

Knowledge Organiser - Introduction

Key vocab	
Login	Adding a name and an appropriate password to a Login screen in order gain access to a program or website
Remote Desktop	A program that allows us to connect to a computer system in another location
Webmail	An email system that runs on web based programs
Computational Thinking	Algorithmic thinking is a way of getting to a solution through the clear definition of the steps needed
Algorithm	A set of instructions which is followed to solve a given problem. Can be represented using a flowchart or Pseudo code
Tinkering	Tinkering means trying things out through experimentation.

To reduce Health Problems

Back Problems

- Fully adjustable chair
- Footrests
- Screen that can be tilted

Repetitive Strain Injury (RSI)

- Wrist rests Correct posture
- 5 minute break every hour

Eye Strain

- Screen filters
 - Use screens that don't flicker
 - Take regular breaks
- Suitable lighting and blinds fitted on windows

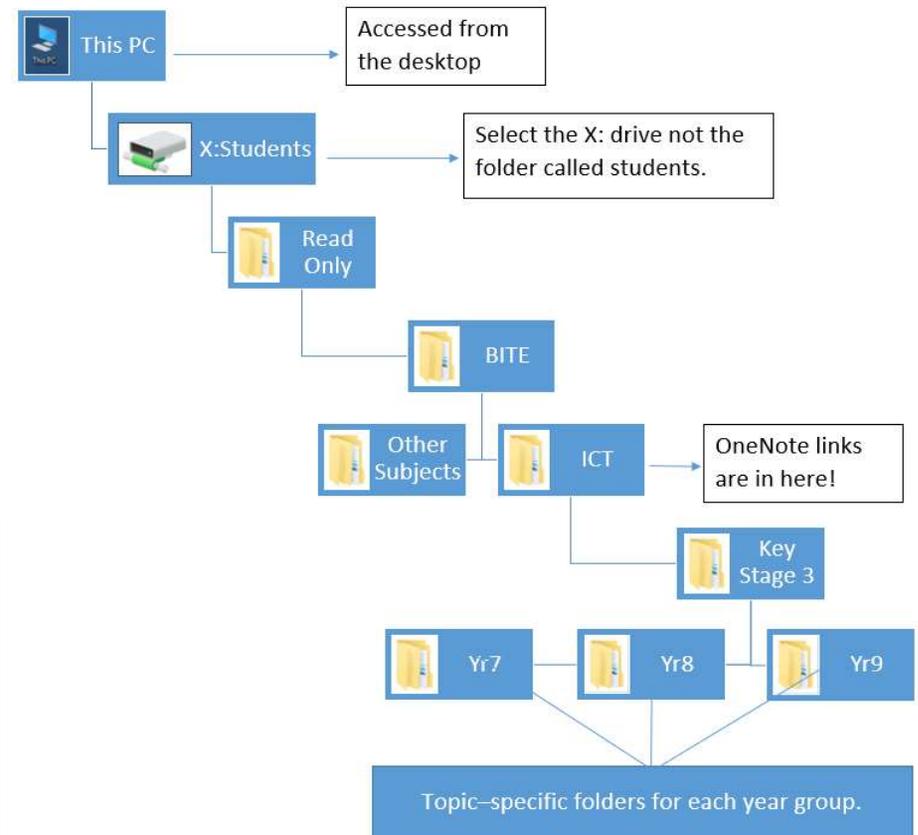
Your school email address is

`username@brineleas.cheshire.sch.uk`

`https://webmail.brineleas.co.uk`

If your first / last name is less than 4 characters. then use your full name(s). Hyphenated names may have custom usernames.

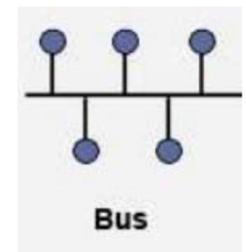
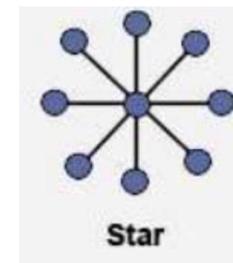
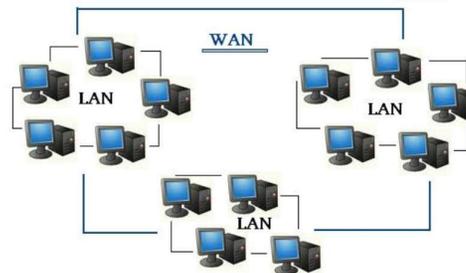
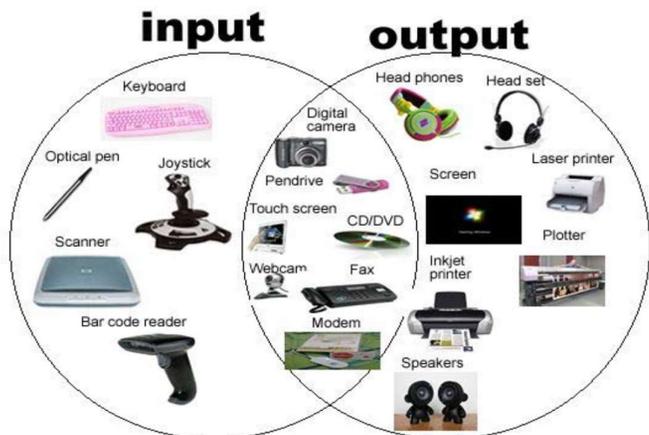
Folder structure



Knowledge Organiser - Computers and networks

Key vocab	
Hardware	The physical components of a computer system.
Peripheral	A device which can add extra functionality to a computer system. Peripherals can either input or output data from the computer.
Input	A peripheral device which takes data from the real world and enters it into a computer system.
Output	A peripheral device which takes data from a computer system and presents it into the real world.
Storage	Devices that store virtually all the data and applications on a computer.
Motherboard	Connects all components in the computer together.
Processor (CPU)	Performs any calculation and processes instructions given to it.
RAM	Short term storage which stores instructions for the CPU to process.
Hard Drive	Stores information in long term memory. Contains magnetic disks inside to store data on.
Power Supply	Inputs power to the system.

Key vocab	
Network	A collection of computer systems that are linked together and can share data.
LAN	A Local Area Network. All devices are connected on one site. The network may be in a single building or campus or group of buildings in a small area. Management and maintenance is usually completed by a group of network engineers.
WAN	A Wide Area Network. Typically covers a large geographical area, talking in many cities or worldwide. The connections are typically provided by a telecoms company such as BT. The largest example of a WAN is the internet. A WAN connects multiple LAN networks.
PAN	Personal Area Network. Personal devices are often connected to each other in a home or a car.
Bandwidth	The amount of data that can be transferred on a network in a given time.
Network Interface Controller (NIC)	An internal piece of hardware that allows a device to connect to a network.
Switch	Connects devices together on a LAN and directs frames of data to the correct device.
Router	A piece of hardware responsible for transmitting data between networks.
Ethernet cable	Copper wires used on LANs.
Fibre optic cable	A high-performance cable that uses light to carry data.
Wi-Fi	The standard used for wireless connections between devices.



Knowledge Organiser - App Inventor

Key vocab	
Block	Blocks are the pieces you connect together to tell your app what to do. They can be found in the Blocks Editor.
Blocks Editor	The screen found by clicking the Blocks button on the design screen. This is where you tell your app what to do.
Component	Components are the pieces of your app that do actions for you. Examples of components are Label, Sound, or Button.
Designer	The screen where you can drag and drop component pieces and design them using the User Interface.
Palette	The box that holds drawers.
Procedure	A procedure is a set of instructions.
Variable	A variable is container that holds a value.

The image shows a screenshot of the MIT App Inventor web application interface. Several parts of the interface are highlighted with black boxes and labels:

- Palette:** The left sidebar containing various UI components like Button, CheckBox, DatePicker, Image, Label, ListPicker, ListView, Notifier, PasswordTextBox, Slider, Spinner, Switch, TextBox, TimePicker, and WebViewer.
- Designer:** The central area showing a mobile phone simulator (Screen1) where components are placed.
- Components:** A panel on the right showing the selected component (Screen1) and its properties.
- Blocks Editor:** The right sidebar showing a tree view of components and a list of available blocks.
- Procedure:** A specific block in the Blocks Editor, highlighted in yellow, showing a sequence: "when Meow_button .Click" followed by "do call Cat_sound .Pause".
- Blocks:** The overall area where blocks are assembled into a procedure.

At the bottom right, there is a URL: <https://appinventor.mit.edu/>

Knowledge Organiser - Graphics Skills

Key vocab	
Bit	The smallest amount of data (stands for binary digit) (0 or 1).
Image	A picture that has been created or copied and stored in electronic form.
Pixels	The individual units (dots) that make up an image.
Resolution	The level of detail in an image, measured in dots per inch (dpi).

File Extension	Definition	Characteristic
.bmp	Bitmap	Produces large file sizes; used for print-quality images; not suitable for the web.
.gif	Graphics interchange format	Common format - can be used in most programs; supports transparency & is frequently used for web graphics & screen presentations.
.jpg or .jpeg	Joint photographic experts group	Common format - can be used in most programs; users can control the quality & file size; ideal for photographs, images intended for the web & screen presentations.
.tiff or.tif	Tagged image file format	Usually produces large, high quality files but can save down to very low quality/size; can store layers & is good for storing/archiving images; not suitable for the web.
.png	Portable network graphics	A compressed file format similar to jpg; enables compress of images without loss of quality, including high resolution images.

Useful shortcuts		Other shortcuts	
Ctrl + 0	Fit on screen	Ctrl + Z	Undo
Ctrl + I	Set view to 100% (actual size)	Ctrl + A	Select All
Ctrl + =	Zoom in	Ctrl + X	Cut
Ctrl + _	Zoom out	Ctrl + C	Copy
F4	Hide/Unhide all panel	Ctrl + Y	Repeat
F12	Preview in browser	Ctrl + S	Save
Ctrl + F2	Display/Hide Toolbox	Ctrl + Shift + S	Save As
Ctrl + F3	Display/Hide Properties Panel	Ctrl + N	New Document
F2	Expand Layers Panel	Ctrl + V	Paste
Ctrl + D	Deselect		

Pointer - selects and drags objects

Subselect - selects points within a group or object

Scale - resizes and rotates objects

Crop - changes the size of the canvas

Marquee - selects a rectangular area

Lasso - selects an area using lines you draw

Magic Wand - selects areas of similar colour

Brush - draws brush strokes

Pencil - draws one pixel pencil strokes

Eraser - removes and replaces parts of objects

Blur - blurs a selected area of an image

Rubber stamp - clones portions of objects

Eye Dropper - 'samples' a colour

Paint Bucket - fills objects with colour

Line - draws straight lines

Pen - draws objects using points

Rectangle - draws rectangles and squares

Text - adds a text box

Freeform - moves points on a path

Knife - slices a path

Web tools - More about these in a later tutorial

Fill Colour Well - sets the fill colour

Stroke Colour Well - sets the line colour

Additional colour options

View tools - Change the way the canvas is displayed

Knowledge Organiser - Spreadsheet Skills

Key vocab	
Spreadsheet	An electronic document in which data is arranged in the rows and columns of a grid and can be manipulated.
Excel	Software within the Microsoft Office package used to create spreadsheets.
Cell	A cell is a single unit of storage within a spreadsheet program.
Cell reference	The specific location of a cell within a spreadsheet (e.g. D2)
Range	A cell reference which links to a group of connected cells (e.g.. D2:F6)
Formula	An expression used in a spreadsheet to perform a calculation.
Data	Facts or information collected which has no meaning on its own (e.g., numbers or symbols)
Information	Data which has been put into context to provide meaning (e.g., a list of people's ages)
Sort	Organise data or information into order.
Search	Look through data or information to find results that meet a certain criteria.
Filter	Setting conditions so that only certain data is displayed.

Golden rule: every formula always starts with an = sign

Cell references begin with a letter, and finish with a number. EG: **A1**

	A	B	C	D	E	F	G
1							
2							
3							
4							
5							

A range is a selection of cells.
EG: **(A2:F4)**

	A	B	C	D	E	F	G
1							
2							
3							
4							
5							

Operators	
+	Adds two numbers / cells
-	Subtracts one cell or number from another
•	Multiplies two numbers/cells
/	Divides one number / cell from another one
<	Less than
>	Greater than
<=	Less than or equal to
>=	Greater than or equal to

Knowledge Organiser - Research Skills

Key vocab	
Fact	information based on real occurrences
Bias	information that is written from a particular perspective or point of view.
Opinion	information with a given view or judgement
Reliability	information that is in date, correct and accurate.
Internet	The computers throughout the world that are connected and are able to share information and data
Browser	A program or app (application) that is used to access web pages
Search engine	A program or app that stores information about where to find web pages on the internet

web page addresses have a name - they are called 'Uniform Resource Locators or URL'



Boolean Search Operators	
NOT	To make sure a keyword is not included
AND	To make sure a keyword is included
OR	To give alternative keywords

http://www.amazon.co.uk

The **www** is short for **World Wide Web**. The www in the URL does not really do anything, it simply grew out of popular use. You will now find many websites which do not have 'www' in their URL.

Amazon.co.uk is called the **Domain name**. It is part of the URL. However, it also tells you which organisation owns the site. In this case, a company called Amazon.

http means the protocol used Protocol is the way that two computers have agreed to 'talk' to each other. There are many different protocols available. For web pages, the method used is called **HyperText Transfer Protocol** or **HTTP**.

Notice that part of the URL contains the word **.co** This can tell you a lot about the type of website that you will be visiting. In this instance, it means that the website belongs to a company or business.

Knowledge Organiser - Binary

Key vocab	
Binary	Counting using base 2 (0s & 1s) - the only language that computers understand. 0 means off, 1 means on.
Denary	Counting using base 10 (0-9) - these are our normal numbers that we use every day.
Bit	The smallest amount of data (stands for binary digit) (0 or 1)
ASCII	American Standard Code for Information Interchange ASCII uses 7 bits to represent each character which means that a total of 128 characters can be represented.
Unicode	Unicode has 16 bits and allows many more (65K) characters.
Pixel	A pixel is the smallest unit of a digital image or graphic that can be displayed and represented on a digital display device. A pixel is represented by a dot or square on a computer monitor display screen.
Bitmap	An imagine format where the picture is made up of discrete, individual pixels.

Byte (B)	8 bits	Kilobyte (KB)	1000bytes	Megabyte (MB)	1000 kilobytes
Gigabyte (GB)	1000 megabytes	Terabyte (TB)	1000 gigabytes	Petabyte (PB)	1000 terabytes

Binary Place Values (for 1 byte)								
128	64	32	16	8	4	2	1	Denary
0	0	0	1	0	1	0	0	=16 + 4 = 20

Representing images using Binary

60	0 0 1 1 1 1 0 0
36	0 0 1 0 0 1 0 0
36	0 0 1 0 0 1 0 0
255	1 1 1 1 1 1 1 1

Digital images are made up of **pixels**. Each pixel in an image is made up of binary numbers.

If we say that 1 is black (or on) and 0 is white (or off), then a simple black and white picture can be created using binary.

Binary Addition

$$\begin{array}{r} 01101 \\ + 10111 \\ \hline 100100 = 36 \end{array}$$

RULES OF BINARY ADDITION

0	0	1	1	1
+0	+1	+0	+1	+1
0	1	1	10	11
			1	1 1

Computers use electrical signals that are on or off, so they have to see everything as a series of binary numbers. This data is represented as a sequence of 1s and 0s (on and off).

All data that we want a computer to process needs to be converted into this binary format.