Year 7.1 Knowledge Organiser

Computer Science Department

RAINFORD HIGH

E-safety

E-safety refers to staying safe online, this includes the use of the internet, social media sites and gaming.

Top tips for staying safe online

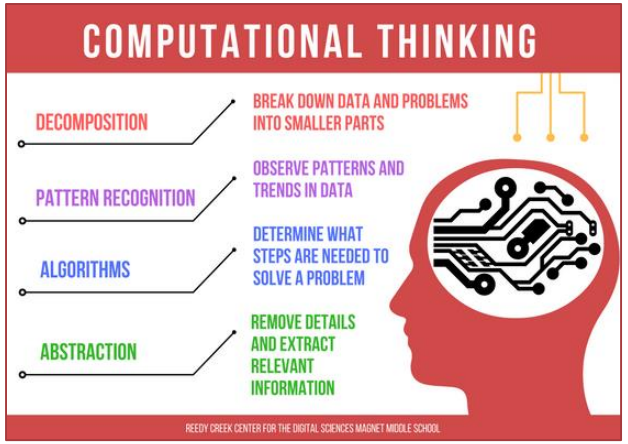
1. Don't talk to strangers
2. Don't give out personal information
3. Make sure all social media accounts are set to private.
4. Don't meet anyone online.

Computer System

A basic, **complete** and **functional** computer.

It will include all the hardware and software required to make it functional

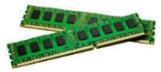
INPUT → PROCESS → OUTPUT



Memory

Random Access Memory (RAM)

- Temporary Memory
- Volatile – needs power to retain memory
- Stores the programs and data that is currently in use



Read Only Memory (ROM)

- Non Volatile – does not need power to retain memory
- Tells the computer how to start

Computer Components

Motherboard

Hard Disk Drive

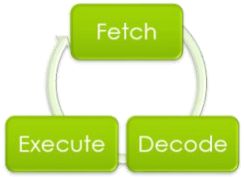
CPU (Central Processing Unit)

Fan

PSU (Power Supply Unit)

Central Processing Unit (CPU)

Is used for processing data (the brains of the computer)



Fetch Decode Execute Cycle

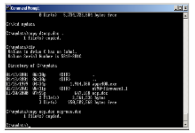
1. Instruction is **fetched** from memory
2. Instruction is **decoded** by the CPU
3. Instruction is **executed** by the CPU

repeat

Operating system

The part of the operating system we see on screen is know as the User Interface.

- Graphical User Interface (GUI)
  The most popular type of system. They combine menu driven interfaces with icons.
- Command Line Interface (CLI)
  User need to learn the commands to make it work.
- Menu Driven Interface
  A list of options organised under various headings or menus



Binary (Base 2)

The only thing that computers understand is Binary.

0101 = 5

8	4	2	1
0	1	0	1

1 = ON
0 = OFF

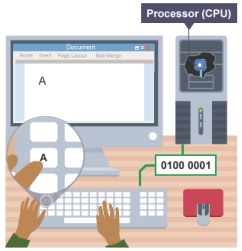
01011111 = 95

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

ASCII

ASCII is a characters set that allows 128 different characters,

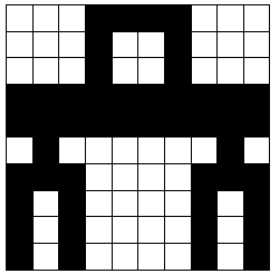
Every word is made up of symbols or characters. When you press a key on a keyboard, a number is generated that represents the symbol for that key.



A = 0100 0001

Letter — Binary number

Image Rep



0	0	0	1	1	1	1	0	0	0
0	0	0	1	0	0	1	0	0	0
0	0	0	1	0	0	1	0	0	0
1	1	1	1	1	1	1	1	1	1
1	1	1	1	1	1	1	1	1	1
0	1	0	0	0	0	0	0	1	0
1	1	1	0	0	0	0	1	1	1
1	0	1	0	0	0	0	1	0	1
1	0	1	0	0	0	0	1	0	1
1	0	1	0	0	0	0	1	0	1