Key Vocabulary…
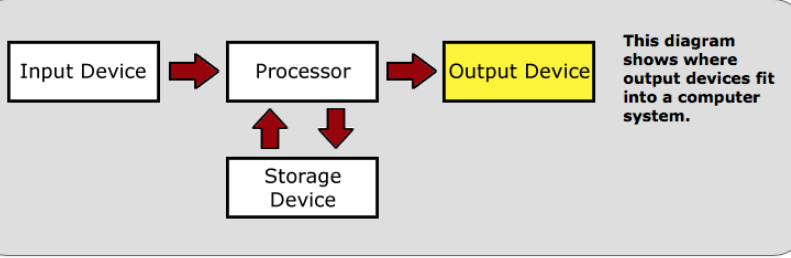
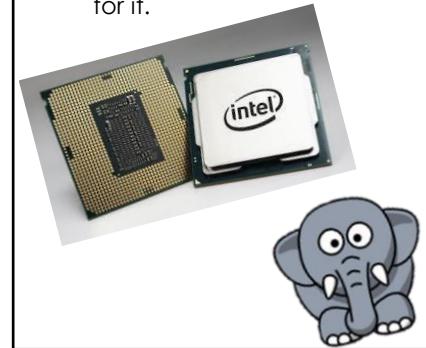| Name	Purpose
Hardware	Parts of a computer that you can physically touch such as a mouse.
Software	Programs that are used to make things on a computer
Input Devices	Hardware that is used to enter information into a computer such as keyboard or a mouse.
Process	The calculations that are performed by a computer.
Output Devices	Hardware that is used to take information out of computer such as a monitor or a printer.
Multimedia Software	Software package where you can make presentations. A common example is PowerPoint.
Purpose	What you want to achieve from your presentation.
Audience	The people who you have written your presentation for.
Transition	How slides can change from one to another.
Animation	How text or images can appear on the presentation.

Picture This…

Input Device → Processor → Output Device

Storage Device

This diagram shows where output devices fit into a computer system.

input / output diagram:
input: Keyboard, Optical pen, Joystick, Scanner, Bar code reader
Digital camera, Pendrive, Touch screen, CD/DVD, Webcam, Fax, Modem
output: Head phones, Head set, Laser printer, Screen, Plotter, Inkjet printer, Speakers

Always Remember…

- Input Devices is hardware that allows information to entered into a computer. Examples on the image on the left.
- Output Devices is hardware that allows information to be taken out of a computer.
- CPUs are very quick but not good at remembering information. They need help from something called RAM which holds the information for it.

Questions

1. Which input device would be best suited for writing a letter?
2. Which software package would be used for creating a presentation?
3. Who are the people that your presentation is aimed at?
4. Explain what is meant by hardware and give some examples?
5. Explain what is meant by software and give some examples?
6. Explain what is meant by clock speed.

Deeper Learning…

Central Processing Unit (CPU) is the brains of the computer that does all the thinking. CPUs can work very quickly, and this speed is measured in clock speed, which is like a heartbeat.

An average heart rate for an 11 year is 55-85 beats per minute.
An average CPU has a "heartbeat" of

2,400,000,000 times per second!!!

That's over 2 billion times per second!!!

Homework – Compare different computer specification and justify which one is better.

Key Vocabulary…

Name	Purpose
Computational Thinking	An organised way of thinking – a series of steps that will get you to the solution.
Abstraction	Looking at a problem and picking out the most important information.
Decomposition	Breaking a difficult or large problem down into smaller tasks.
Binary	A number system used by computers which only uses 2 digits (0, 1).
Denary	A number system used by humans which uses 10 digits (0 – 9)
ASCII	A binary code which is used to represent letters and numbers.
Cryptology	Making secret codes so that information can be passed between people safely.
Bitmap	A graphic made up of pixels. Pixels are small coloured dots in a grid.
Caesar Cipher	A code used by Julius Caesar to communicate with his army generals.
Bit / Byte	A binary unit either a 0 or a 1. A byte is 8 bits together.

Picture This…

Converting Binary to Denary

128	64	32	16	8	4	2	1
0	1	0	1	0	1	1	0

1. Add the place value of the 1s.
   $64+16+4+2 = 86$

Converting Denary to Binary   164

1. Minus the placeholder from the 164.
2. *164 – 128 = 36 (place a 1 under 128 placeholder)*
3. *Is 36 bigger than 64?*
4. *If no , put 0 under 64.*
5. *36 – 32 = 4 (put a 1 under the 32 placeholder*
6. *Is 4 bigger than 16?*
7. *If no, put a 0 under the 16.*
8. *Repeat the steps until you get to the end of the placeholder list.*

128	64	32	16	8	4	2	1
1	0	1	0	0	1	0	0

Always Remember…

- Computers can only store data as 0s or 1s.
- When computers hold data such games, images or words, it looks like this image.

- There are two types of images used in computers, bitmaps and vector. Bitmaps are made by colouring individual boxes in a grid.
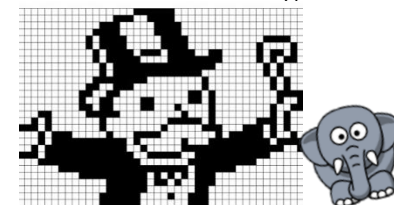

Questions

1. Why do computers communicate in binary?
2. Explain what is meant by decomposition? Give an example.
3. Explain what is meant by abstraction? Give an example.
4. Convert the following numbers from binary to denary.
   1. 1001
   2. 1100
   3. 0011 1100
   4. 1111 0000

Deeper Learning…

Why do computers use binary?

Computers use binary because they use transistors which carry electrical charges. If the charge is ON, it's a 1 and there is no charge then it is a 0.

It is very difficult for us to read binary as you can see.
In year 8 you will learn about another language called Hexadecimal which helps us to understand binary.

Homework – Using Abstraction and decomposition plan a cinema trip with 5 friends. How could you break this task into smaller pieces and what abstraction techniques would you use to make sure that you are watching a suitable film.