COMPUTER BASICS
In this chapter we are going to look at the different parts of a computer.

- CPU (Central Processing Unit)
- Motherboard and the Components
- BIOS
- RAM and ROM
- Memory
- Storage
The motherboard holds the components or parts of the computer.
The CPU or Central Processing Unit is the brains of the computer. It controls information and tells other parts of the computer what to do. Here are a few examples of what a CPU looks like.
The type of CPU in a computer also determines how **fast** that computer can operate.

A CPU generates lots of heat, so there is usually a small fan on top of the CPU to cool it down.

There are many different types of fans.
Your computer uses two types of memory:

- **primary memory** which is stored on chips located on the motherboard
- **secondary memory** that is stored in the hard drive.

**Primary memory** holds all of the essential memory that tells your computer how to be a computer.

**Secondary memory** holds the information that you store in the computer.
Random-access memory (RAM)

RAM is a form of computer data storage. It takes the form of integrated circuits that allow stored data to be accessed in any order.

RAM is often associated with volatile types of memory where its stored information is lost if the power is turned off.
ROM MEMORY

- Read Only Memory (ROM) is a form of storage used in computers. Data stored in ROM cannot be modified, or can be modified only slowly or with difficulty. Therefore, part of the computers operating system is built into ROM and contains the most essential programs that a computer needs to run correctly.

- ROM is associated with non-volatile types of memory where its stored information is saved if the power is turned off.
One type of ROM is known as the BIOS (Basic Input Output System).

BIOS is responsible for waking up the computer when you turn it on to remind it of all the parts it has and what they do.
The purpose of storage in a computer is to hold **data** or information and get that data to the CPU as quickly as possible when it is needed.

Computers use disks for storage: hard disks that are located inside the computer.

**External devices** used for storage are flash drives, CDs, Sandisk, etc.
CD-ROMs

- **CD-ROM** is short for Compact Disk (or Disc) - Read Only Memory.
- It is also referred to as a CD.
- A **CD** is a shiny, circular disk that stores information.
- A **CD** can store up to 650 MB of information.
- A **CD** or CD-ROM can only read information from the disk.
OTHER TYPES OF DISKS

- CD-RW (RW stands for ReWrite)
  - CD-RW allows you to write information to the disk more than one time as well as read from it.

- DVD (Digital Video Disk)
  - A DVD looks like a CD, but it holds a lot more information. You can also watch movies, listen to music or play computer games from DVDs.
The most important program on any computer is the **Operating System** or **OS**.

The OS is a large program made up of many smaller programs that control how the CPU communicates with other hardware components.

It also makes computers easier to operate by people who don't understand programming languages. In other words, operating systems make computers **user friendly**.
There are different operating systems available for PCs, but the most common is Windows, which was developed by a company named Microsoft.

Windows is similar to the Macintosh operating system, because it also uses a mouse and a GUI (Graphical User Interface) that uses graphics or pictures to help the user navigate within the computer system.
**Windows Desktop**

- **Trash Bin**: Where you put things you no longer want.
- **Title Bar**: Contains title of page and buttons to close, resize and minimize the window.
- **Wallpaper**: Background (background) on the desktop.
- **Window**: Programs and applications that can be opened, closed and resized.
- **Start Menu**: Contains basic operations such as shut down, restart. It also contains a list of the computer's programs.
- **Icon**: A small picture that links to a file or
- **Task Bar**: Includes the Start Menu and the Clock.
- **Toolbar**: Contains icons or options that allow you to perform tasks in a specific program.
COMPUTER PROGRAMS

- A program is a set of instructions that tells the computer how to perform a specific task.

- For example, your favorite computer game is a program.
There are many different types of programs for the computer.

They are grouped according to the tasks that they perform.

*Here are some very common types of programs and some examples of their uses:*

- **Word processing** - letter writing, essays, writing stories
- **Database** - address books, mailing lists
- **Spreadsheets** - storing financial information
- **Desktop Publishing** - creating birthday cards, newsletters, etc.
- **Entertainment** - games, music/video programs
- **Education** - skill practice games, tutorials, how-to programs
- **Research** - encyclopedias, informational programs
Components Inside a Computer

- Power Supply
- CD-ROM
- Hard Disk Drive
- Expansion Cards: Video Card, Sound Card, Modem
- Motherboard
- RAM
- CPU
- BIOS
- Slots for USB, Scandisk, etc.

Components Inside a Computer (Wires not shown)
There are 4 main parts of a computer:

1. **Input** – a device that enables information to be passed into the computer
2. **Storage** – A unit that holds and gives information to the computer processor as needed.
3. **Processor** – The brains of the computer, it controls all functions.
4. **Output** – A device that receives information from the processor in the form of words, sounds or pictures.
INPUT DEVICES

- A device that enables information to be passed into the computer.
- Examples: Keyboards, Mouse, Scanner, Digital Camera, Microphone.
A unit that holds and gives information to the processor as needed.

There are two types of storage:

- **Temporary storage** that holds information for short periods of time and only when the computer is on.
- **Long term storage** that holds information for as long as you need or want it.
TEMPORARY STORAGE

- RAM (Random Access Memory)
- RAM is often associated with *volatile* types of memory where its stored information is lost if the power is turned off.
LONG TERM STORAGE

- Holds information for as long as you want or need it.
- Examples: Hard disk drive, CDs, Flash Drives, etc.
PROCESSOR

- The brains of the computer, it controls all functions. CPU (Central Processing Unit)

- The motherboard holds the CPU and physically connects all the other main parts of the computer.

- The case houses the motherboard.
OUTPUT

- A device that receives information from the processor in the form of words, sounds or pictures.
- Examples: Monitor, Printer, Speakers, etc.
Relationship between the 4 Main Computer Parts

- Mouse (input)
- Keyboard (input)
- Ports (Part of Motherboard)
- Motherboard
- Speakers (output)
- Monitor (output)
- RAM (temporary storage)
- Hard Disk Drive (long term storage)
- USB DRIVES

Motherboard inside Computer Case