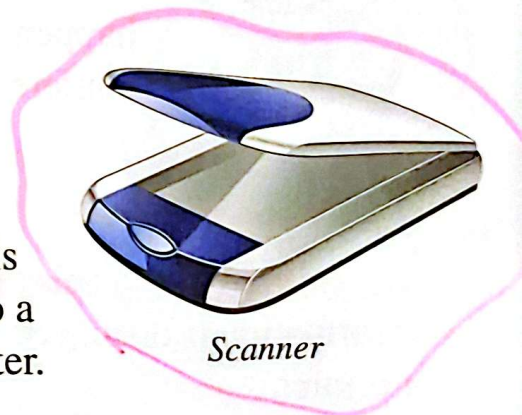


Touch screen

Scanner

A scanner is a device that transfers data – such as hand-drawn pictures or text, photographic prints, posters and magazine pages – into the computer. This is done by converting the input document image into a digital format which can then be fed into the computer.

The scanned data can be edited or modified in the computer.



Scanner

Barcode reader

A barcode is a set of lines of different thicknesses that represent a number. Most packaged products in shops have barcodes on them.



Barcode reader

A barcode reader is used to read the barcode given on a package and feed the information into the computer. The number is then used by the computer for preparing the bill with relevant details of the item including name, quantity and price.

Digital camera

A digital camera records images in a digital form which can be stored in a computer. These images in the camera can also be printed.

Digital cameras are also used for video recording.



Digital camera



Web camera

Web camera

A web camera records moving pictures and sound, and allows these to be broadcasted on the internet as they happen. It is used mainly for video chatting and video conferencing.

Output devices

The devices that display a result or information are called **output devices**. This information is displayed on the monitor. It can also be printed on paper using a printer.

Monitor

A monitor is also known as a **Visual Display Unit (VDU)**. It is an output device that looks like a television. It displays both text and pictures. The output that is displayed on the monitor is called the **soft copy**. There are **three main types of monitors** available for computers.

Cathode Ray Tube (CRT) monitors: CRT monitors are the oldest type of monitor that look like an old bulky television set. They are heavy in size and less expensive.



CRT monitor

Liquid Crystal Display (LCD) monitors:

LCD monitors have replaced CRT monitors as they are thinner, lighter and occupy less space. LCD technology is currently used in making screens for televisions, laptops, calculators, etc.

The only disadvantage is that the picture loses its clarity when we try viewing the screen from different angles.

Light Emitting Diodes (LED) monitors: This is a better technology than CRT and LCD and is now used everywhere. They consume less electricity as compared to CRT and LCD monitors. The screen displays images very clearly.



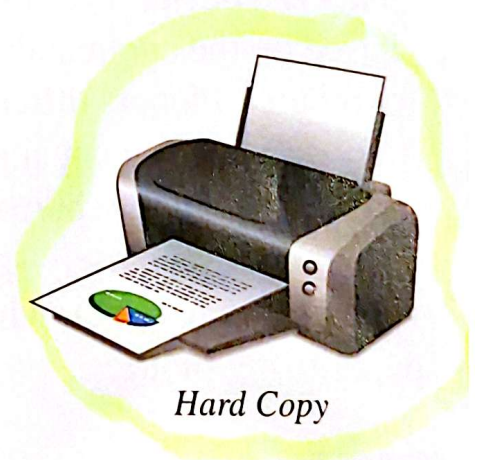
Flat screen monitor

Since LED and LCD monitors come in a flat screen display, they are also known as **flat screen monitors**.

Printer

A printer gives the output on paper. It prints exactly what is seen on the screen. The printout from the printer is called the **hard copy**.

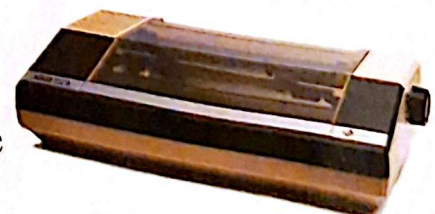
Based on the technology used, printers can be classified as **impact** or **non-impact printers**.



Hard Copy

Impact printer: This uses the typewriting printing mechanism where there is a direct contact between the paper and the print head, for example, dot-matrix and character printers.

Dot-matrix printer: It has a matrix of small pins that are moved around on the page to form a pattern of dots depending on the type of image or text to be printed. These are not commonly used anymore, but have limited special purposes in some businesses.



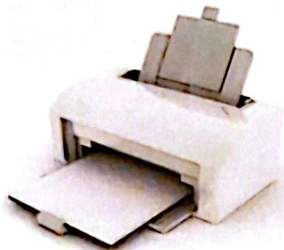
Dot-matrix printer

Non-impact printer: This does not touch the paper while printing. It uses chemical, heat or electrical signals to print the symbols on paper. For example, inkjet, deskjet, laser and thermal printers. These are the most common types of printer used at home and in offices.

Inkjet printer: This usually prints in color by spraying out small dots of ink onto the paper. It works faster than the dot-matrix printer and produces better quality images.



Inkjet printer



Laser printer

Laser printer: This uses a laser beam to print on paper. This type of printer is very fast and images are high quality.

Plotter

This is a device that draws pictures on paper, based on the commands received from a computer. Plotters differ from other printers as they draw lines using a pen. They can produce continuous lines, where other printers can only print lines as a closely spaced series of dots. Large printouts of drawings can be made on paper using plotters.

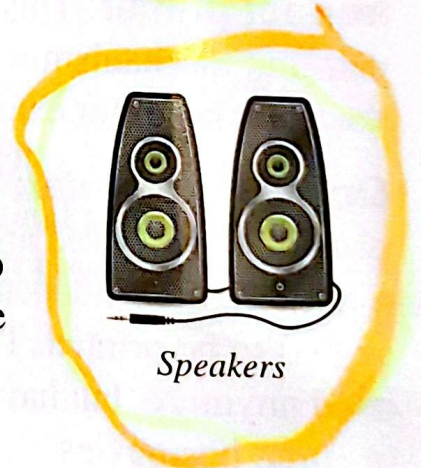


Plotter

Speakers

Speakers generate sound, based on the input given, which the listener can hear. Speakers of specific range are built in to all computers and laptops.

If the sound is required to be audible to a large group of listeners, then speakers of higher frequency can be attached as an output device to the computer.



Speakers

ACTIVITY



Find out about the different types of printers installed in your school and write a few points about each. Ask your teacher for help or use the internet.

Central Processing Unit

Once information is sent to a computer by one of the input devices, it is processed. The **Central Processing Unit (CPU)** is the brain of the computer. It processes the information.

The CPU is divided into three parts:

1. **ALU** stands for **Arithmetic Logic Unit**. It carries out all mathematical and logical calculations.
2. **CU** stands for **Control Unit**. It controls the flow of information in the system. It works like a traffic policeman who controls the traffic on the road.
3. **MU** stands for **Memory Unit**. It holds the processed and unprocessed data. Memory is a container that holds the data of a computer.

Computer memory

A computer has a huge storage capacity. The storage capacity of a computer is called its **memory**. It enables the computer to store data and instructions. As you measure distance in kilometres, time in seconds, weight in kilograms, the memory is measured in bytes.

FACT FILE

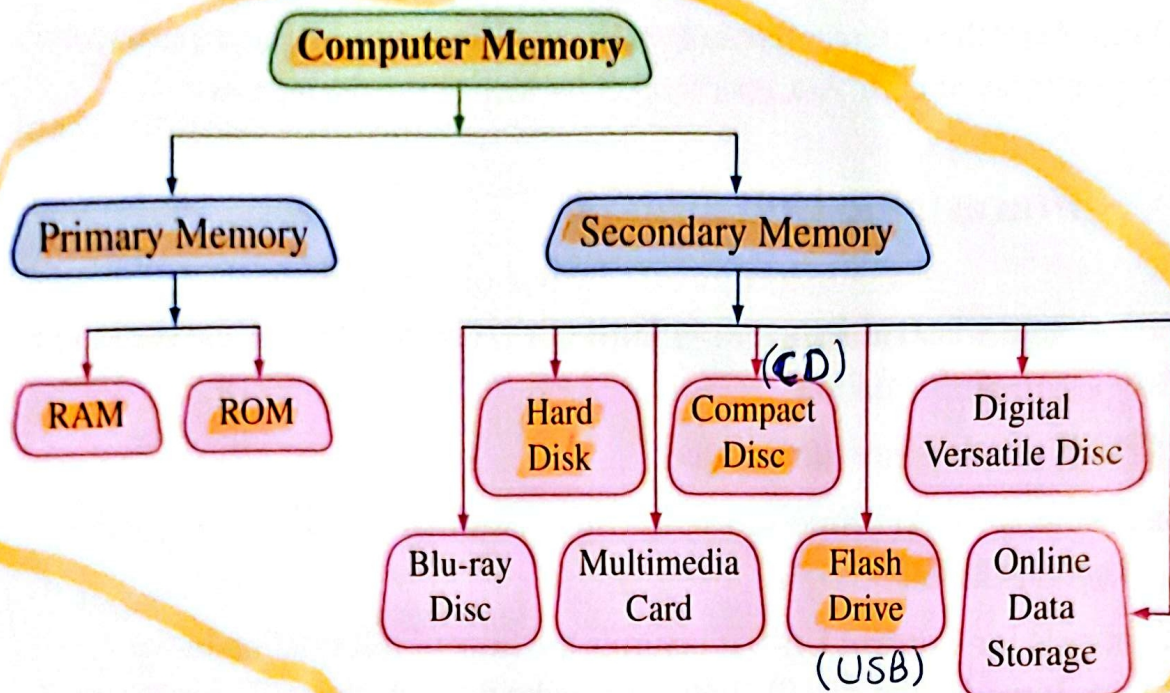
The computer converts data into the smallest unit, known as a bit (**binary digit**). The computer understands only two types of bits, 0 and 1. Bits are usually assembled into a group of eight to form a byte.

8 Bits = 1 Byte
1024 Bytes = 1 Kilobyte (KB)
1024 KB = 1 Megabyte (MB)

1024 MB = 1 Gigabyte (GB)
1024 GB = 1 Terabyte (TB)



There are two types of computer memory: **primary memory** and **secondary memory**.



Classification of computer memory

Primary memory

Primary memory is necessary for a computer to work. It is also called the **internal memory**. It is the main area where data is stored. The stored data can be recalled and processed by the CPU. The end result is displayed on the output device. There are two types of primary memory: **RAM** and **ROM**.

RAM

RAM stands for **Random Access Memory**. It holds instructions for the computer, its programs and the data. Information can be read on RAM and written or changed onto it. Hence, it is also known as read/write memory. *However, it is temporary in nature.* Therefore, it is also called **volatile memory**. The stored data disappears when the computer is shut down. That is why you are always advised to save your work.

TRY THIS

To check the primary memory (RAM) of your computer:

Go to the Control Panel \Rightarrow System and Security \Rightarrow System

What is its unit and capacity?

