# 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.
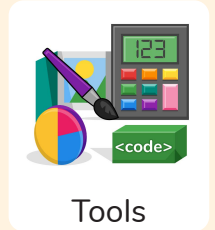- To understand and debug simple programs.

Key Resources

purple mash
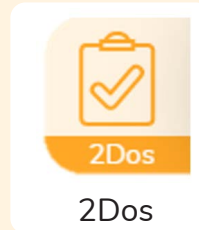
2Dos
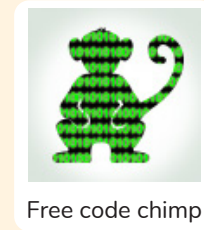
Free code chimp

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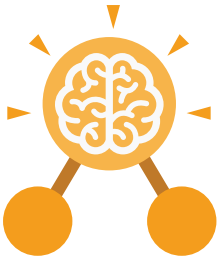In 2Code the background is an image in the design that does not change.

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.'

2 simple

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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.
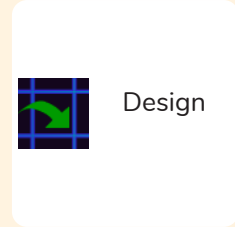
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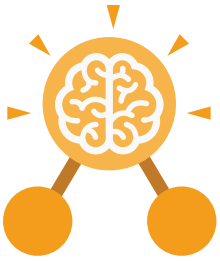
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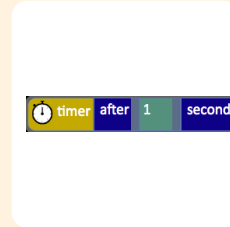
Key Images

Open, close or share a file.

Save your work.

Watch the instruction video.

Design

Open design mode in 2Code.

Exit Design

Switch to code mode in 2Code.

timer after 1 seconds

A timer code block.

right

An object property.

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Tel: +44(0)208 203 1781 | Email: support@2simple.com | Twitter: @2implesoftware

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