

## 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

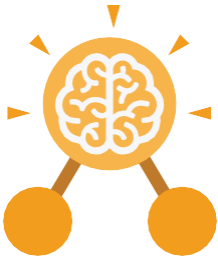
Something that causes a block of code to be run.

#### 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?

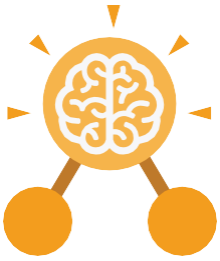
An algorithm is a step-by-step set of instructions used to solve a problem or achieve an objective.  
A clear algorithm can help you to create code that does what it is supposed to do.

#### 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.



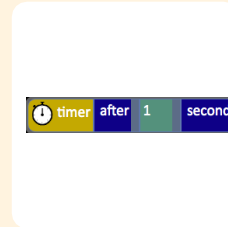
Watch the  
instruction video.



Open design mode  
in 2Code.



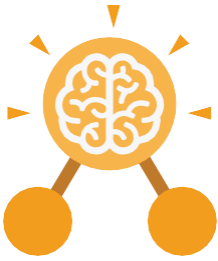
Switch to code mode  
in 2Code.



A timer code block.



An object property.



## Unit: 2.4

### 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

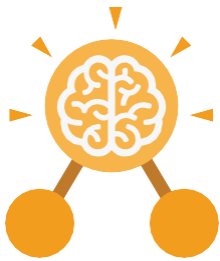
A simple way of sorting information into two categories.

##### 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.



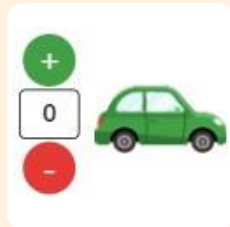
## Unit: 2.4

### Questioning

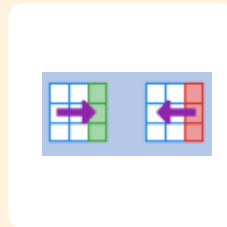
#### Key Images



Open, close or share information



Enter data into a pictogram



Add or delete columns in a pictogram



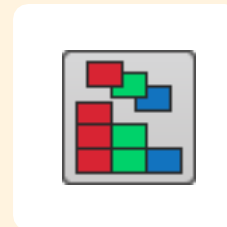
Add a question to sort the information in a binary tree



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.

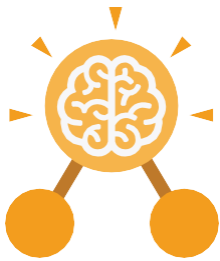
##### Search Engine

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.



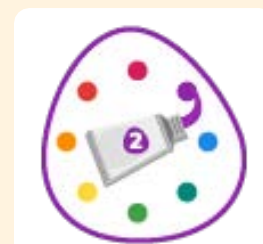
## Unit: 2.6

### 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



2Paint a Picture

#### 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.

##### Surrealism

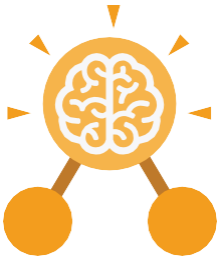
Explored the subconscious areas of the mind. The artwork often made little sense as it was usually trying to depict a dream or random thoughts.

##### 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.

##### Template

Something that serves as a model for others to copy.



## Unit: 2.6

### Creating Pictures

#### 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.

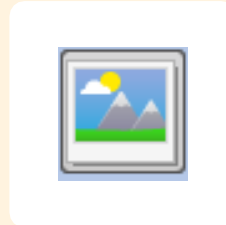
#### Key Images



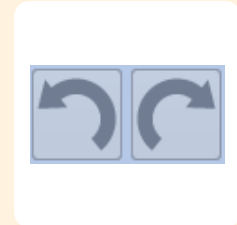
Choose the style you want to paint in



Open, Save and Share your picture



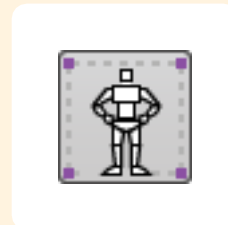
Choose a background for your picture



Undo and redo



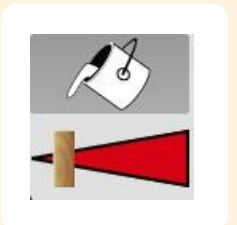
Zoom in and Zoom out



Outline options



Eraser and colour palettes



Fill tool and pen thickness



