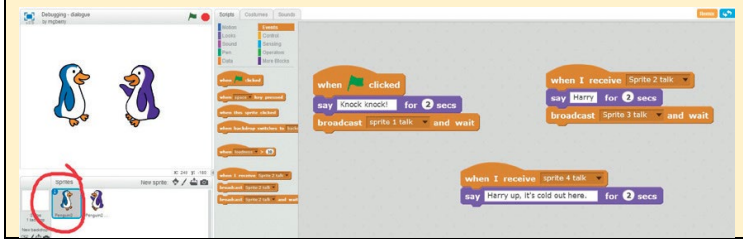
Year 3 We Are Bug Fixers.

Subject Specific Vocabulary

Algorithm	A process or set of rules to be followed in calculations or other problem-solving operations, especially by a computer.
Bugs	An error in a computer program or system.
Debug	Identify and remove errors from (computer hardware or software).
Instruction	Detailed information about how something should be done or operated.
Program	A series of coded software instructions to control the operation of a computer or other machine.
Script	An automated series of instructions carried out in a specific order.

Unit Overview:
In this unit, the children work with six example Scratch projects. They explain how the scripts work, finding and correcting errors in them, and explore creative ways of improving them. The children learn to recognise some common types of programming error, and practise solving problems through logical thinking.



Software and Tools

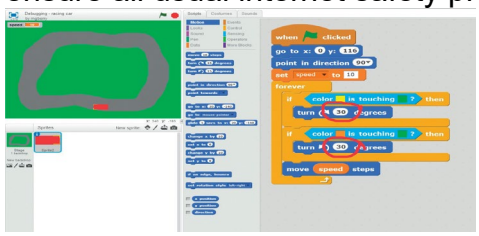
- Scratch is free open source software. Download Scratch 1.4 from http://scratch.mit.edu/scratch_1.4 or use Scratch 2.0 online at http://scratch.mit.edu/projects/editor.
- Pyonkee is also free to download on ipads.

Information and ideas

- Miles Berry's Scratch project directory: http://scratch.mit.edu/studios/306100.
- There are many further debugging challenges on the Scratch site. See http://scratch.mit.edu/search/google_results/
- ?q=debugging and http://scratch.mit.edu/studios/219583.

E- Safety

- Pupils don't need accounts to download Scratch 1.4 or to use Scratch 2.0 or Pyonkee.
- If pupils do register for accounts, they need to give a parent's or carer's email address.
- If pupils upload screencasts of their solutions, make sure you take the usual precautions to protect their identity.
- If pupils use the web for research (see *Extensions*), ensure all usual internet safety protocols are in place.



Sticky Knowledge about Finding and correcting bugs in programmes.

- I can correct 'off-by-one' mistakes in a program.
- I can make a simple drawing program work better.
- I can put the dialogue in a program in the right order.
- I can try out different variables in a simulator game's program.
- I can describe how a simple maths, drawing or dialogue program works.
- I can correct a program so the animation is more realistic.
- I can describe how a simulator game's program works.
- I can explain how I correct 'bugs' in a program.
- I can explain how the steps in a program are linked.
- I can explain how I correct the order of dialogue in a program.
- I can describe how a 'Pong'-style program works.
- I can suggest reasons for the 'bug' in the simulator game's program.

Year 3 We Are Network Engineers.

Subject Specific Vocabulary

Command prompt	A command prompt is a command line interpreter application available in most Windows operating systems. It's used to execute entered commands.
Internet	A global computer network providing a variety of information and communication facilities
IP Address	A unique string of numbers separated by full stops that identifies each computer using the Internet
Network	A number of interconnected computers or machines.
Packet of data	Everything you do on the Internet involves packets. ... The packets carry the data in the protocols that the Internet uses.
Wi-fi	A facility allowing computers, smartphones, or other devices to connect to the Internet or communicate with one another wirelessly within a particular area.
Ping	Query (another computer on a network) to determine whether there is a connection to it.
Router	A device which forwards data packets to the appropriate parts of a computer network.

<u>Unit Overview</u>:
In this unit, the pupils investigate how computer networks work. They use a simulation and learn some simple command prompt (C:) tools for testing network connections.

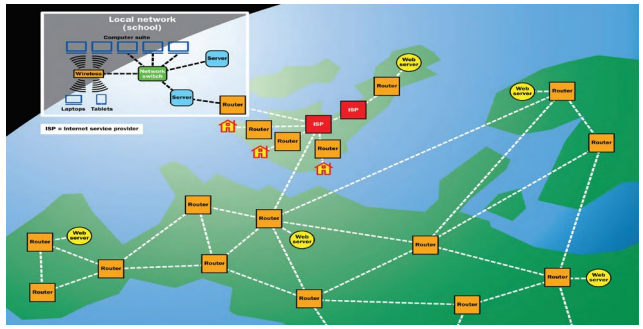
Software and Tools

Sites offering access to networking tools via the
web:

- http://centralops.net/co,
- www.ultratools.com,
- http://network-tools.com.

(The information returned is for the web server and not the computer you're accessing them from.)

Raspberry Pi: www.raspberrypi.org.

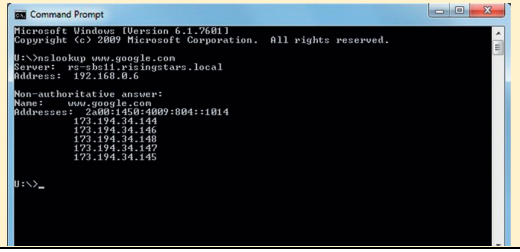


E- Safety

Emphasise that the pupils should not change settings or alter files on computers unless they have permission and can undo any harm done.
It's tricky to set a balance between encouraging experimentation and ensuring safe, respectful and responsible use.

Sticky Knowledge about .

- I can name some of the hardware that connects computers.
- I can take part in an activity to show how data passes across the internet.
- I can use the ping, ipconfig and tracert commands.
- I can see and understand how networks keep me safe online.
- I can describe the way hardware works to connect computers.
- I can describe how data passes across the internet.
- I can describe how the ping, ipconfig and tracert commands are used.
- I can see how I must be careful about sharing things about myself on the internet.
- I can talk about how my classroom computer is linked to a web server abroad.
- I can talk about some of the different ways data is passed across the internet.
- I can talk about the output from the ping, ipconfig, tracert and nslookup commands.



Year 3 We Are Communicators.

Subject Specific Vocabulary

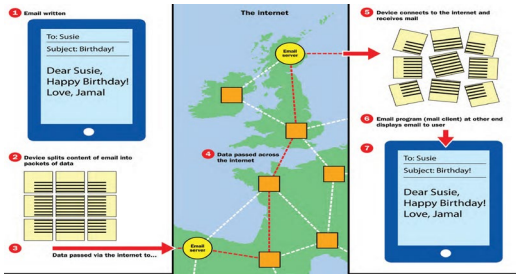
Attachment	A computer file added to an email.
Email	The system of sending messages by electronic means.
E-safety	Being aware of how to stay safe online.
Video conference	A conference in which participants in different locations are able to communicate with each other in sound and vision.
Virus	A piece of code which is cause harm, such as corrupting the system or destroying data.
Spam	Irrelevant or unsolicited messages sent over the Internet
Spoofed link	A spoofed website describes one website that poses as another. It is fake.

Unit Overview:
This unit allows the children to learn about a number of e-safety matters in a positive way. They will work with a partner in another class, learning how to use email and video conferencing safely.

Software and Tools

Online tutorials
Gmail tutorial: https://support.google.com/mail/?hl=en-GB - topic=3394144.

Google's *The Story Of Send* (www.google.com/green/storyofsend/desktop) is an overview of how their web-based email works. You can navigate through the sequence by clicking on the progress bar at the bottom of the screen.



E- Safety

Ensure that the children are made aware of email etiquette and the dangers of spoofed links and malware via attached files. You may find this guidance useful: www.thinkuknow.co.uk/8_10/control/email.

You should familiarise yourself with the e-safety features of your email software.

Sticky Knowledge about communicating safely on the internet.

- I can see how email and video conferencing work on the internet.
- I can use email and video conferencing to communicate.
- I can write an email and speak on video to communicate with others.
- I can follow my school's rules and use email and video conferencing safely
- I can see that the internet and the web are different.
- I can work with my partner well.
- I can show respect for my partner's ideas.
- I can let my teacher know if I am unsure about something in an email.
- I can work independently with my partner to plan our work.
- I can tell my partner what I think does and doesn't work.
- I can explain some of the dangers of emails and opening email attachments.


The first types of animals that we found in the woodland habitat were insects. This is a photo of the floor of the woodland where we started looking for the insects. I thought that a spider was an insect but it wasn't!

Year 3 We Are Opinion Pollsters.

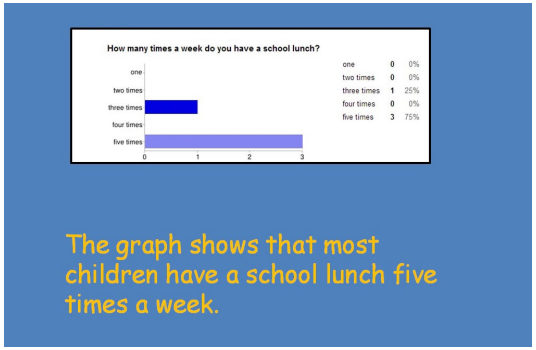
Subject Specific Vocabulary

Chart	A sheet of information in the form of a table, graph, or diagram
Data	Facts and statistics collected together for reference or analysis.
Graph	A diagram showing the relation between variable quantities, typically of two variables, each measured along one of a pair of axes at right angles.
Opinion	A view or judgement formed about something.
Questions	A sentence worded or expressed so as to elicit information
Rating Scale	A rating scale is a set of categories designed to elicit information.
Research	A detailed study of a subject, especially in order to discover new information.
Survey	A data collection tool used to gather information about individuals.

Unit Overview: In this unit, the children create their own opinion poll, seek responses, and then analyse the results.

Software and Tools

Background information on surveys:
www.socialresearchmethods.net/kb/survwrit.php

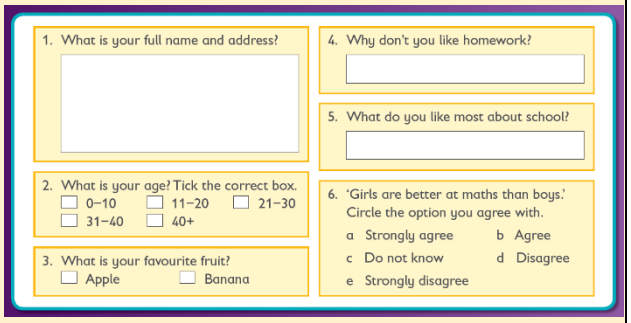


E- Safety

Discuss the ethics of surveys. Children could also relate this to data privacy and protection.
Emphasise that surveys should not include questions that could allow a person to be identified.
Talk through the responsibility of completing the survey sensibly, giving frank and honest answers.
Emphasise that the children can choose not to complete surveys and they may choose not to answer any question.

Sticky Knowledge about collecting and analysing data.

- I can collect data through the internet.
- I can show respect for the information people tell me.
- I can use software to collect data and present the results of my data.
- I can explain how I have used the web to work with others on documents.
- I can judge how useful my survey forms and presentations are.
- I can move information between different applications.
- I can look at data and explain what it shows me.
- I can explain how a Google data centre server and the internet collect and deliver data.
- I can see how important it is to keep a person's data private.
- I can judge my data and see what does and doesn't look right.
- I can work independently to collect, present and judge data.



Year 3 We Are Programmers.

Subject Specific Vocabulary

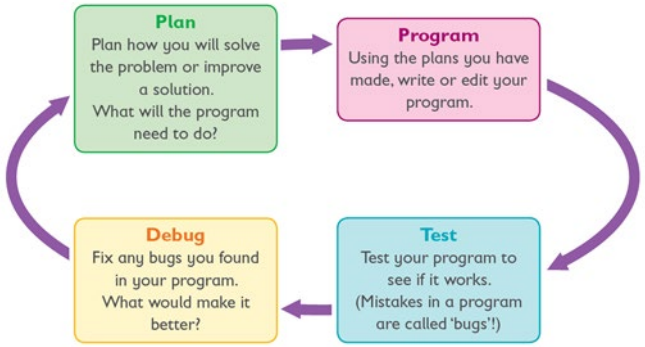
Algorithm	An algorithm is a clear sequence of instructions that allows a computer to solve a problem.
Animation	The technique of photographing successive drawings or positions of puppets or models to create an illusion of movement when the film is shown as a sequence.
Input	Any information or data that is sent to a computer for processing.
Output	Data generated by a computer.
Program	A computer program is a collection of instructions that performs a specific task when executed by a computer.
Script	The written text of a play, film, or broadcast.
Storyboard	A storyboard is a visual representation of how the story depicted in the movie or animation will be told.

Unit Overview: In this unit, the children create an animated cartoon using characters they design. They use a paint tool to create characters and backgrounds. They then create an animation by translating a storyboard into a series of scripted instructions (program) for graphic objects.

Software and Tools

Sites that make extensive use of animation and videos: www.brainpop.co.uk
www.bbc.co.uk/bitesize/ks2
www.explania.com/en

Examples of Scratch animations online at:
http://scratch.mit.edu/explore/projects/animations

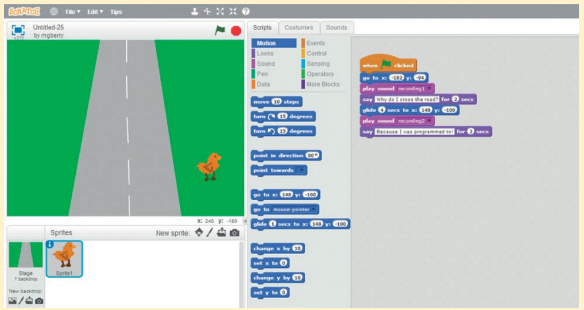


E- Safety

Exploring online animation galleries may expose the children to inappropriate content. Talk about what to do if they see something inappropriate. Such as - 'turn the screen off/turn the tablet over and put your hand up'. Review the appropriateness of any animations you show, including the related comments. Tools such as or YouTube's own safety mode can be used to remove comments when videos are shown in class.

Sticky Knowledge about programming an animation.

- I can create a storyboard for an animation.
- I can include action and dialogue in my storyboard.
- I can write a computer program for an animation.
- I can put Scratch blocks in the right order.
- I can correct mistakes in my program.
- I can create sound and graphics for my animation.
- I can explain how my storyboard and program are linked.
- I can use a repeat block in my program.
- I can find and correct 'bugs' in my program.
- I can upload my animation to the Scratch website.
- I can get ideas from the Scratch website.



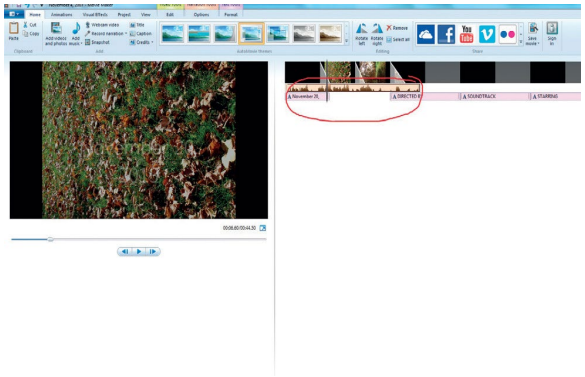
Year 3 We Are Presenters.

Subject Specific Vocabulary	
Audio	Relating to sound.
Close-up	A photograph or video taken at close range.
Editing	Arranging, revising, and preparing a written, audio, or video material for final production.
Footage	Footage of a particular event is a film of it or the part of a film which shows this event.
Panning	To photograph or televise while rotating a camera on its vertical or horizontal axis in order to keep a moving person or object in view or allow the film to record a panorama.
Shooting	The action of filming or photographing a scene, film, etc.
Video Camera	A video camera is camera used to make electronic motion picture.
Zooming	To change smoothly from a long shot to a close-up or vice versa.
Unit Overview: This unit gives the children a chance to make a short narrated video of themselves practising a sport or other skill, and to use this to help improve their performance.	

Software and Tools

BBC's iPlayer might be useful for reviewing sporting video clips: www.bbc.co.uk/iplayer

www.mediacollege.com/video
(Provides a good introduction to video and editing techniques).



E- Safety

Discuss consent for sharing videos online. Never include any information in the videos that might identify children.

Sticky Knowledge about videoing performance.

- I can work a video camera.
- I can record footage to use in my video.
- I can upload and edit my footage on a computer.
- I can record an audio commentary for my video.
- I can study sports programmes to learn how they are filmed.
- I can record high quality footage.
- I can record an audio commentary with useful information in it.
- I can export my final video in a standard format.
- I can look at my footage and decide what does and doesn't work.
- I can record original and interesting footage.
- I can use and explain data in my audio commentary.
- I can use more difficult editing tools, e.g. creating transitions.