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How things Work: The Computer

HOW THINGS WORK: THE COMPUTER
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The earliest computing machine was probably invented by the Chinese or the people of Mesopotamia over 2000 years ago. A simple wooden frame, it had a row of moveable beads and was known as an abacus. These are still used today all over the Far East.

One of the first 'real' digital calculators was built by Wilhelm Schickard in 1623. It operated with gears and wheels, and was used to add numbers. Charles Babbage was born in 1792. An English mathematician, he wanted to build a steam powered machine that would add up and take away and even print out, but his computers were never finished whilst he was alive.

HOW DOES IT WORK?

Computers are used all over the world in aeroplanes, at supermarket checkouts, at home and in offices. They are made up of four main parts: a keyboard, a **memory**, a processing unit and a display unit, tv or monitor.

KEYBOARD

Beneath the keys are printed circuits. Each set of keys has a set of contacts. Pressing the keys causes contacts to be made. These send information along lines into the processor.

The keys can be programmed so that they do other things as well as entering letters and numbers.

Computers 'think' by using on and off bursts of electricity.

Inside the machine are a number of microchips. These hold information and are like tiny computers themselves. One chip can contain hundreds of thousands of tiny parts. Different chips have different jobs.

MEMORY

The RAM or **Random Access Memory** chip holds information on the program that is in the machine and also on the operating system. When the power goes off, this is lost.

The ROM or Read Only **Memory** chip holds the information that is needed to start up the computer. If it is switched off, it still keeps the information.

The microprocessor chip does a number of jobs including following the program, taking in new information from the keyboard, and sending information onto the screen.

MONITOR

This works in the same way as a television screen. The screen is full of tiny pixels. The microprocessor sends these codes which light up the pixels in different colours.

DISC DRIVE

This is in the computer itself or joined to it. The floppy discs that it uses contain programs or data stored as patterns on the surface of the disc.

HARD DISC

This is usually fixed inside the computer. Information is collected from, or sent to this disc which is usually made of a hard piece of metal covered with magnetic material.

Hard discs are able to store a great deal of information and are an important part of the inside of a computer.

One of the most powerful machines in the world, the Cyber Model 205-444, can work out over 750 million calculations a second. Some brain!

MOUSE

This makes life a lot easier. As it moves, it sends electrical messages to the computer telling it where it is. Lot of programs now use a mouse.

THE HISTORY OF COMPUTER GAMES

The first real computer games appeared about 40 years ago. These early games were very simple. They included Star Trek and Star Wars which were often played on huge machines. In 1972, one of the first 'real' games called Pong was created. It was in black and white, and a ball was hit backwards and forwards across a net. A bit different from today's games!

Then came games such as Pacman, a mouth which went around the screen eating up almost everything, and Space Invaders, which was all about shooting down aliens.

In 1979 Atari built a game machine which could be played through a television set. Most of the games played today use sound, graphics, and a whole range of colours. Some include building and running your own cities. Simulation games are popular and include flying planes or driving cars at high speeds. You need a cool nerve to play these!

THE RISE OF MARIO AND SONIC

Two of the most important game companies are Nintendo, the creators of the Mario Brothers, and Sega, the people that started Sonic the Hedgehog.

Both of these are platform games which demand a great deal of skill from the players.

Over the years, 100 million copies of the Mario Games have been sold and there are 11.5 million Sega users. Both Mario and Sonic have become part of our everyday lives.

HANDHELD GAMES

In the last few years handheld computer games have been built. These include Gamegear and Game Boy.

The Sony Play Station is now very popular and many families have their own multi media units which have sound and the most amazing graphics.