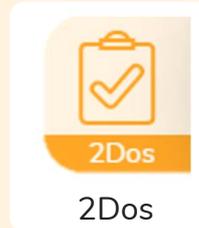


## Unit: 2.1 Coding

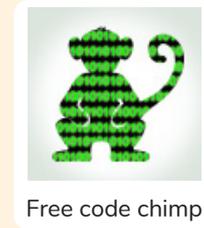
### Key Learning

- 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.

#### Bug

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

#### Collision detection

In 2Code, this measures whether 2 objects have touched each other.

#### Algorithm

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

#### Button

A type of object that responds to being clicked on.

#### Command

A single instruction in 2Code.

#### Event

An occurrence that causes a block of code to be run. The event could be the result of user action such as the user pressing a key or clicking the screen.

#### Background

In 2Code the background is an image in the design that does not change.

#### Click events

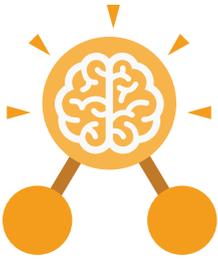
An event that is triggered when the user clicks on an object.

#### Debug / Debugging

Fixing code that has errors so that the code will run the way it was designed to.

#### Execute

This is the proper word for when you run the code. We say, 'the program (or code) executes.'



## Unit: 2.1

### Coding

#### Key Vocabulary

##### Implement

When a design is turned into a program using coding.

##### Instructions

Detailed information about how something should be done or operated.

##### Interaction

When objects perform actions in response to each other e.g. a frog turning into a monkey when it collides with a tree.

##### Interval

In a timer, this is the length of time between the timer code running and the next time it runs e.g. every 1 second.

##### Object

Items in a program that can be given instructions to move or change in some way (action).

##### Output

Information that comes out of the computer e.g. sound.

##### Properties

These determine the look and size of an object. Each object has properties such as the image, scale and position of the object.

##### Run

Clicking the Play button to make the computer respond to the code.

#### Key Questions

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

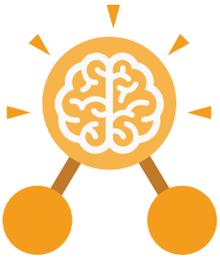
An algorithm is a step-by-step set of instructions used to solve a problem or achieve an objective.  
A clear algorithm can help you to create code that does what it is supposed to do.

##### 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

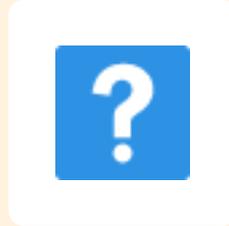
#### Key Images



Open, close or share a file.



Save your work.



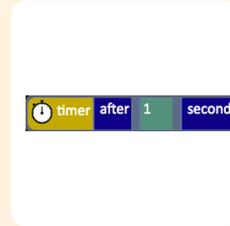
Watch the instruction video.



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

#### Attachment

A computer file sent with an email.

#### Filter

A feature of search engines, where a user can filter results according to criteria. For example, news, date published.

#### Private information

This is personal information that should be kept secure. For example, their date of birth, their full address, credit card numbers.

#### Digital footprint

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

#### Internet

A way to send information from one computer to another anywhere in the world using technology such as phones, satellites and radio links.

#### Search

Look for information (in a database or the World Wide Web) using a search engine.

#### Email

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

#### Personal information

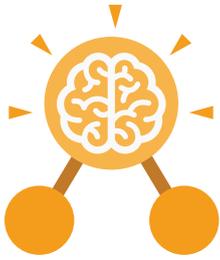
This is information that is personal to someone. For example, their favourite food, their name and age.

#### Secure

Users online should take steps to help keep their personal and private information secure.

#### Sharing

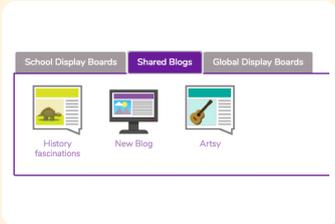
Post or repost (something) on a website.



# Unit: 2.2

## Online Safety

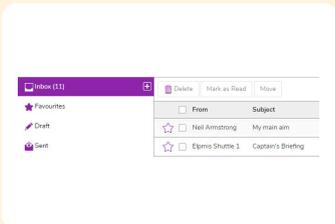
### Key Images



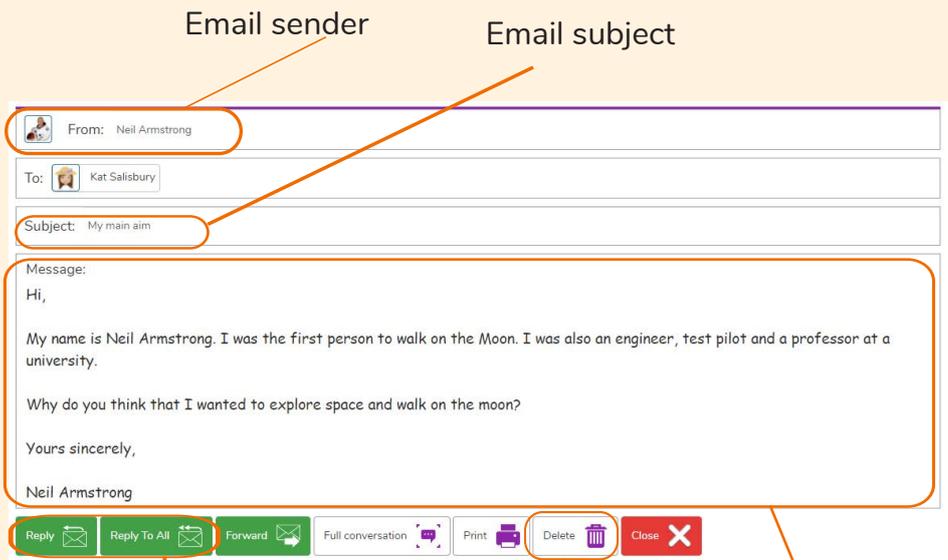
Display board



Search Bar



Inbox



Send the email

Delete the email

Email message

### Key Questions

#### Why is a search bar useful?

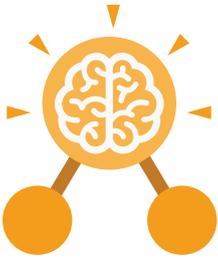
The search bar on Purple Mash or on a website helps the user to quickly find the resources they are looking for.

#### 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.



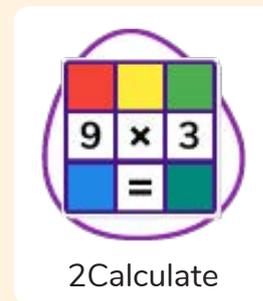
## Unit: 2.3

### 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?

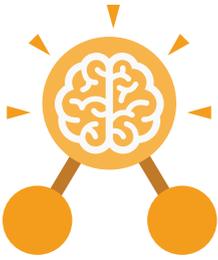
You might want to rearrange the information in the spreadsheet. It will save you entering the same information many times if you want to repeat things in different cells.

##### 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

##### Block Graph

This is a type of graph that displays data with blocks. These can be made using cells, colours and labels in 2Calculate.

##### Copy

This feature copies the contents of highlighted cells without deleting the contents of them into a clipboard.

##### Drag

Contents of a cell can be dragged to another cell using the drag tool in 2Calculate.

##### Label

A way to identify data in a spreadsheet. For example a label heading for ice cream flavours children like.

##### Table

Tables can be created in 2Calculate, these have headings and are a neat way to display data.

##### Cell

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 of the cell to the left of the tool.

##### Equals

This symbol can be used in 2Calculate to find the answer to a calculation.

##### Row

Vertical reference points for the cells in a spreadsheet.

##### Total

In 2Calculate the total tool will calculate the total of all cells above, below or next to it dependent on which total tool used.

##### Column

Horizontal reference points for the cells in a spreadsheet.

##### Data

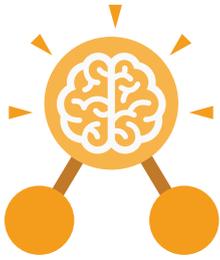
A collection of information, used to help answer questions.

##### 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.

##### Speak tool

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



# Unit: 2.3

## Spreadsheets

### Key Images



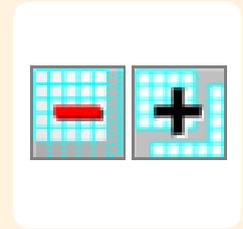
Open, close or share a file



Save your work



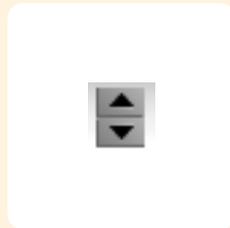
Open a previously saved file



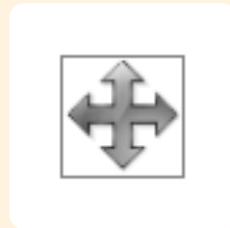
Increase or decrease spreadsheet size



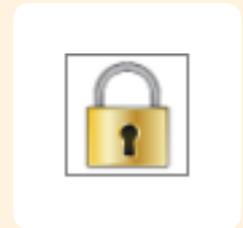
The 2Calculate toolbox



The 2Calculate control toolbox



Move cell tool



Lock cell tool



Speak tool



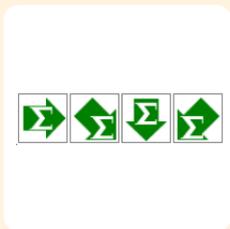
Count tool



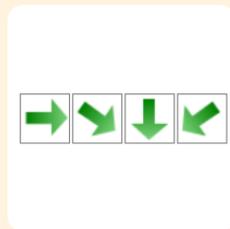
Equals



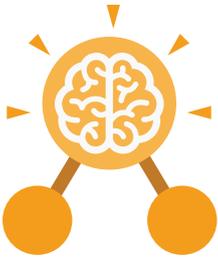
2Calculate totalling toolbox



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

##### Binary Tree

A simple way of sorting information into two categories.

##### Data

A collection of information, used to help answer questions.

##### Database

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

##### Field

A single piece of data in a database which makes up a record.

##### Pictogram

A diagram that uses pictures to represent data.

##### Question

A sentence written or spoken to find information.

##### Record

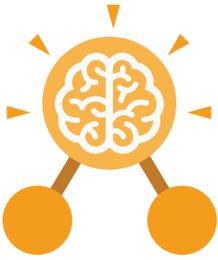
An item in a database with a variety of information about a specific entry.

##### Search

Looking for specific information. On a database, you can use the 'Find' tool.

##### Sort

Put things together by features they have in common.



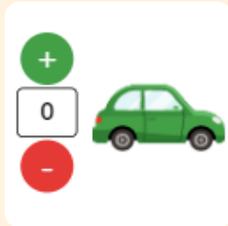
## Unit: 2.4

### Questioning

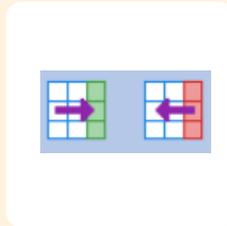
#### Key Images



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?

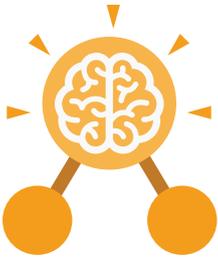
On a pictogram, data is represented by pictures. Pictograms are set out in the same way as bar charts, but instead of bars they use columns of pictures to show the numbers involved.

##### 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

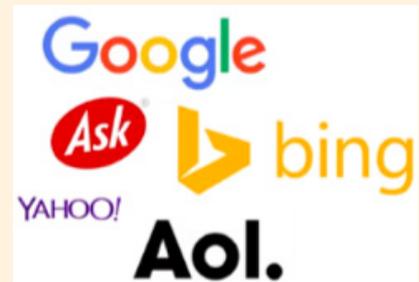
- To understand the terminology associated with searching.
- To gain a better understanding of searching on the Internet.
- To create a leaflet to help someone search for information on the Internet.

#### Key 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.

#### Key Resources



#### Key Vocabulary

##### Digital Footprint

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

##### Network

Connected devices that can send and receive information, voice and video.

##### Web Page

A single page which can include images, videos and charts.

##### Domain

Part of the Internet owned by an individual, company or organisation.

##### Search Engine

A program to help you find web pages on the Internet.

##### World Wide Web

The web pages and documents you see when you are browsing online. It is just one part of the Internet.

##### Internet

A way to send information from one computer to another anywhere in the world using technology such as phones, satellites and radio links.

##### Web Address

Identifying address for a file or web page on the Internet. Also known as URL.

##### Web Site

A collection of web pages that belong to one domain.



## 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



2Paint a Picture

#### Key Vocabulary

##### Art

A visual form of creative activity and imagination.

##### Palette

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

##### Style

A particular way in which something looks or is formed.

##### Fill

Causing an area to become full, in this case, of colour.

##### Pointillism

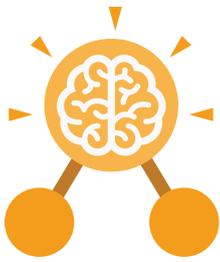
Pointillism was a development of impressionism. It was invented mainly by George Seurat and Paul Signac. Pointillist paintings are created by using small dots in different colours to build up the whole picture. Colours are placed near each other rather than mixed.

##### 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.

##### 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.



## Unit: 2.6

### Creating Pictures

#### Key Images



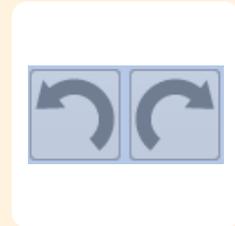
Choose the style you want to paint in



Open, Save and Share your picture



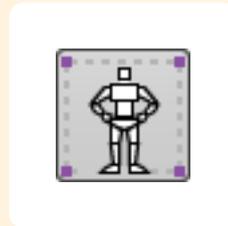
Choose a background for your picture



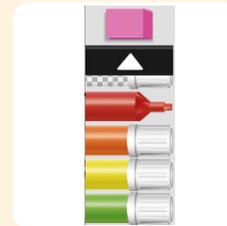
Undo and redo



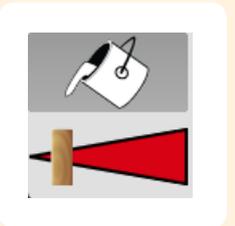
Zoom in and Zoom out



Outline options



Eraser and colour palettes



Fill tool and pen thickness

#### Key Questions

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

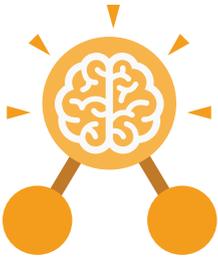
Impressionism is a style of painting that focuses on the effects of light and atmosphere on colours and forms. Impressionist artists often used broken brush strokes.

##### 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

##### Beat

A rhythmic unit in music.

##### Compose

To create a piece of music.

##### Note

A single tone in music.

##### Tune

Musical notes joined together to make a melody.

##### Sound Effect

A sound other than speech or music.

##### Soundtrack

A recording of the musical accompaniment of a film or tv programme.

##### Speed

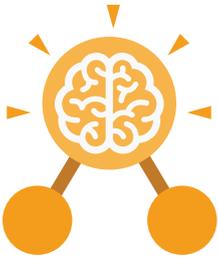
The number of beats per minute (bpm) played in the music.

##### Tempo

The speed at which the music plays.

##### Volume

How loud or quiet the music is.



## Unit: 2.7

### Making Music

#### Key Images



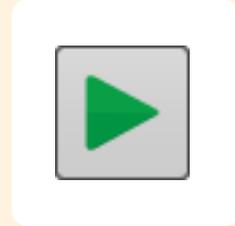
Open, save and share a piece of your music



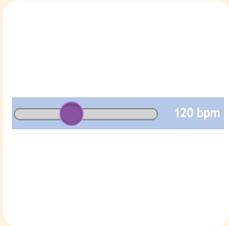
Change the number of quavers in the music



Loop or unloop the piece of music



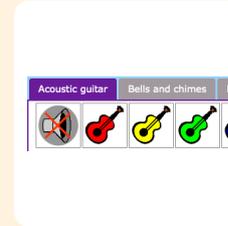
Play the composed tune



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?

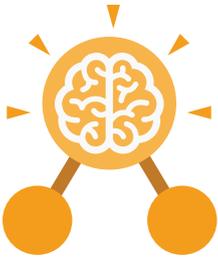
Digital music is made using a computer or other device. Digital music allows the computer to copy the sound made by instruments and combine them together to make a piece of music.

##### 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

##### E-book

An electronic version of a printed book that can be read on a computer or a specifically designed handheld device.

##### Fact file

A document containing all the important information about one subject.

##### Fiction

A book or story that is written about imaginary characters and events and not based on real people or places.

##### 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.

##### Non-fiction

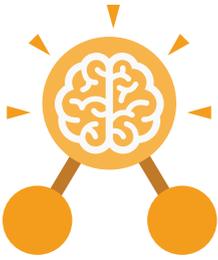
Writing that is about real people or events rather than stories that have been made up.

##### Presentation

A way of displaying information about a subject to an audience.

##### Quiz

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



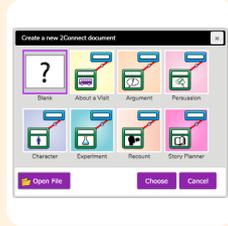
## Unit: 2.8

### Presenting Ideas

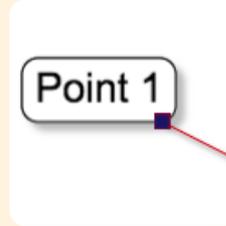
#### Key Images



Open, close and share a file



Create a new 2Connect document



Node



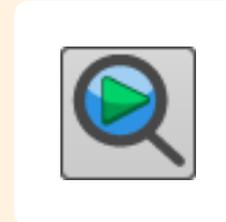
Collaboration (working together) on or off



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.