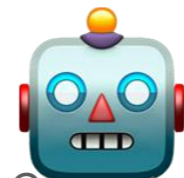


# My Knowledge Organiser



Computer  
Science



Information  
Technology



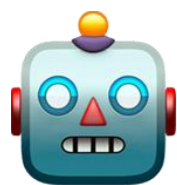
Digital  
Literacy

Computing Knowledge Organiser for **Year 1**

Name:

# Computing in Year 1

Computing is full of important skills and it helps us understand the digital world around us. Computing has three parts.



Computer Science

Computer Science teaches us about problem-solving, how computers work and coding languages.



Information Technology

Information Technology teaches us about how to use devices and apps to be creative and make digital content.

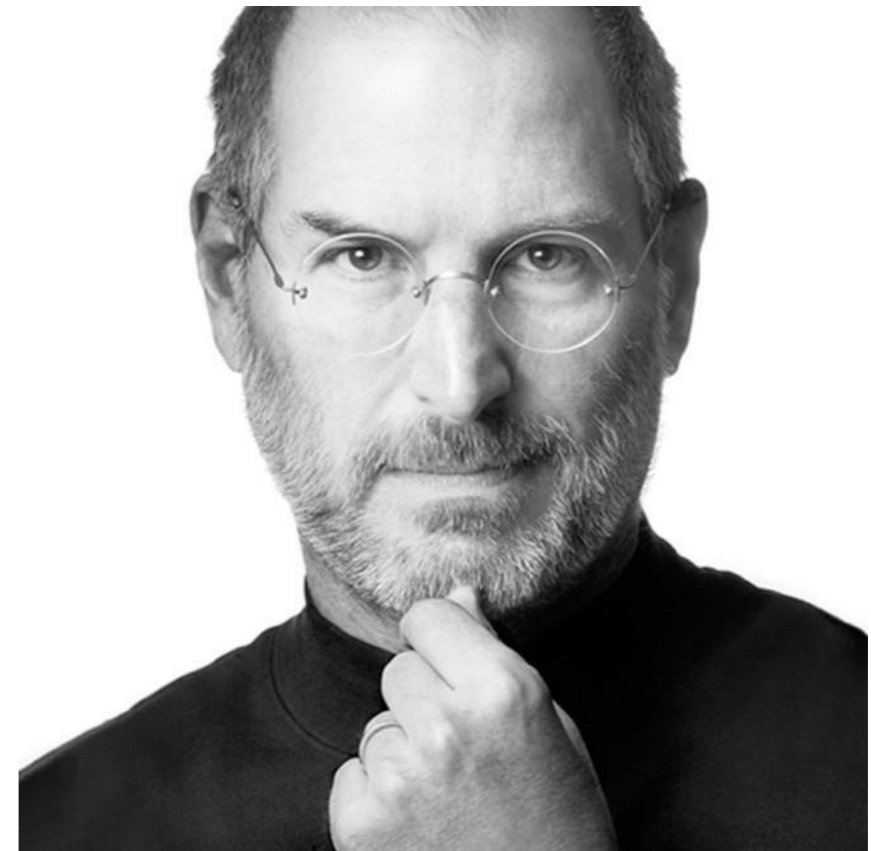


Digital Literacy

Digital Literacy teaches us about online life and how to stay safe and healthy when using technology.

Year 1's Important Person:

# Steve Jobs



- Co-founder of Apple.
- He left college but never gave up and worked hard to create the technology company Apple.
- His invention, the iPhone is now one of the most popular phones in the world.



[Watch video about Steve Jobs.](#)



**What Should I Already Know Checklist:**



- Can you give instructions to solve a problem (algorithm)?
- Can you sequence events?
- Can you move a programmable toy?

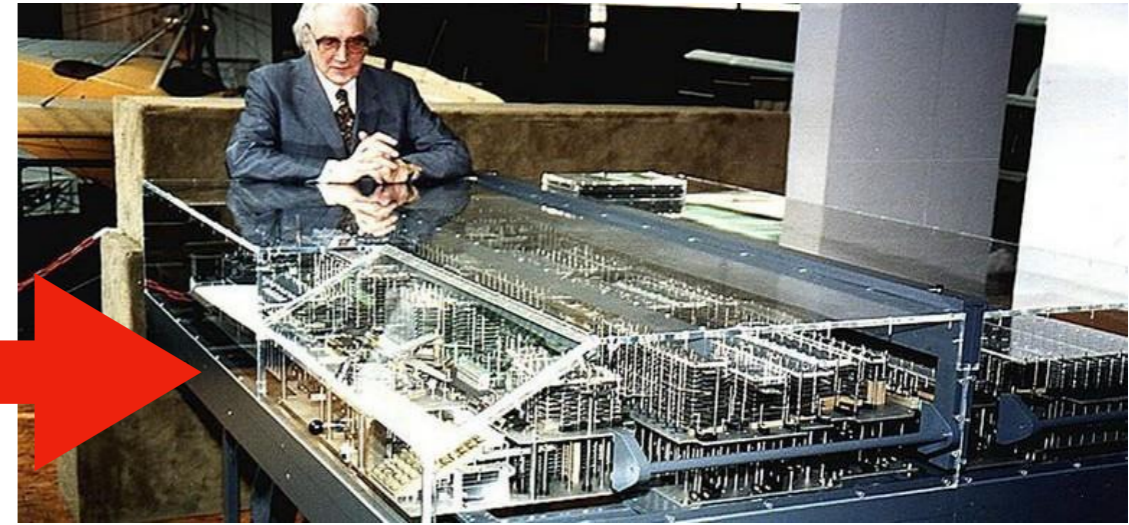
**We will learn:**



- To use algorithms and sequence instructions.
- To use programmable toys.
- To create and debug simple programs.
- To make predictions about the outcome of simple programs.

**Did you know?**

In 1936 a German man called Konrad Zuse invented the world's first **computer** and he named it the Z1. It was pretty big, if you had one at home, it would take up most of your living room.



**What do you think?**

What do you think about when you think of a **computer**? Here are some digital devices you might have at home or have seen in school.



**What is a computer?**

**Computers** come in all shapes and sizes. They are all good at different tasks and have different **inputs** and **outputs**. **Inputs** let you put **information** into a **computer**. For example asking Alexa to play a song. **Outputs** let you get information out of a **computer**. For example, Alexa's speaker playing the song.

**Inputs on devices:**

- Keyboards** let you type in letters and words.
- Mouse** or **trackpads** let you move and click items.
- Camera** lens lets you take photos and record video.
- Microphone** lets you speak to a device or record sound.



**Outputs on devices:**

- Headphones** and speakers let you listen to sounds and music.
- Screens** show you the picture and graphics.
- Printers** let you put your work onto paper.
- Lights** show you if a computer is turned on or off.





**Important Words:**

**Algorithm:** Steps or instructions to follow to achieve a task.

**Bugs:** Mistakes or errors in code.

**Debug:** Finding and correcting errors (bugs).

**Event:** Code that runs when something happens, such as a button being clicked.

**Execute:** Play or run code in a program.

**Prediction:** Make a guess about what happens in a program or how a problem might be solved. Also known as logical reasoning.

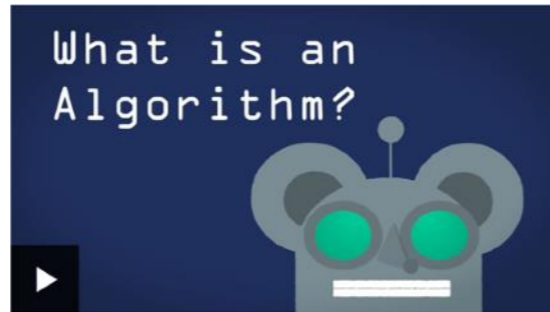
**Program:** A series of instructions written in a computer language.

**Object:** An item on screen, such as an image, a button or some text.

**Sequence:** A set of instructions that are followed in order.

**Testing:** Checking if a program works how it should.

**Videos to watch:**



Introducing Algorithms, they are a simple set of instructions or rules to solve a problem. [Watch video.](#)



What goes into making a computer game? [Watch video.](#)



See how robots are used in the world around us and in the workplace. [Watch video.](#)

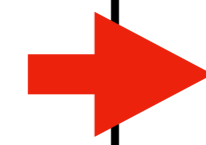



**What are instructions?**


Instructions are written for someone who needs to know how to do something.


- They are written in step by step points.
- They are written in chronological order, this is also called sequencing.
- They can be written in words or using pictures.
- In computing, these step by step instructions are called algorithms.


Here is an example of some instructions (an algorithm), showing step by step how to make a jam butty.





**Start** 


Place the slices of bread on the plate. 

Spread **butter** on bread. 

Spread **jam** on bread. 

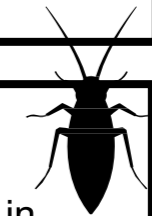
Press the slices of bread together. 

Use the knife to cut in halves. 

Serve on a plate. 

**End**

**What is debugging?**







Bugs are errors or mistakes in algorithms and programs.

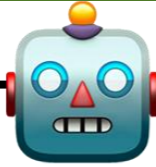
Debugging is when you find a problem in the algorithm or program you have written and have to fix it to make it work the way you want. You should be able to learn from your own and others mistakes. Bugs are good, because by fixing them you improve your computing skills.



[Try this online game to learn about programming robots.](#)

Ages 4 to 8

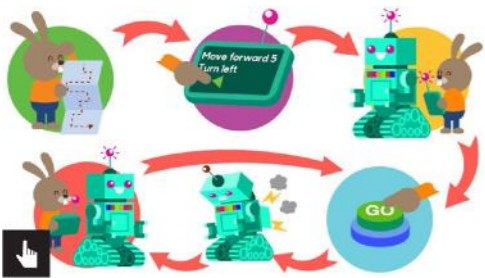
   



### What is a robot?

The word robot is used to mean a man-made machine that can perform work or other actions normally performed by us (humans), either automatically with instructions or by remote control. Most robots are used to do repetitive or boring jobs or jobs that might be too dangerous for humans. They are used in factories to build things like cars, chocolate bars, TVs and computers. You can control how a robot (programmable toy) moves by giving it a sequence of instructions to follow. These are called commands, a series of commands makes a program.

How do you program a robot? [Visit website.](#)



Because a robot is a machine, we have to program it to do things. It only does what we tell it to do. [Practise programming the BeeBot robot here.](#)

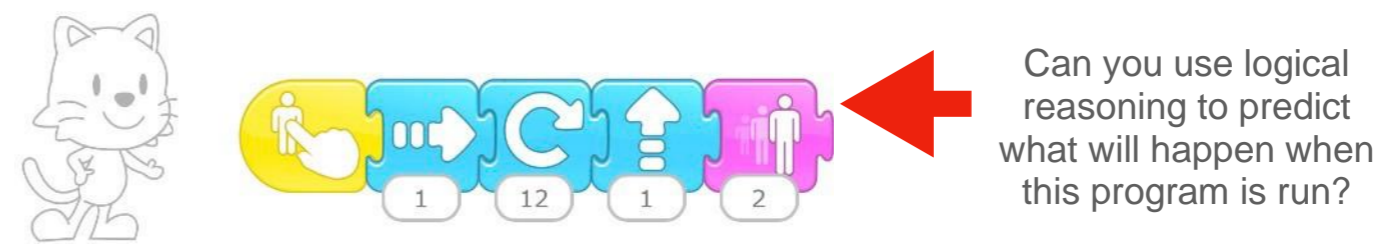
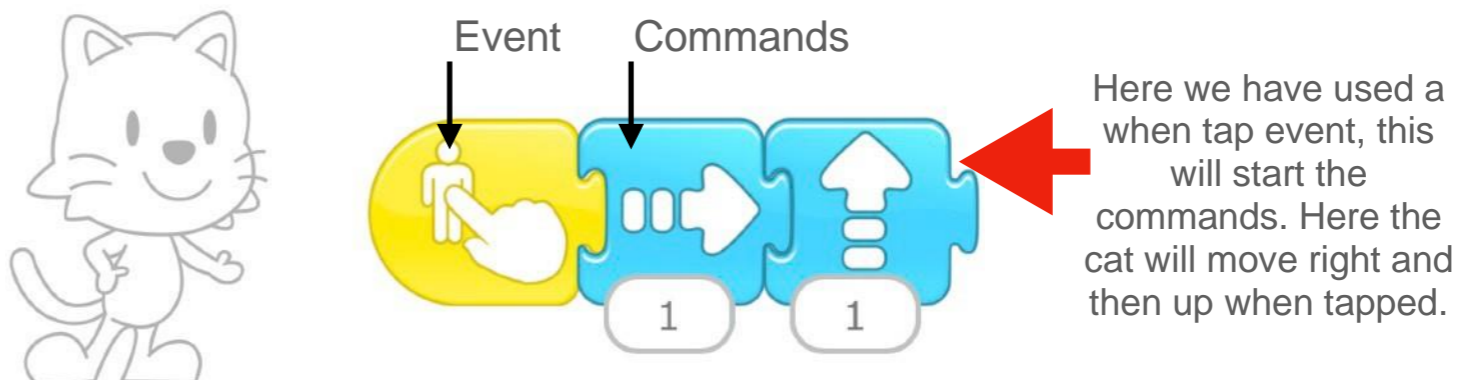
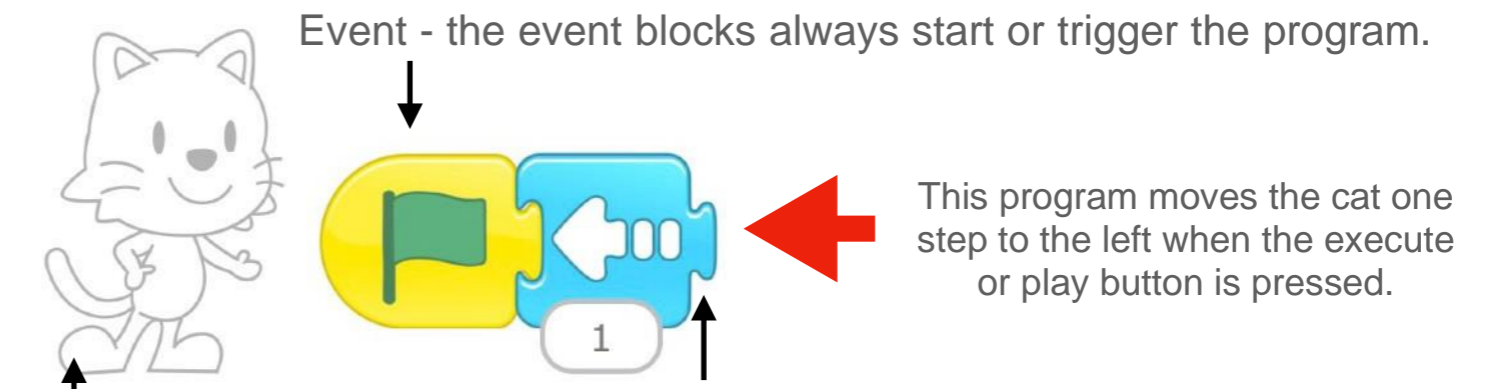


Remember. Check the commands and predict the path the robot will follow before pressing go or run.



### Writing a Program

What is a program? A program is a set of commands completed in order to achieve a task. Programs are created using commands written in programming languages that computers understand. We will use an app called Scratch Jr to write our Programs. Scratch Jr is brilliant, you can make games, stories, add characters and backgrounds. Scratch commands look like Lego blocks that you stick together to create Programs.



**What Should I Already Know Checklist:**



- Can you name different types of technology inside and outside school?
- Can you take a photograph?
- Can you record a short video?
- Can you open an application/app?
- Can you use a keyboard?
- Can you draw using an app?

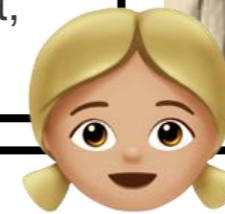
**We will learn:**



- To use classroom apps and devices.
- To sign in and out of online applications/apps.
- To use a search engine to find information.
- To create different types of digital content.
- To access different types of digital content.
- To use technology to collect data.
- To save and share digital work.

**Did you know?**

Did you know that you blink up to 20 times a minute? Well this is quite awesome...you only blink 7 times a minute when you're using a computer! Must be all that concentration. Remember to take lots of breaks when using a computer or tablet, your eyes will thank you!



**What do you think?**

Where do you keep your work in the classroom? What would happen if the work was put in the wrong place?

Where do you keep your work on a computer or tablet? What would happen if the work was put in the wrong place?

Can you save work on a computer? Do you know what a file is? Do you know what a folder is?



**Do you know the classroom technology?**



Desktop Computer



Laptop Computer



Tablet Computer



Using the Internet



Word Processing Apps



Saving & Sharing Apps



Making eBooks

**Important Words:**

**Data**

Numbers that represent images, video, text and sound.

**eBook**

A digital book that can be read on a computer.

**Emoji**

Images that show a mood, feeling or actions.

**Format**

Changing or editing the look of your digital work. For example making the text bigger.

**Frame**

Single image in a film or animation.

**Icon**

Small image that can be used instead of words.

**Illustration**

Drawings showing ideas or characters.

**Information**

Data such as numbers, text and images presented in a meaningful way.

**Menu**

A set of options when using a **computer** or app to help find information or do a task.

**Multimedia**

Different types of media. For example images, text, video and sound.

**Save**

Keep and store your work on a computer.

**Tool**

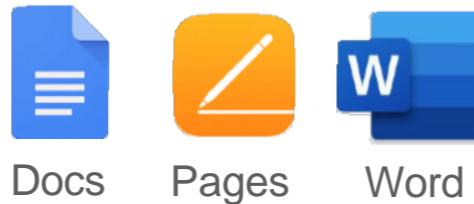
An item in an app that helps you do something on a computer. For example, the pen tool can be used to draw.

**Word Processor**

An application for writing text on a computer.

**Word Processing Apps for Writing:**

With these apps you can type text and insert images onto a page to make a document.



Ask your teacher which one you should use.

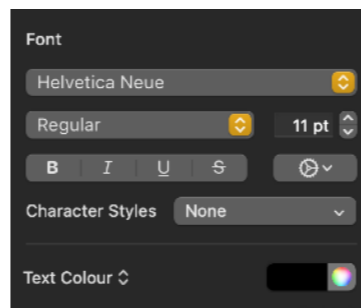
Can you create a new document, add some text and an image?



Remember the flashing cursor shows where to type. Can you now experiment with the formatting menu? Change the text: size, colour and font style so it looks nice. You can also make text:

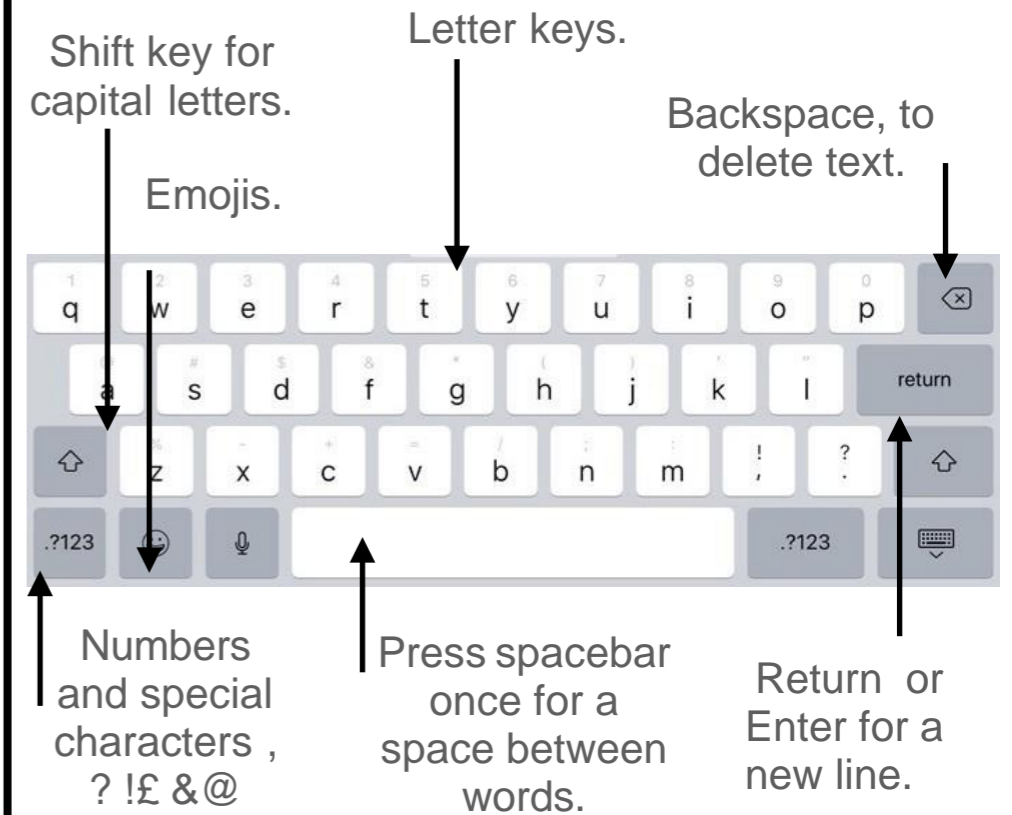
- **Bold**
- *Italics*
- Underline

A font is the style of the text. What is your favourite font?



**What is a keyboard?**

Keyboards let you type words and input information on a computer. There are lots of keys on a keyboard, do you know what they do?



It's important to be able to go back and edit a mistake while you are using a word processing app. You can use the mouse or on a tablet your finger to move the flashing cursor to where your mistake is. Once you have positioned the flashing cursor you can use the backspace to delete your mistake and then correct it.

The shift key can be used to switch between lower-case and upper-case letters. To do this you hold the shift key down while you also press the letter you want.

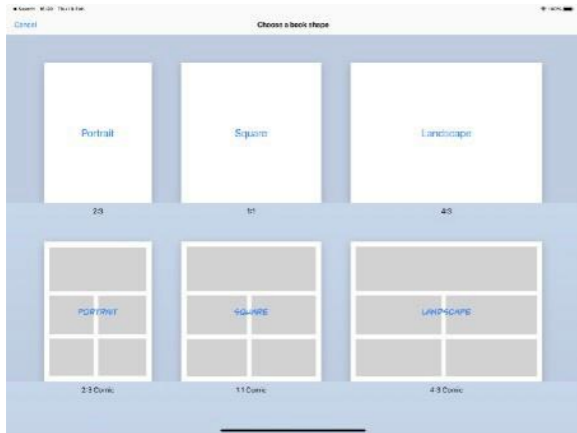
The enter key can be used to send the cursor to the next line.



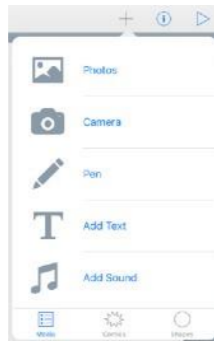
### Making Digital Books:

Books on a computer are called electronic books or e-books. eBooks can combine multimedia content like; text, images, sound recordings, shapes and video clips.

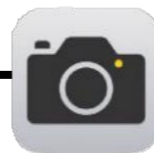
We will use the Book Creator app. In this app you can also make comic books too.



First choose your page type. Use + button to add multimedia. Use (i) button to format text.



### Shooting Digital Photos & Video:



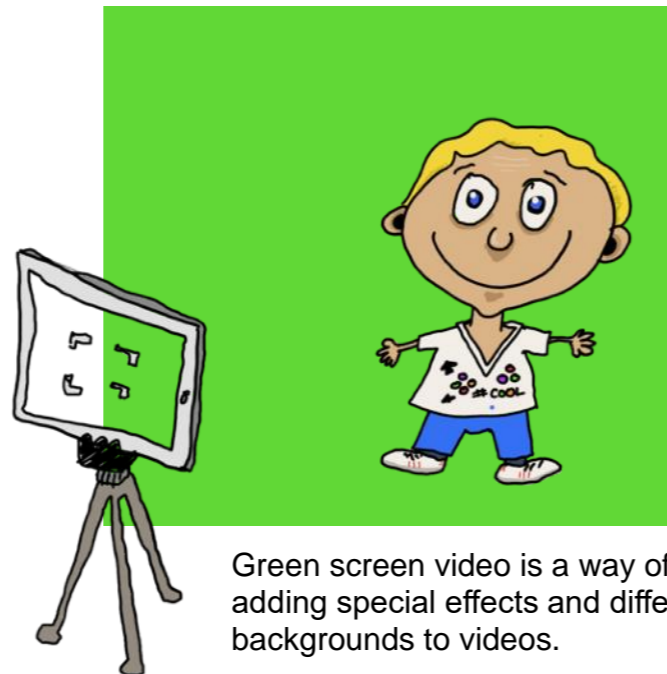
1. Hold the camera steady with two hands.
2. Point and focus it in the subject.
3. Press the capture button or record button if you are recording video.
4. Check the photo looks okay and re-take if needed. Please delete photos you don't like or need.
5. If you recorded video, play it and check you can hear what is being said and the video is bright enough to see everything.
6. Remember always ask permission before taking a photo or recording video.



Landscape



Portrait



Green screen video is a way of adding special effects and different backgrounds to videos.

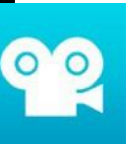
### Drawing Illustrations:



Illustration is another name for drawing. In painting apps there are a selection of different brushes and tools to choose from. Each brush stroke or tool looks different. Start by experimenting and remember if you make a mistake you can use the undo arrow.



### Creating Animations:



Animation is made playing still images in quickly to create the illusion of movement.

To be a good animator you need to understand how things **move** and be able to **draw**. There are different kinds of animation.

- Hand-drawn (2D)
- Computer-generated (3D)
- Stop-motion







### What Should I Already Know Checklist:

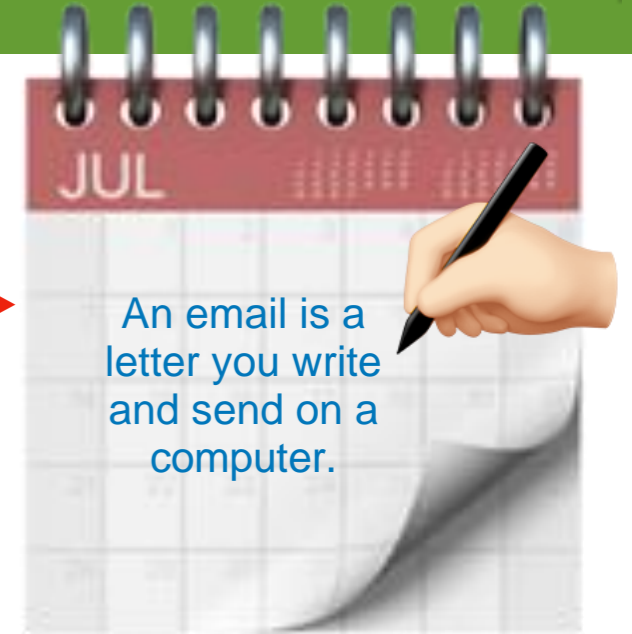
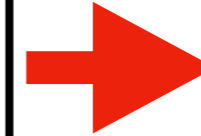
- Can you name different types of technology inside and outside school?
- Can you go online?
- Can you use Google to search?
- Can you use technology sensibly?

### We will learn:

- How technology is used in modern life.
- How we can find information.
- To send a digital message. (communicate online).
- Who we can trust online.
- Who we can ask for help.
- To use the internet safely and sensibly.
- To keep personal information private.
- Who makes the things we see online.

### Did you know?

The first email was sent in 1971. That's 50 years ago! It was sent by computer engineer Ray Tomlinson in 1971, the email was simply a test message to himself. The email was sent from one computer to another computer sitting right beside it in Cambridge, Massachusetts, but it traveled via ARPANET, a network of computers that was the precursor to the Internet. Email started to become popular in the 1990s, way before you were even born!



### What do you think?

The internet and the web were both invented to communicate with others. They have created lots of new ways for us to communicate. What does "communication" mean? Being able to send messages and talk to other people is an important part of modern life. At the touch of a button we have the ability to instantly get in touch with almost anyone, anywhere on the planet. **Circle the types of communication you have heard of:**



Tweet



Text Message



Zoom



FaceTime



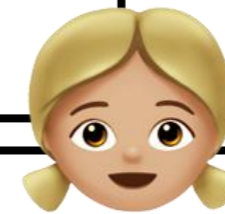
eMail



DM



WhatsApp



### Who can you talk to and play games with online? Who can you trust online?



Nan and Grandad?



Your friends?

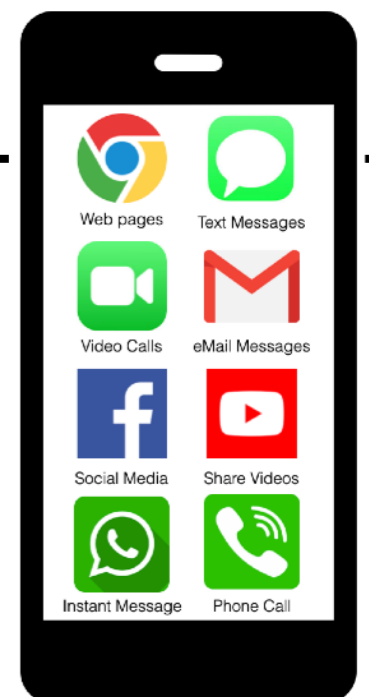


Your Family (mum, dad and older brothers or sisters)?



A stranger?

Asking for help. If you are feeling; worried, scared or sad when online, ask a grown-up you trust for help or support. That could be your parents, a teacher or a teaching assistant.





### Important Words:

#### Bluetooth

Is a way of wirelessly exchanging data over short distances.

#### Chat

To talk online in a friendly or easy manner.

#### Communication

To exchange thoughts, ideas, or information online. This could be talking, photos, video or text.

#### Digital

Storing, using, or sending information electronically in the form of numbers. A computer is a digital device.

#### Download

A computer file that is sent from one computer to another. She keeps all of her downloads in one folder.

#### Follow

To make friends with someone online and follow (see) what they share online.

#### Link

A button with a web address that when clicked will open that web page on your computer.

#### Online

Another name for using the internet or web.

#### Online bullying

The abuse and mistreatment of someone online.

#### Online game

A game that requires the internet. Also games were players can play against others who are not in the same room.

#### Personal information

Information about you, address, school, age, passwords etc.

#### Search

To use a search engine to find information online.

#### Send / Share

To send a message, photo or video using an online communication app to one or more people.

#### Sign-in / Log in

To join a particular online website or app. When signed in more features are available.

#### Trusted adult

A trusted adult is someone that you have a good relationship with. It is someone who you think has your best interests in mind. Parents and teachers etc.

#### Website

An information page online that can only be accessed using the internet.

#### Wireless (Wifi)

Is a way of connecting computers and digital devices to the internet and each other.

### Videos to watch:



There are lots of different ways to communicate. Watch video.



Just like in real life it's important to be polite and respectful when you are online. Watch video.



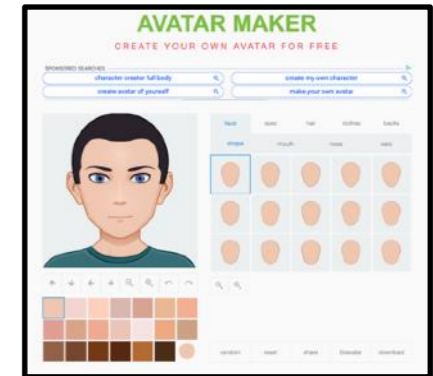
'CEOP - Lee and Kim - Animal Magic'. Watch video.



Sharing information online can sometimes come with risks.. Watch video.

### What is an avatar?

In computing, an avatar (also known as a profile picture or userpic) is a graphical image of a user or the user's character or persona. What reveals more personal information about you – your photo or your avatar? Why? Have a go at creating an avatar for yourself. Visit this website.



### What is personal & Private information?

There are 3 Types of Information. Introduce Public (information we can share online), Personal (information we need to think carefully about sharing, made up of our interests) and Private (information we should never share with people online).

### What Is Data?

The internet is full of information, facts and knowledge. When information is entered into and stored in a computer, it is generally referred to as data. The more you share online about yourself, the more data can be found about you by others!

Public	Personal	Private
<ul style="list-style-type: none"> <li>My first name</li> <li>My nickname</li> <li>My avatar picture</li> </ul>	<ul style="list-style-type: none"> <li>My favourite film</li> <li>Music I like</li> <li>What videos I watch</li> <li>My dog's name</li> <li>My favourite colour</li> <li>Favourite cake</li> <li>Where I've been on holiday</li> </ul>	<ul style="list-style-type: none"> <li>My birthday</li> <li>Home address</li> <li>Passwords</li> <li>Where I play</li> <li>Personal photos</li> <li>My full name</li> <li>Where I'm going on holiday</li> <li>My friend's photos</li> <li>My school / photos of my uniform</li> </ul>
Safe for anyone to read or share without you worrying	Carefully shared with others! Only friends.	Never to be shared!



### Good Tips for Keeping Safe Online

- Talk kindly online so you don't upset your friends.
- Only message friends so strangers don't contact you.
- Visit sites for children so you keep safe and have fun.
- Tap links carefully so you don't buy things by mistake.
- Take lots of breaks regularly so your eyes get rest and your body gets exercise.

### Remember the SMART Rules!

**Be smart on the internet**

**S SAFE** Keep safe by being careful not to give out personal information – such as your full name, email address, phone number, home address, photos or school name – to people you are chatting with online.

**M MEETING** Meeting someone you have only been in touch with online can be dangerous. Only do so with your parents' or carers' permission and even then only when they can be present.

**A ACCEPTING** Accepting emails, IM messages, or opening files, pictures or texts from people you don't know or trust can lead to problems – they may contain viruses or nasty messages!

**R RELIABLE** Information you find on the internet may not be true, or someone online may be lying about who they are.

**T TELL** Tell your parent, carer or a trusted adult if someone or something makes you feel uncomfortable or worried, or if you or someone you know is being bullied online. You can report online abuse to the police at [www.thinkuknow.co.uk](http://www.thinkuknow.co.uk)

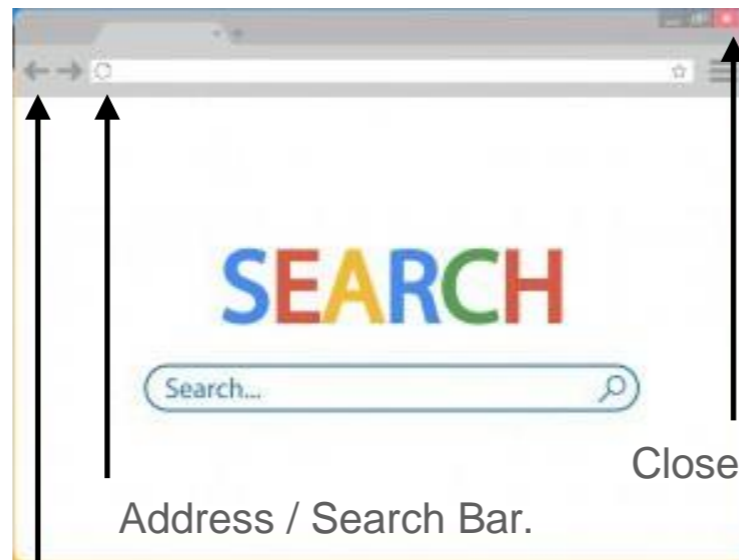
Visit Childnet's KidSMART website to play interactive games and test your online safety knowledge. You can also share your favourite websites and online safety tips by Joining Hands with people all around the world.

### How Do You Use a Web Browser?

What is a web browser? Web browsers are used by people to find and look at websites on the internet. Here are some of the most popular browser apps.



Chrome Safari Edge Firefox



Back / Forward Buttons



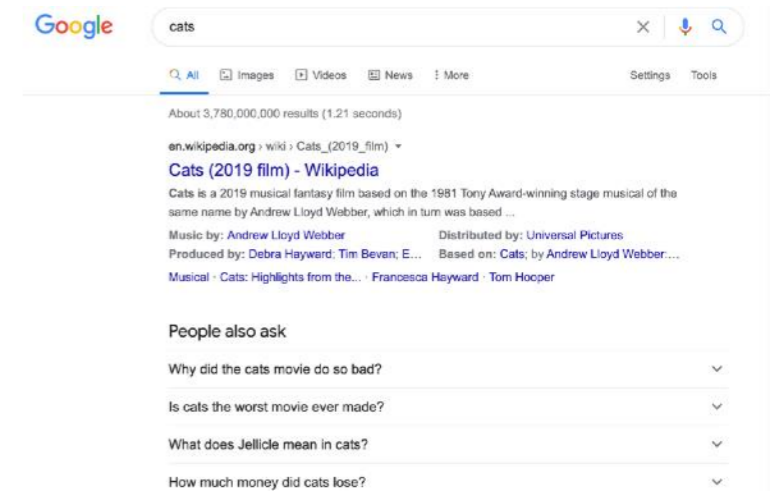
An introduction to the features found on popular browser programs. Watch the BBC video "What is a browser?".

### What is a Search Engine?

Search engines are special websites that have indexed billions of web pages. Search engines make it easy for you to find the information you need instantly. There are quite a few search engines, here are just a few.



To use a search engine you type a question or use simple keywords. Then press search.



Here I typed in the keyword "cats". Now I can look at web pages about cats, photos with cats in or even videos with cats doing funny things.