

Input

Process

Output

COMPUTING – Y7 Knowledge Map Autumn Term 1

17/9/18: HARDWARE



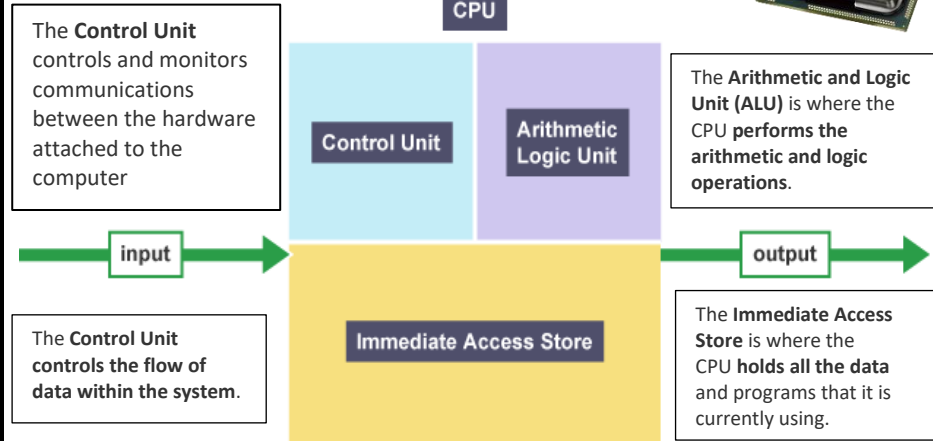
An **input** device is any piece of computer **hardware** used to provide data to a computer system.

An **output** device is any piece of computer hardware used to communicate the results of data that has been processed.

A **storage** device is a piece of computer equipment which can be used to store data.

24/9/18: THE CPU

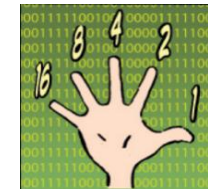
The purpose of the CPU is to process data. The CPU is where processes such as calculating, sorting and searching take place. Whatever is done on our computers, such as checking emails, playing games and doing homework, the CPU has processed the data we use. The CPU is made up of **three main** components: The **Control Unit**, the **Immediate Access** and the **Arithmetic and Logic Unit**



8/10/18: BINARY

Binary is a number system that **only uses two digits: 1 and 0**. All information that is processed by a computer is in the form of a sequence of 1s and 0s. Therefore, all data that we want a computer to process needs to be converted into binary.

The binary system is known as a **'base 2'** system. This is because: there are only two digits to select from (1 and 0) when using the binary system, data is converted using the power of two.



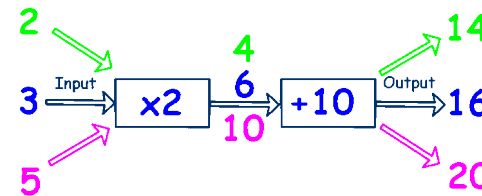
8	4	2	1
0	1	0	1

5 in decimal is 0101 in binary!

15/10/18: FILE SIZES

Size	Equal to
8 bits	1 byte
1024 bytes	1 kilobyte
1024 kilobytes	1 megabyte
1024 megabytes	1 gigabyte
1024 gigabytes	1 terabyte

A **Function Machine** is a diagram that represents a **machine** that takes an input, applies a rule such as a set of operations and delivers the answer as an output.



1/10/18: Your **task** is either to determine the input, the output or whatever operations take place inside the **machine**.

10/9/18 GETTING STARTED

All of **your files, folders and settings** are stored in **your user account**. You can **password protect** your user account to prevent other people from accessing its contents.

A strong password is:

- at least eight characters long
- a mixture of numbers, uppercase and lowercase letters and other symbols, eg !@#E\$
- not a real word
- impossible to guess



The word **'cracking'** is used to describe the process of obtaining a password by force.

A **brute force** attack tries every combination of letters, numbers and symbols until it identifies the password.

EXTENSION TASKS:

1. Write a message using *International Morse Code*
2. Ask your teacher for a *Binary Addition* sheet