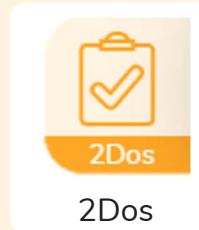


## Unit: 2.1 Coding

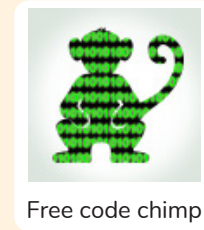
### Key Learning

- To understand what an algorithm is.
- To create a computer program using an algorithm.
- To create a program using a given design.
- To understand the collision detection event.
- To understand that algorithms follow a sequence.
- To design an algorithm that follows a timed sequence.
- To understand that different objects have different properties.
- To understand what different events do in code.
- To understand the function of buttons in a program.
- To understand and debug simple programs.

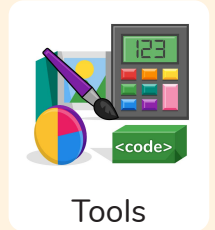
### Key Resources



2Dos



Free code chimp



Tools

### 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.

#### Background

The part of the program design that shows behind everything else. It sets the scene for the story or game.

#### Button

An object on the screen which can be clicked on.

#### Collision Detection

Detecting when two characters on the screen touch each other.

#### 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.

#### Event

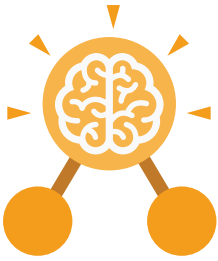
Something that causes a block of code to be run.

#### Key Pressed

Pushing down a key on the device's keyboard.

#### Nesting

When you write a command inside something else e.g. a block of commands could be nested inside a timer.



## Unit: 2.1 Coding

### Key Vocabulary

#### Object

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

#### Predict

Say what you think will happen when a piece of code is run.

#### Properties

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

#### Run

To cause the instruction in a program to be carried out.

#### Scale

The size of an object in 2Code.

#### Scene

A visual aspect of a program.

#### Sequence

When a computer program runs commands in order.

#### Sound

This is a type of output command that makes a noise.

#### Test

When code is run to check that it works correctly.

#### Text

Typed letters on the screen.

#### Timer

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

#### When clicked/swiped

An event command. It makes code run when you click or swipe on something (or press/swipe your finger on a touchscreen).

### 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.

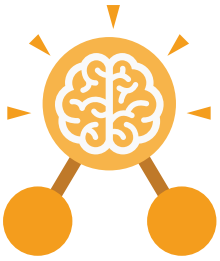
A clear algorithm can help you to create code that does what it is supposed to do.

#### Why is it important to know there are different object types?

Different object types can do different actions. For example, in 2Code, an animal object can do actions such as up, down and stop. A turtle goes forward, backward, pen down and pen up.

#### 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: 2.1

### Coding

#### Key Images



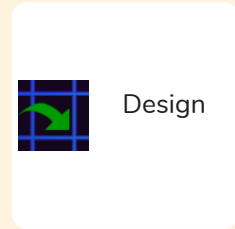
Open, close or share a file.



Save your work.



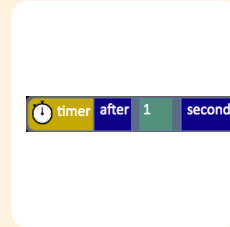
Watch the instruction video.



Open design mode in 2Code.



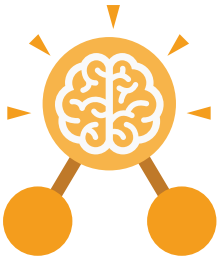
Switch to code mode in 2Code.



A timer code block.



An object property.



## 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



purple  
mash



Sharing



2Email

#### Key Vocabulary

##### Search

Look for information (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

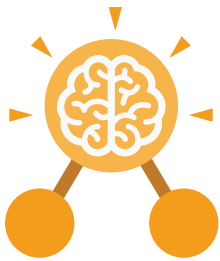
Messages distributed by electronic means from one computer user to one or more people.

##### Attachment

A computer file sent with an email.

##### Digital Footprint

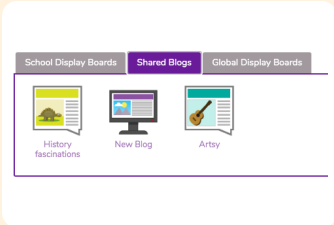
The information about a person that exists on the Internet as a result of their online activity.



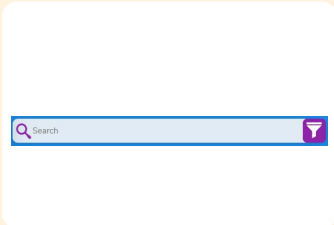
# Unit: 2.2

## Online Safety

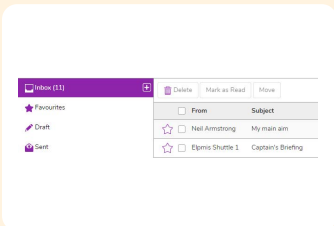
### Key Images



Display board



Search Bar



Inbox

From: Neil Armstrong

To: Kat Salisbury

Subject: My main aim

Message:

Hi,

My name is Neil Armstrong. I was the first person to walk on the Moon. I was also an engineer, test pilot and a professor at a university.

Why do you think that I wanted to explore space and walk on the moon?

Yours sincerely,

Neil Armstrong

Buttons: Reply, Reply To All, Forward, Full conversation, Print, Delete, Close

### Key Questions

#### Why is a search bar useful?

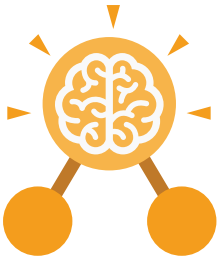
The search bar on Purple Mash or on a website helps the user to quickly find the resources they are looking for.

#### 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.

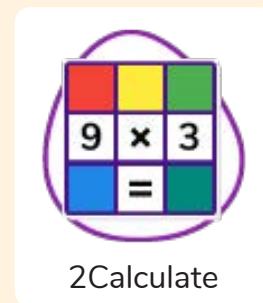


## Unit: 2.3 Spreadsheets

### 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 Questions

#### Why would you copy and paste when using a spreadsheet?

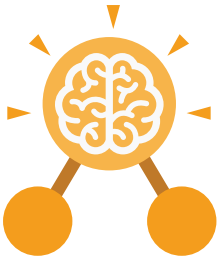
You might want to rearrange the information in the spreadsheet. It will save you entering the same information many times if you want to repeat things in different cells.

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

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: 2.3

### Spreadsheets

#### 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

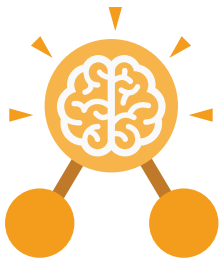
Vertical reference points for the cells in a spreadsheet.

##### 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



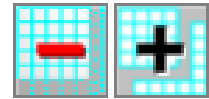
Open, close or share a file



Save your work



Open a previously saved file



Increase or decrease spreadsheet size



The 2Calculate toolbox



The 2Calculate control toolbox



Move cell tool



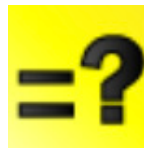
Lock cell tool



Speak tool



Count tool



Equals



2Calculate totalling toolbox



Totalling



Copying





## 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 Resources



2Count



2Investigate



2Question

#### 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

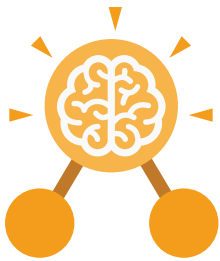
A simple way of sorting information into two categories.

##### 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.



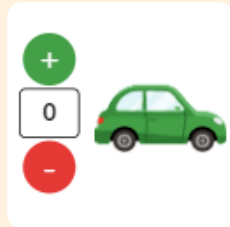
## Unit: 2.4

### Questioning

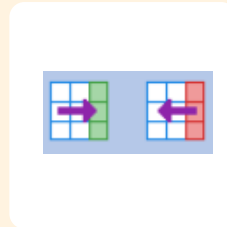
#### Key Images



Open, close or share information



Enter data into a pictogram



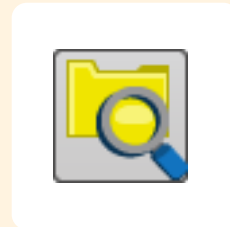
Add or delete columns in a pictogram



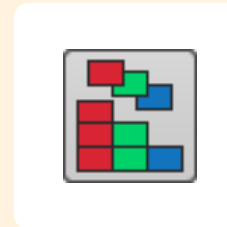
Add a question to sort the information in a binary tree



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?

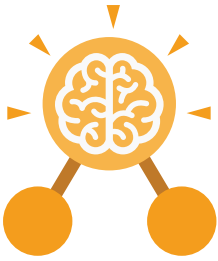
On a pictogram, data is represented by pictures. Pictograms are set out in the same way as bar charts, but instead of bars they use columns of pictures to show the numbers involved.

##### 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.



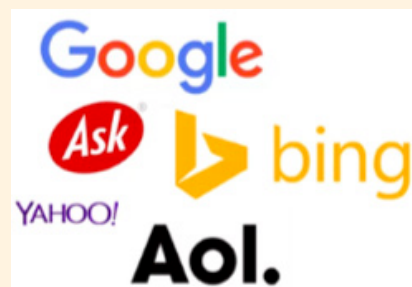
## Unit: 2.5

### 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 Resources



#### 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.

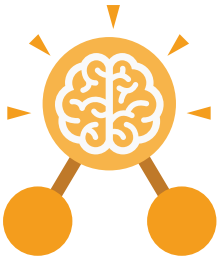
##### Search Engine

A program that searches for and identifies items on the World Wide Web.

#### Key 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.



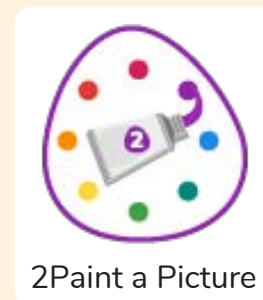
## Unit: 2.6

### 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.
- To explore surrealism and eCollage.

#### Key Resources



#### 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.

##### Share

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

##### Pointillism

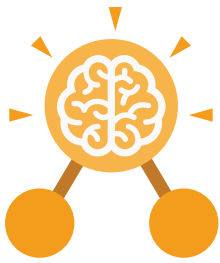
Pointillism was a development of impressionism. It was invented mainly by George Seurat and Paul Signac. Pointillist paintings are created by using small dots in different colours to build up the whole picture. Colours are placed near each other rather than mixed.

##### 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.



## Unit: 2.6

### Creating Pictures

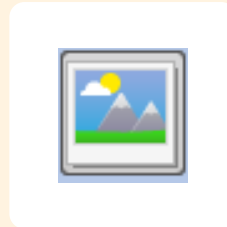
#### Key Images



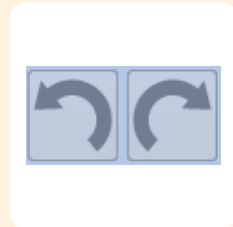
Choose the style you want to paint in



Open, Save and Share your picture



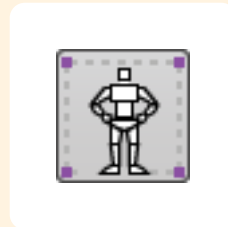
Choose a background for your picture



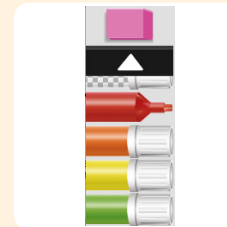
Undo and redo



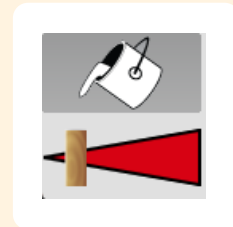
Zoom in and Zoom out



Outline options



Eraser and colour palettes



Fill tool and pen thickness

#### Key Questions

##### What are the main features of Impressionism?

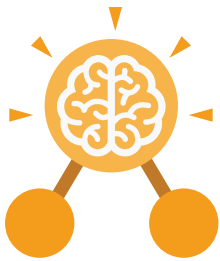
Impressionism is a style of painting that focuses on the effects of light and atmosphere on colours and forms. Impressionist artists often used broken brush strokes.

##### 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 Resources



#### Key Vocabulary

##### bpm

The number of beats played in a minute.

##### Instrument

An object or device for producing musical sounds.

##### Soundtrack

A recording of the musical accompaniment of a film.

##### Composition

A creative work, especially a poem or piece of music.

##### Music

Vocal or instrumental sounds (or both) played alone or combined.

##### Tempo

The speed at which a passage of music is, or should be, played.

##### Digitally

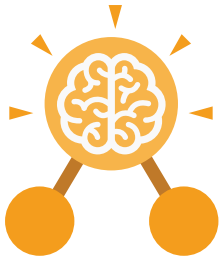
By means of digital or computer technology.

##### Sound Effects (Sfx)

A sound other than speech or music made artificially for use in a play, film, or piece of music.

##### Volume

How loud a piece of music is.



## Unit: 2.7

### Making Music

#### Key Images



Open, save and share a piece of your music



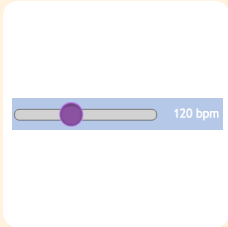
Change the number of quavers in the music



Loop or unloop the piece of music



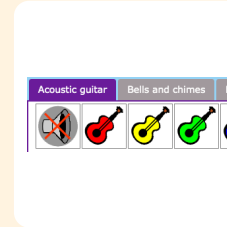
Play the composed tune



Changes 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?

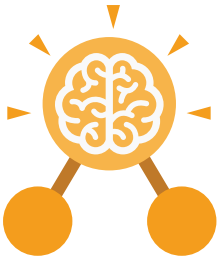
Digital music is made using a computer or other device. Digital music allows the computer to copy the sound made by instruments and combine them together to make a piece of music.

##### 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



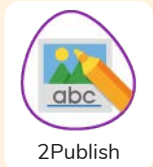
2Create a story



2Connect



2Quiz



2Publish

#### Key Vocabulary

##### Concept Map (Mind Map)

A tool for organising and representing knowledge. They form a web of ideas which are all interconnected.

##### Quiz

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

##### Narrative

A narrative (story or tale) is any account of a series of related events or experiences. This could be fictional or non-fictional.

##### Node

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

##### Non-Fiction

Informative or factual writing.

##### Audience

The people giving attention to something.

##### Animated

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

##### Presentation

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





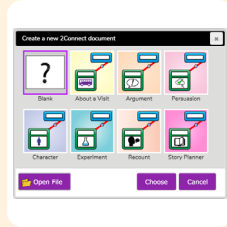
## Unit: 2.8

### Presenting Ideas

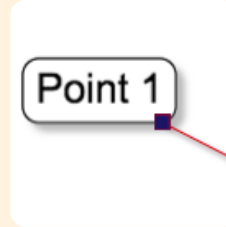
#### Key Images



Open, close and share a file



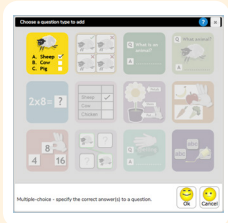
Create a new 2Connect document



Node



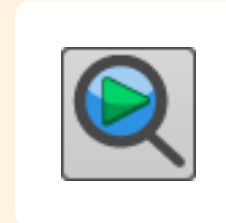
Collaboration (working together) on or off



Choose a quiz question on 2Quiz



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#### 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.