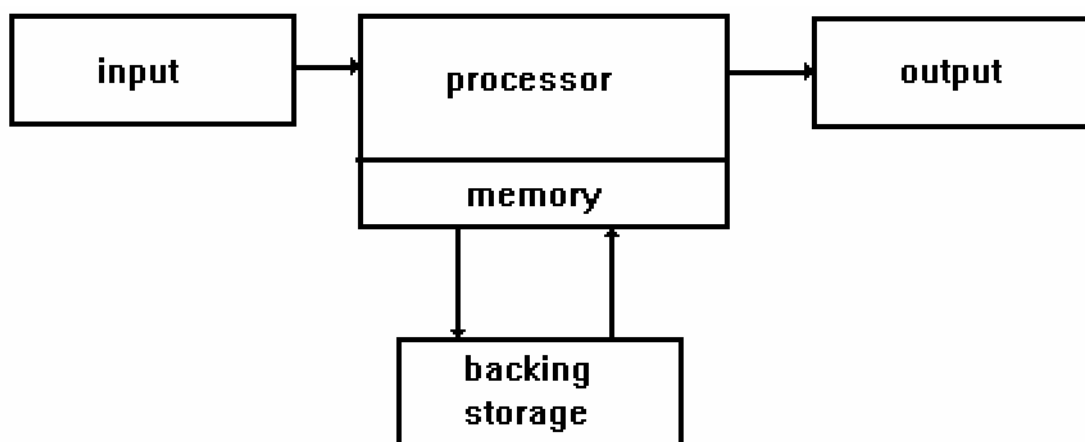


## S2 Computer Systems

All computers have the same basic structure:



They need some way of taking information **in** and some way of giving it **out**.

The **processor** changes the information according to instructions it is given.

While the computer is switched on, the information and instructions are stored on the **memory**.

Because whatever is in the memory disappears when the computer is switched off, you need somewhere to store it. This is called the **backing storage**.

### What makes a powerful computer?

There are three main things which effect how your computer performs:

#### 1. The speed of the processor

The faster the processor the more instructions It can process in a second so the faster programs will run. The speed is measured in **GHz** (Gigahertz)

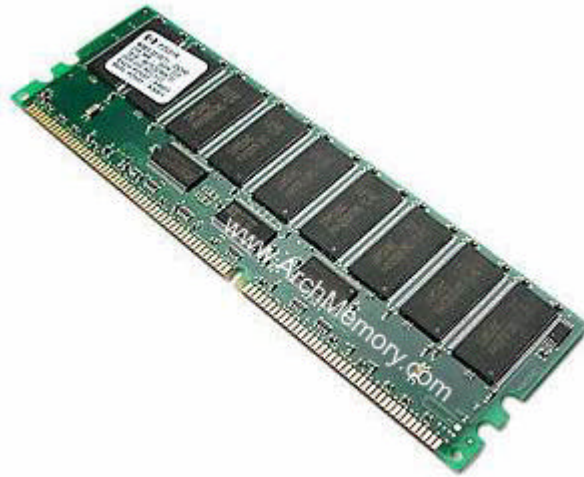
#### 2. The amount of memory fitted

The more memory is fitted in the computer, the more information it can hold while it is running. This kind of memory is called **RAM**

#### 3. The capacity of the hard disk drive.

The more capacity the hard disk has, the more programs and information it can store.

## Bits and Bytes



A typical memory chip  
(RAM)

Computers are digital devices. This means that they store all their information as 1s or 0s

A single 1 or 0 is called a **bit**

You need 8 bits to be able to store a single character. This is called a **Byte**

A **Kilobyte** is roughly a thousand **bytes**

A **Megabyte** is roughly a thousand **Kilobytes**

A **Gigabyte** is roughly a thousand **Megabytes**

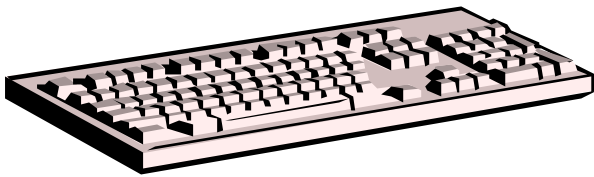
A **Terabyte** is roughly a thousand **Gigabytes**

Memory (RAM) is typically 2 or more Gigabytes

Hard Disk capacity can be anything from 500 Gigabytes upwards

**Input and Output devices:**

Examples of **input devices** are: Keyboard and Mouse or digital camera



Examples of **output devices** are: Monitor and Printer



**Task 1**

Use the Internet to find out more about the following Input devices. You should try and find a picture of each one, and say what they are used for. Present the results of your research as a Powerpoint presentation

**Scanner**

**Digital camera**

**Graphics tablet**

**Touchscreen**

**Task 2**

Use the Internet to find out more about the following Output devices. You should try and find a picture of each one, and say what they are used for. Present the results of your research as a Powerpoint presentation

**Digital projector**

**Virtual reality headset**

## Backing Storage devices:

Backing storage devices store data and programs while the computer is switched off.



A Hard disk drive  
(cover removed)

Backing storage devices are also used to store copies of your data in case something goes wrong with the backing storage device fitted in your computer. This is called a **Backup** device

Backups can be made on any backing storage device such as a **USB memory stick** a **DVD/R** or a **portable hard drive**.



### Task 3

Use the Internet to compare the prices and capacity of memory sticks and portable hard drives and make a table of your results.

What backup system would you advise the following people to use:

- ? A pupil at Kelso High School who wants to back up their school **My Documents** folder.
- ? The owner of a small business who wants to back up all of the data on the hard disk of his business computer.

## Types of Computer:

### Desktop



A desktop computer is the type of computer most people are familiar with, either at home or at work. A desktop computer is not designed to be moved around and will usually have input and output devices, connected to it by cables. The case of a desktop computer is designed so that extras like sound cards or video cards can be easily fitted. Desktop computers are usually connected to a network using a cable.

### Task 4

Imagine you have been asked to buy a new home computer. You have £500 to spend. Use the Internet to find the best system you can get for this price, and write a report explaining what system you should buy and why.

Things you will have to consider:

What is the processor speed?

How much memory RAM is fitted?

What is the capacity of the Hard Drive?

Create a document which

## Laptop



Laptop computers are popular because they are portable and can run for several hours without being attached to a mains cable. They have a flat screen, and often use a touch pad or tracker ball instead of a mouse. Many laptops have wireless network cards fitted so that they can connect to a network without having a cable attached. They often have removable peripherals such as disk drives or CD drives to reduce their size and weight.

### Task 5

Instead of a desktop computer, you might consider a laptop. For the same amount of money (£500) find the best laptop available and compare its specification with the desktop system you found for task 5

Save Task 4 and 5 as a word-processed report for your **E-Folio**

## Smart-Phone or Palmtop



A smart-phones are much smaller than laptops and are designed to be used while on the move. They will usually have a touch screen to operate them and will connect to the Internet through the mobile phone network or a Wireless connection. Computers like these are used for sending and receiving emails or txt messages, making mobile phone calls, taking notes or acting as a diary. A touch screen is not designed for typing a long document or making complicated diagrams.