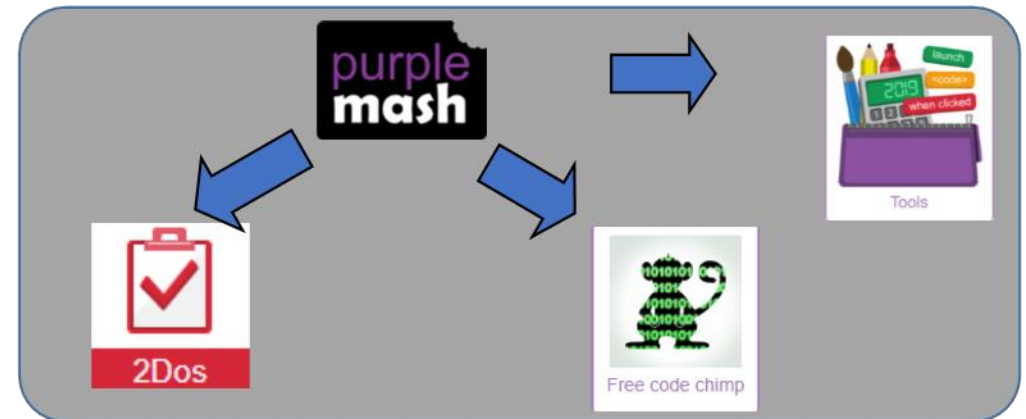


## Unit: 2.1 – Coding

### Key Learning

To understand what an algorithm is.  
To design algorithms and then code them.  
To compare different object types.  
To use the repeat command.  
To use the timer command.  
To know what debugging is and debug programs.

### Key Resources



### Key Vocabulary

**Action** - Types of commands, which are run on an object. They could be used to move an object or change a property.

**Algorithm** - A precise step by step set of instructions used to solve a problem or achieve an objective.

**Bug** - A problem in a computer program that stops it working the way it was designed.

**Character** - A type of object in 2Code that can be programmed to change actions or properties.

**Code block** - A group of commands that are joined together and are run when a specific condition is met or when an event occurs.

**Code Design** – Design what your program will look like and what it will do.

**Command** - A single instruction in a computer program.

**Debug/Debugging** - Looking for any problems in the code, fixing and testing them.

**Design Mode** - Used to create the look of a 2Code computer program when it is run.

**Input** - Information going into the computer. Can include moving or clicking the mouse, using the keyboard, swiping and tilting the device.

**Object** - An element in a computer program that can be changed using actions or properties.

**Properties** – All objects have properties that can be changed in design or by writing code e.g. image, colour and scale properties.

**Repeat** - This command can be used to make a block of commands run a set number of times or forever.

**Scale** - The size of an object in 2Code.

**Timer** - Use this command to run a block of commands after a timed delay or at regular intervals.

**When clicked** - An event command. It makes code run when you click on something (or press your finger on a touchscreen).

**When Key** - An event command. It makes code run when you press the specified key on the keyboard.



## Unit: 2.1 – Coding

### Key Images

Open the main menu



Save your work



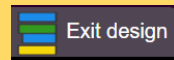
Watch the instruction video



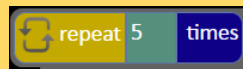
Open design mode in 2Code



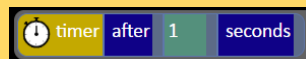
Switch to code mode in 2Code



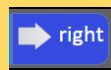
A repeat code block



A timer code block



An object property



### Key Questions

What is an algorithm? Why is it useful in coding?

An algorithm is a step-by-step set of instructions used to solve a problem or achieve an objective.

A clear algorithm can help you to create code that does what it is supposed to do.

Can you explain what the repeat command and the timer command do?

A repeat command will repeat actions a specified number of times.

A timer will repeat every time the timer fires this could be **every** 4 seconds or **after** a certain number of seconds.

If you are good at coding, you don't need to debug. Is **this true?**

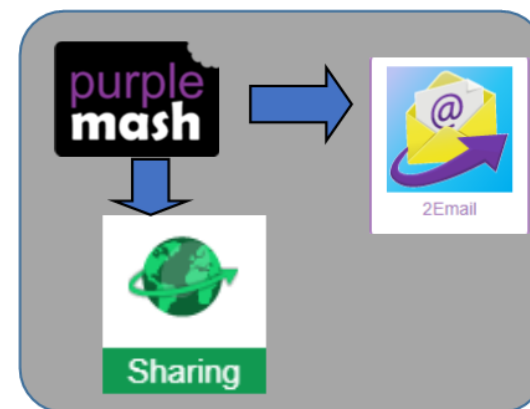
All coders need to debug to make sure that their program works correctly, and the code does what they intended. As you get better at coding, your programs will get more complex and debugging gets even **more** important.

## Unit: 2.2 – Online Safety

### Key Learning

- To know how to refine searches using the Search tool.
- To use digital technology to share work on Purple Mash to communicate and connect with others locally.
- To have some knowledge and understanding about sharing more globally on the Internet.
- To introduce Email as a communication tool using 2Respond simulations.
- To understand how we should talk to others in an online situation.
- To open and send simple online communications in the form of email.
- To understand that information put online leaves a digital footprint or trail.
- To identify the steps that can be taken to keep personal data and hardware secure.

### Key Resources



### Key Vocabulary

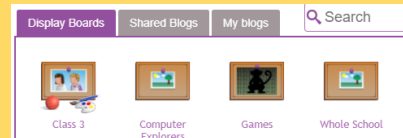
- Search** – Look for information in (in a database or the World Wide Web) using a search engine.
- Displayboard** – In Purple Mash, this is a tool that enables you to share work with a wide audience.
- Internet** – A way to send information from one computer to another anywhere in the world using technology such as phones, satellites and radio links.
- Sharing** – Post or repost (something) on a website.
- Email** – Messages distributed by electronic means from one computer user to one or more people.
- Attachment** – A computer file sent with an email.
- Digital Footprint** – The information about a person that exists on the Internet as a result of their online activity.



## Unit: 2.2 – Online Safety

### Key Images

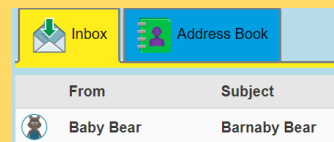
Display Board



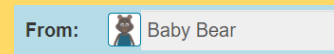
Search Bar



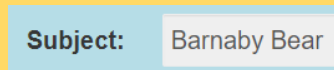
Inbox



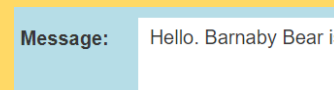
Email sender



Email subject



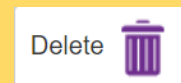
Email message



Send the email



Delete the email



### Key Questions

Why is a search bar useful?

The search bar on Purple Mash or on a website helps the user to quickly find the resources they are looking for.

What is an email?

An email is a way of sending messages electronically from one device to another. An email can have items such as pictures and videos attached to it.

What is meant by my Digital Footprint?

A digital footprint is a term used to describe the traces of yourself that you leave online. With every website you visit, you leave a trail or footprint showing that you've been there.



## Unit: 2.3 – Spreadsheets

### Key Learning

To use 2Calculate image, lock, move cell, speak and count tools to make a counting machine.

To learn how to copy and paste in 2Calculate.

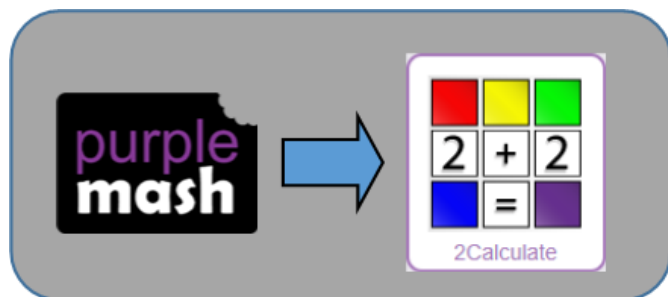
To use the totalling tools.

To use a spreadsheet for money calculations.

To use the 2Calculate equals tool to check calculations.

To use 2Calculate to collect data and produce a graph.

### Key Resources



### Key Vocabulary

**Backspace key** – Use this key to delete the character before the current cursor position.

**Copy and Paste** – A way to copy information from the screen into the computer's memory and paste it elsewhere without re-typing.

**Columns** – Vertical reference points for the cells in a spreadsheet.

**Cells** – An individual section of a spreadsheet grid. It contains data or calculations.

**Count Tool** – In 2Calculate, this counts the number of cells with a value that matches the value of the cell to the left of the tool.

**Delete key** - Use this key to remove the contents of a cell.

**Equals tool** – Tests whether the entered calculation in the cells to the left of the tool has the correct answer in the cell to the right of the tool.

**Image Toolbox** – Use this to insert images into cells.

**Lock tool** – This tool prevents cell values being changed.

**Move cell tool** – This tool makes a cell's contents moveable by drag-and-drop methods.

**Rows** - Vertical reference points for the cells in a spreadsheet.

**Speak Tool** – This tool will speak the contents of a cell containing a number each time the value changes.

**Spreadsheet** - A computer program that represents information in a grid of rows and columns.



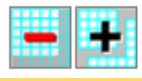
## Unit: 2.3 – Spreadsheets

### Key Images

Open the main menu 

Save your work 

Open a previously saved file 

Increase or decrease spreadsheet size 

2Calculate toolbox 

2Calculate control toolbox 

Move Cell 

Speak 

Lock Cell 

Count 

Equals 

2Calculate totalling toolbox 

Totalling  Copying 

### Key Questions

Why would you copy and paste when using a spreadsheet?

You might want to rearrange the information in the spreadsheet.

It will save you entering the same information many times if you want to repeat things in different cells.

How could a spreadsheet help you when you are planning some shopping?

Yes, you could use it to store the process and work out how much it would cost to buy the things that you wanted.

Look at the graph made in 2Calculate showing the class' favourite pets. Which is the most popular?

			Jan		
	Ming		Maia		
	Meer		Katie		Noah
Leonard	Zack		Oscar	Mohammed	Casey
Petra	Jay	Harriet	Ishaq	Rina	Eve
					
		Favourite	Pets		



## Unit: 2.4 – Questioning

### Key Learning

To learn about data handling tools that can give more information than pictograms.

To use yes/no questions to separate information.

To construct a binary tree to identify items.

To use 2Question (a binary tree database) to answer questions.

To use a database to answer more complex search questions.

To use the Search tool to find information.

### Key Vocabulary

Pictogram – A diagram that uses pictures to represent data.

Question – A sentence written or spoken to find information.

Data – Facts and statistics collected together that can provide information.

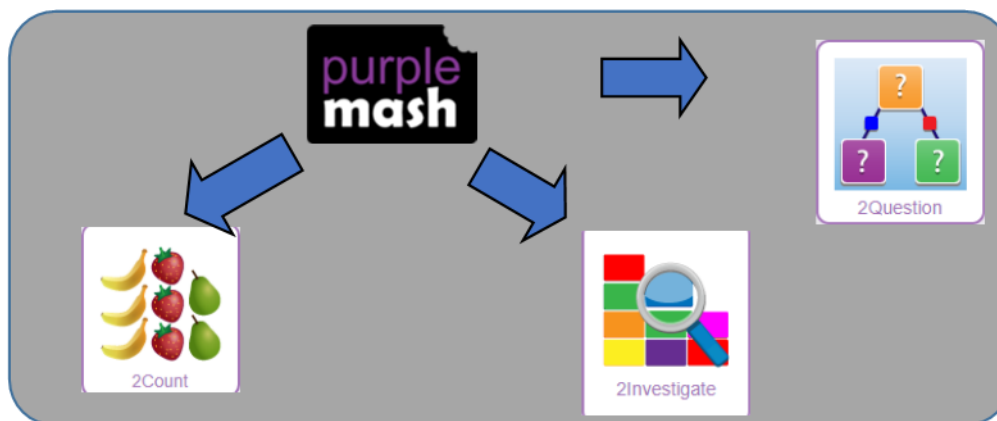
Collate – Collect and combine (texts, information, or data).

Binary Tree – A simple way of sorting information into two categories.

Avatar – An icon or figure representing a person in a video game, Internet forum or other online format.

Database – A computerised system that makes it easy to search, select and store information.

### Key Resources

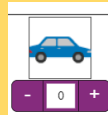




## Unit: 2.4 – Questioning

### Key Images

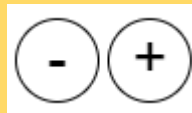
Enter data into a pictogram.



Open, Save and share information.



Add or delete columns in a pictogram.



Add a question to sort the information in a binary tree.



Give a name to the binary tree.



Find information in a database.



Sort, group and arrange information in a database.



### Key Questions

How does a Pictogram show information?

On a pictogram, data is represented by pictures. Pictograms are set out in the same way as bar charts, but instead of bars they use columns of pictures to show the numbers involved.

How is information organised in a binary tree?

On a binary tree information is organised through a series of questions that can only be answered 'yes' or 'no'. Eventually only one item is left in the category which forms the end of a branch of the binary tree.

How can a database help organise information?

A database is a way of storing information in such a way that it can easily be searched. Databases are designed to hold lots of information that would be difficult to search without using a computer.





## Unit: 2.5 – Effective Searching

### Key Learning

To understand the terminology associated with searching.

To gain a better understanding of searching on the Internet.

To create a leaflet to help someone search for information on the Internet.

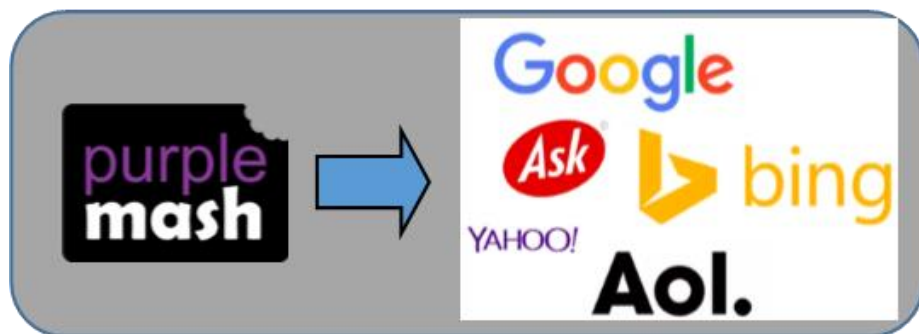
### Key Vocabulary

**Internet** – A global computer network providing a variety of information and communication facilities, consisting of interconnected networks and computers.

**Search** – Look for information in a database or the World Wide Web using a search engine.

**Search Engine** – A program that searches for and identifies items on the World Wide Web.

### Key Resources



### Key Questions

How can I search the Internet?

The easiest way to search the Internet is using a search engine. The search engine crawls the Internet looking for answers to the search enquiry. Google is a popular search engine.

## Unit: 2.6 – Creating Pictures

### Key Learning

To learn the functions of the 2Paint a Picture tool.

To learn about and recreate the Impressionist style of art (Monet, Degas, Renoir).

To recreate Pointillist art and look at the work of pointillist artists such as Seurat.

To learn about the work of Piet Mondrian and recreate the style using the lines template.

To learn about the work of William Morris and recreate the style using the patterns template.

### Key Vocabulary

**Impressionism** – The impressionist movement began in the 1860s and became most popular in the 1870s and 1880s. It differed from the common art of the time because it wasn't religious art, showing scenes from religious stories or specific events, but was just intended to capture a scene at a moment. The art gave an 'impression' of the scene.

**Palette** – Within computer graphics, this is the range of colours or shapes available to the user.

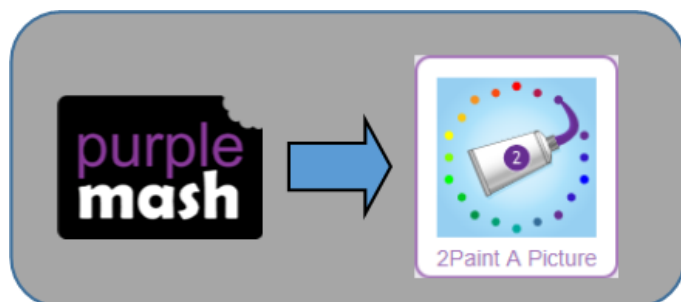
**Pointillism** – Pointillism was a development of impressionism. It was invented mainly by George Seurat and Paul Signac. Pointillist paintings are created by using small dots in different colours to build up the whole picture. Colours are placed near each other rather than mixed.

**Share** – An instance of posting or reposting something on a social media website or application.

**Surrealism** – Explored the subconscious areas of the mind. The artwork often made little sense as it was usually trying to depict a dream or random thoughts.

**Template** – Something that serves as a model for others to copy.

### Key Resources



## Unit: 2.6 – Creating Pictures

### Key Images

Choose the style you want to paint in.



Open, save and share your picture.



Choose a background for your picture.



Undo and redo.



Zoom in or zoom out.



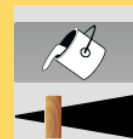
Outline options.



Eraser and colour palette.



Fill tool and pen thickness.



### Key Questions

What are the main features of Impressionism?

Impressionism is a style of painting that focuses on the effects of light and atmosphere on colours and forms. Impressionist artists often used broken brush strokes.

What are the main features of Pointillism?

Pointillism is a painting technique developed by the artist George Seurat. It involves using small, painted dots to create areas of colour that together form a pattern or picture.

What are the main features of Surrealism?

Surrealistic art is characterized by dream-like visuals, the use of symbolism and collage images. Several prominent artists came from this movement, including Renee Magritte, Salvador Dali, and Max Ernst.

## Unit: 2.7 – Making Music

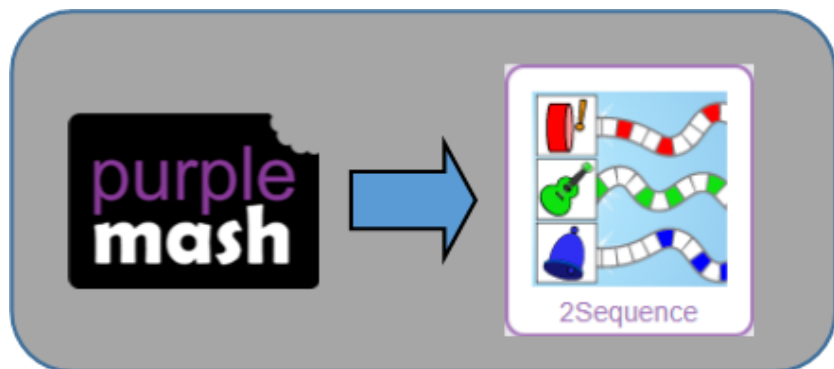
### Key Learning

- To make music digitally using 2Sequence.
- To explore, edit and combine sounds using 2Sequence.
- To edit and refine composed music.
- To think about how music can be used to express feelings and create tunes which depict feelings.
- To upload a sound from a bank of sounds into the Sounds section.
- To record and upload environmental sounds into Purple Mash.
- To use these sounds to create tunes in 2Sequence.

### Key Vocabulary

- Bpm – The number of beats played in a minute.
- Composition – A creative work, especially a poem or piece of music.
- Digitally – By means of digital or computer technology.
- Instrument – An object or device for producing musical sounds.
- Music – Vocal or instrumental sounds (or both) played alone or combined.
- Sound Effects (Sfx) – A sound other than speech or music made artificially for use in a play, film, or piece of music.
- Soundtrack – A recording of the musical accompaniment of a film.
- Tempo – The speed at which a passage of music is, or should be, played.
- Volume – How loud a piece of music is.

### Key Resources





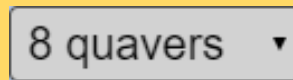
## Unit: 2.7 – Making Music

### Key Images

Open, save or share a piece of music.



Change the number of quavers in the music.



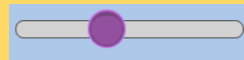
Loop or unloop the piece of music.



Play the composed tune.



Change the beats per minute in the music.



Increase or decrease the volume of an instrument.



Choose the digital instrument to use.



Delete the music.



### Key Questions

What is meant by digital music?

Digital music is made using a computer or other device. Digital music allows the computer to copy the sound made by instruments and combine them together to make a piece of music.

How can I change how my music sounds?

You can change how your digital music sounds in many ways. One way is to increase the tempo of the music or vary the volume of each instrument in the piece.

What is it meant by the tempo of the music?

Tempo is measured in BPM, or beats per minute. One beat every second is 60 BPM.

## Unit: 2.8 – Presenting Ideas

### Key Learning

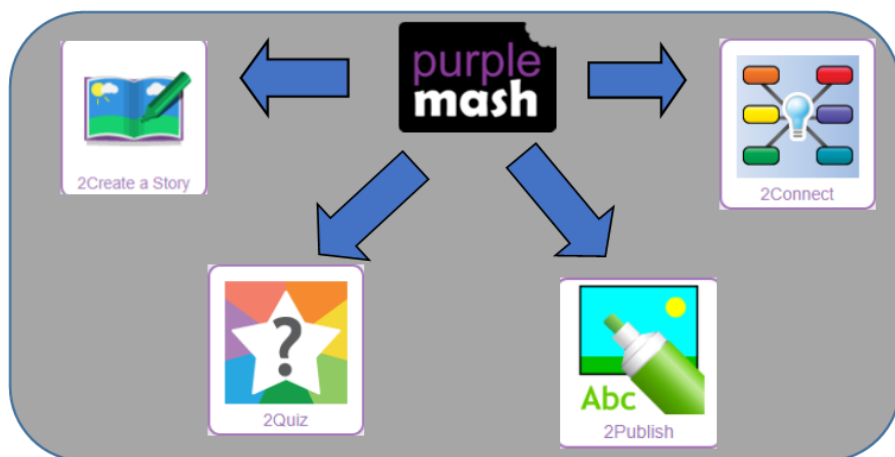
To explore how a story can be presented in different ways.

To make a quiz about a story or class topic.

To make a fact file on a non-fiction topic.

To make a presentation to the class.

### Key Resources



### Key Vocabulary

**Concept Map (Mind Map)** – A tool for organising and representing knowledge. They form a web of ideas which are all interconnected.

**Node** – A way to represent a concept or idea using text and/or images.

**Animated** – A process by which we see still pictures appear to move.

**Quiz** – A test of knowledge, especially as a competition between individuals or teams as a form of entertainment.

**Non-Fiction** – Informative or factual writing.

**Presentation** – A speech or talk in which a new product, idea, or piece of work is shown and explained to an audience.

**Narrative** – A speech or talk in which a new product, idea, or piece of work is shown and explained to an audience.

**Audience** – The people giving attention to something.

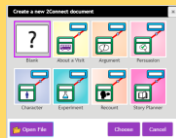
## Unit: 2.8 – Presenting Ideas

### Key Images

Open, close and share a file.



Create a new 2Connect document.



Node.



Collaboration (working together) on or off.



Choose a quiz question on 2Quiz.



Play the quiz.



Preview the quiz question.



Change the quiz settings.



### Key Questions

What do we need to think about when planning a presentation?

The important thing to consider is the audience. Think about how old they are and what they would find interesting. For younger children, a presentation with pictures may be more appropriate.

Why should I plan out my presentation?

Planning out your presentation allows you to make sure you have included all the information you need to. It is easier to do this in the planning phase rather than when you have started the presentation.