**Hardware & Software**

|  |  |
| --- | --- |
| **CPU** | |
|  | It is known as the 'brain of the computer', although it is small, it has a big job! It processes data, and is where all the sorting, searching, calculating and decision making happens. A computer can have more than one CPU; this is called multiprocessing. Some integrated circuits (ICs) can contain multiple CPUs on a single chip; those ICs are called multi-core processors. |
| **Motherboard** | |
|  | It is the main printed circuit board in the computer. It holds many crucial electronic components such as CPU, memory, cards and peripheral devices are connected. |
| **Power Supply Unit** | |
|  | Inside every computer to provide the power. Usually has a cooling fan at the back, as it gets hot. The higher power level it has, the more demand it can cope with e.g. 700 watts |
| **Random Access Memory (RAM)** | |
|  | It is a form of computer storage, which usually stores computer programs whilst they are running. It has a volatile memory, so when the computer loses its power, the memory is also lost. |
| **CMOS battery** |  |
|  | It powers a chip called the Real Time Clock (RTC) chip. It ensures that the system time and date and other BIOS settings to control the keyboard, mouse, monitor etc. do not revert to the default values. |
| **Hard Drive** | |
|  | It is a magnetic storage device for digital data. The rotating platters which make up the hard drive are able to read/write the data. Usually they range in size from 40GB to 1000GB. |
| **Heat Conductive Paste** |  |
|  | During processing the CPU gets very hot  The CPU needs a heat sink, to increases efficiency. This Paste allows the heat to be conducted away from the CPU |
| **CD / DVD Drive** | |
|  | The CD Rom is a non-volatile removable storage device. It is an optical device so it uses a laser to read the data. Optical disc drives are an integral part of stand-alone consumer appliances such as CD players, DVD players and DVD recorders. They are also very commonly used in computers to read software and consumer media distributed on disc, and to record discs for archival and data exchange purposes. |

## Human

|  |  |  |
| --- | --- | --- |
| Keyboard | Scanner | Monitor |
| Eyes | ROM | CPU |
| Hands (Touch) | Hands (Writing) | Optical Drive |
| Network | Expression | Exercise book |
| RAM | Brain | Taste buds |
| Nose | Printer | Mouse |
| Text Book | HD | Touchscreen |



|  |  |  |
| --- | --- | --- |
| INPUT | PROCESS | OUTPUT |
| Eyes | Brain | Hands (Writing) |
| Taste Buds | STORAGE | Expression |
| Nose | Exercise Book |  |
| Hands (Touch) |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

## Computer

Output

Storage

Process

Input

|  |  |  |
| --- | --- | --- |
| INPUT | PROCESS | OUTPUT |
| Keyboard | CPU | Printer |
| Touchscreen | STORAGE | Monitor |
| Scanner | ROM |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

**Software**

We have looked briefly at Hardware but equipment such as this needs instructions for it to do something – Programs or software. In ROM is the smallest and first piece of software – Bootstrap loader. This program is set to run (execute) when the computer is first turned on. This program tells the computer to load its operating system.

**Software**

Sometimes abbreviated as S/W, software is a collection of instructions that enable a user to interact with the computer or have the computer perform specific tasks for them. Without software, the computer would be useless. For example, without your Internet browser software you would be unable to browse the Internet and without a software operating system the browser would not be able to run on your computer.

**Bootstrap loader**

Alternatively referred to as bootstrapping, boot loader, or boot program, a bootstrap loader is a program that resides in the computers EPROM, ROM, or other non-volatile memory that automatically executed by the processor when turning on the computer. The bootstrap loader reads the hard drives boot sector to continue the process of loading the computers operating system. The term boostrap comes from the old phrase "Pull yourself up by your bootstraps."

The boot loader has been replaced in computers that have an Extensible Firmware Interface (EFI). The boot loader is now part of the EFI BIOS.

**Operating system ABCs**

An operating system or OS is a software program that enables the computer hardware to communicate and operate with the computer software. Without a computer operating system, a computer and software programs would be useless