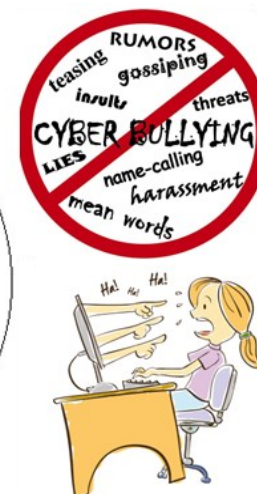
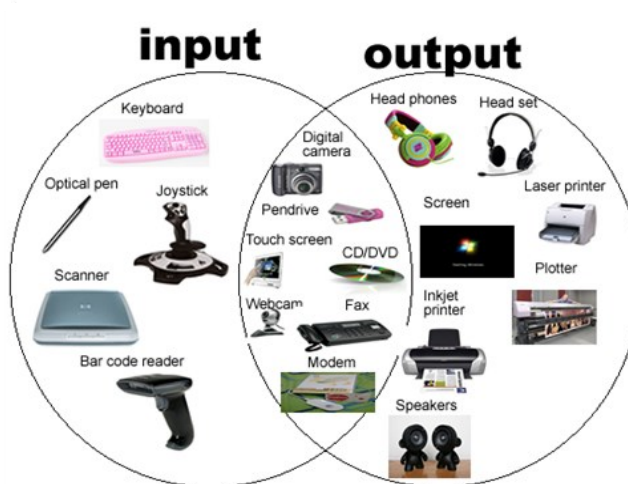
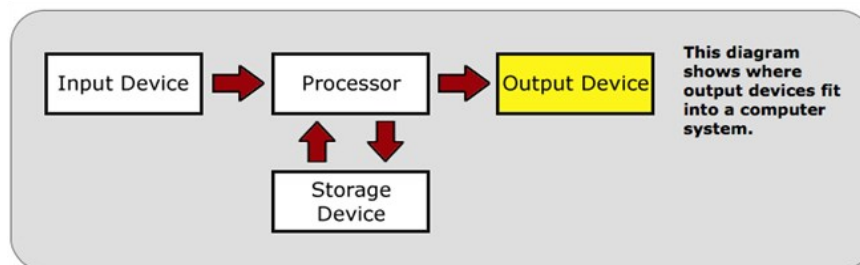


Key Vocabulary...

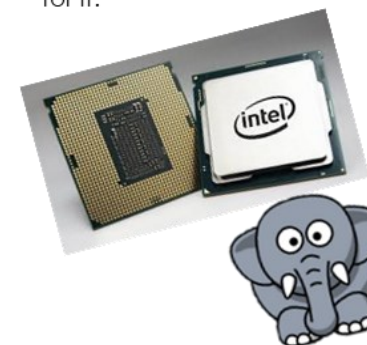
Name	Purpose
Hardware	Parts of a computer that you can physically touch such as a mouse.
Software	Programs that are used to make things on a computer.
Input Devices	Hardware that is used to enter information into a computer such as keyboard or a mouse.
Process	The calculations that are performed by a 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.
Cyberbullying	The use of electronic communication to bully a person, typically by sending messages of an intimidating or threatening nature.
Copyright	To prevent someone from copying an original idea and claiming it as their own.

Picture This...



Always Remember...

- Input devices are hardware that allows information to be 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

- Which input device would be best suited for writing a letter?
- Which software package would be used for creating a presentation?
- Who are the people that your presentation is aimed at?
- Explain what is meant by hardware and give some examples?
- Explain what is meant by software and give some examples?
- 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!!!



Activity – Compare different computer specifications and justify which one is better, based on the clock speed, memory and the RAM.

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

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

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.

```

001111000111001011111000111
000111110011111110111110000
1111011110111111111110001111
01101100000010011001101111
10000011011110111011111011
1000100100111110001000110000
110011001011100111111111111
111100001000010101111111000
1100001001111001000011000000
  
```

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



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.



Activity – 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.