

What is a Google Classroom?

Google Classroom is a website which allows you to see all of your classwork tasks that a teacher has given to you.

You can create and submit work and also get feedback on your work using google classroom and the different google apps

What is Bromcom?

Bromcom is an online portal to your life at school.

It will list all your homework assignments, your timetable, upcoming trips or events as well as any behaviour points and attendance information.

To get to Bromcom, search bromcom student portal on Google

What is an AUP?

This is an Acceptable Use Policy, which outlines the expected behaviour and consequences we have when using the computer network in school

What makes a secure password?

Using CAPITAL letters and a Numbers

Using a special character ? - ! - @

Not too short at least 8 characters long

Not using easy to remember passwords like Password1

How do you search effectively online?

You can use filters such as image filters to find what you are looking for.

You can also use filters to find when the article or website was published to make sure it is a reliable and up to date source.

You can also change your search keywords to make the results more specific

What is copyright?

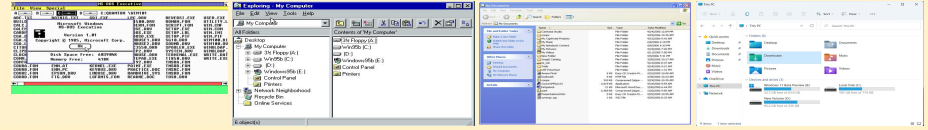
Copyright is when you use or take another person's work from the internet and use it without permission or without sourcing your work. This can sometimes be referred to as plagiarism. We should always source any information found online by adding the link to where we found it or putting it in quotation marks if it is a piece of text.

What is operating software?

The operating system controls many parts of the operation of a computing system such as:
Deals with security, passwords and usernames.
Allows you to organise files
Manages where to store information on different drives

How have operating systems changed from command lines to GUI's?

They have changed to have more interactive features instead of text based commands



What is application software?

Applications, commonly known as apps, are the pieces of software installed on a device which serve a specific purpose.

What do the following application softwares allow you to do?

Word processing

Enter text
Save files
Print
Cut/copy/paste
Insert tables
Format text
Create bulleted/numbered lists
Find and replace text
Check spelling and grammar

Presentation

Most presentation software packages allow you to create your multimedia product using a series of slides. Text, images, video, animations, links and sound can be combined on each slide to create a sophisticated final product.

Desktop publishing

A word processor is not always the best package to use to produce a document. If more control over the layout of a page is required or the document is to include a lot of graphics, then a desktop publishing package such as Microsoft Publisher would be more suitable.

Image editing

Photo editing
Painting
Drawing
Changing contrast
Rotating
Cropping
Re-sizing
Removing backgrounds
Adding filters

Explain briefly who these people are and why they are important in Computer Science

Charles Babbage

Charles Babbage designed the "Analytical Engine" in the early 19th Century, which was the blueprint used in the invention of the modern electronic digital computer.

Ada Lovelace

Ada (Lady Lovelace) a computer programmer, who wrote the work down for Charles and also some of the programmes to be run into his machines. She created the first program

Alan Turing

Alan proved that a machine is capable of processing a stream of 1s and 0s (True & False) according to programmed instructions would be capable of solving any problem.

Gordon Moore

Gordon Moore, is the co-founder of Intel. They created the first integrated microchip, which fueled the personal computer revolution

Bill Gates

In 1975 he started a company called Microsoft to develop software. Bill Gates then went on to secure a contract of building IBM's operating system. Later he developed Windows to which is the system you are using today in school

What is an embedded computer?

These are more specialised, they can only do a limited number of things, but they do them very well.

What is a general purpose computer?

These are devices that have a variety of uses, the user chooses the task for the computer to complete.

What are the following?**Input devices**

These receive information into the computer i.e mouse, camera, keyboard and scanner

Output devices

These send information out of the computer i.e monitor, speaker, printer, projector

What are the different types of computer?

PC / Desktop
Laptop
Tablet
Netbook
Smartphone
Smart Watch

Explain briefly what the following components do and why they are important**Computer Case**

The case of the computer allows all of the internal components to be placed together in one place. This piece of hardware is very important as it acts like the skeleton in our bodies.

PSU

The power supply unit is essential in every computer system. It acts as the heart of a computer, to give each component power to do what it needs to do.

CPU

The CPU (Central Processing Unit) is sometimes called the processor. This is the main brain of the computer. It is responsible for making all the decisions, calculations and sending the information to and from each component.

RAM

The RAM (Random Access Memory) is a piece of short term memory which stores information the computer needs right away.

The faster and larger the RAM, the speedier your computer will run

ROM

This is a type of memory that is Read only (Non volatile) it gives the computer instructions for how to switch on devices.

SSD

This stores the files on a computer and has no moving parts, making it more durable but more expensive.

HDD

This stores the files on a computer and has a magnetic disc and moving head, making it quite fragile

Motherboard

The motherboard of the computer is the thing that connects every component of the computer together and allows information to be sent to and from the devices.

Graphics Card

The graphics card on a computer deals with the quality of the graphics that it displays.

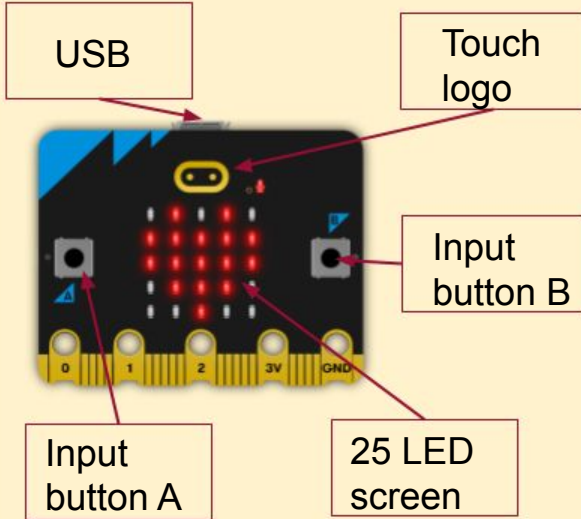
You may have heard of HD (High Definition), but computer graphics today are likely to be in 4K, or even 8K resolution, which needs a powerful graphics card to display this quality

Fan

Cooling fans play an important part in the computer system. They do exactly what their name suggests. They cool the computer down.

Computers like to remain a nice cool temperature to make them more efficient.

Label the features of the Micro:Bit



What are the 5 syntax rules?

1. Capital letters must be used the correct places
2. Indentation is important and must be used if the code requires it
3. If using brackets they must always be closed
4. If using quotation marks they must always be closed
5. If using colons they must be the correct symbol

What code allows you to display a string (Text)?

```
display.scroll("Rocks")
```

What is the code to display an image from the preset library?

```
1 # Imports go at the top
2 from microbit import *
3
4 display.show(Image.HAPPY)
```

What is the code that allows you to display one preset image, followed by another with a pause in between?

```
1 # Imports go at the top
2 from microbit import *
3
4 display.show(Image.HAPPY)
5 sleep(1000)
6 display.show(Image.SAD)
```

What is the code that allows you to display a custom image?

```
1 # Imports go at the top
2 from microbit import *
3
4 pattern = Image("05050:50505:05050:50505:05050")
5
6 display.show(pattern)
```

What is the code that uses a list to show three preset images?

```
1 # Imports go at the top
2 from microbit import *
3
4 faces = [Image.HAPPY, Image.SAD, Image.ANGRY]
5 display.show(faces, loop=True, delay=100)
```

What is the code to make a program run forever?

```
10 while True:
```

What is the code to make a program run for a set amount of times?

```
4 # This repeats 3 times
5 for i in range(3):
```

What is the code that controls the gestures on the Micro:Bit's?

```
1 # Imports go at the top
2 from microbit import *
3
4 while True:
5     gesture = accelerometer.current_gesture()
6     if gesture == "left":
7         display.show(Image.HAPPY)
8     elif gesture == "right":
9         display.show(Image.SAD)
```



What is a computer network?

A computer network is when two or more computers are connected together to allow them to communicate and share resources such as files, printers or the internet.

What is the purpose of a protocol?

A protocol is a set of rules that people follow or computers in order to agree on a way of communicating.

What is bandwidth and how does it affect a network?

Bandwidth is the amount of data that can be moved from one point to another in a given time. Higher bandwidth = more data per second
The concept is similar to the volume of water flowing through a pipe. This depends on the size and thickness of the pipe.
More bandwidth means more information can travel but it does not make it faster

Wired networks

Advantages

- No interference between rooms
- Easy to set up if a small group
- Fast connections between computers

Disadvantages

- Can be costly to set up if there are lots of computers
- You must have a cable connected to the device

Wired networks

Advantages

- No need to run network cables between each device which means you can walk around while using them

Disadvantages

- Connections can be disrupted with walls and metal objects.

What do each of these protocols do?

TCP

TCP stands for Transfer Control Protocol, this deals with the information that is downloaded and uploaded to the internet.

IP

IP stands for Internet Protocol, this is how information is viewed on the internet.

HTTP

HTTP stands for 'Hypertext Transfer Protocol'
Messages sent between your browser and the website are readable to other devices.
It is not secure.

HTTPS

'HTTPS' stands for 'Hypertext Transfer Protocol Secure'
Messages sent between your browser and the website are encrypted so other devices cannot understand it.
It is secure.

VOIP

'VoIP' is short for 'Voice over Internet Protocol'.
This allows voice data to be sent in packets over the internet.

What is a packet?

A router joins networks together across the internet and forwards packets from sender to receiver.

Packets will be sent in the correct order. There are millions of routers on the internet.

Packets can take different routes on their way to to their destination.

What is an IP Address?

An IP address is made up of 4 groups of numbers between 0 and 255, each separated by a full stop.

These are unique for every device on the internet.

Typically, this would be the address of the router that connects to the internet.

What is the internet of things (IoT)?

The Internet of Things means taking everyday 'things' and connecting them to the internet. 'Connectivity' is the key factor.

It allows the advantages of the internet to go beyond computers and smartphones. These connected 'things' allow us to gather information, send information, or both.

What is the Internet?

The internet is a worldwide network of computers. It is the physical hardware, i.e. the cables, the routers, and other pieces of hardware used to connect devices together.

Any device connected to the internet is part of this network, for example:

Laptops
Games consoles
PCs
Tablets
Mobile phones

What is the WWW?

The World Wide Web is part of the internet that contains websites and web pages.

It was invented in 1989 by an English computer scientist called Tim Berners-Lee.

The World Wide Web is also known as 'the WWW' or 'the web'.

What does each device do?

Hub

A hub connects a number of computers together.

Ports allow cables to be plugged in from each connected computer.

A message sent from computer A to computer B travels via the hub.

Network Cable

In order to connect together different devices, you need cables. They have plastic plugs that connect into sockets on devices.

The cable is made up of a number of copper wires.

Data can be sent in both directions across a cable.

Router

When a network needs to be connected to another network over a large area, a router is needed. A router forwards messages from one network to another. It acts as a gateway.

A common job of a router is to join a home network to the internet via an internet service provider (ISP).

File Server

Some networks will have a server.

A server is a powerful computer which provides services. There are many different types of server, for example, a file server which stores files (i.e. text, images, sound, or video) that can be accessed by all devices on the network.

What is buffering?

Data is arriving at your device at a rate that is slower than it is being processed

Example: when you are watching a film on Netflix and it pauses, and you have to wait for a period of time before it starts again

Indicates that more bandwidth is required