



# 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

### 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 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

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

### Bug

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

### Button

A type of object that responds to being clicked on.

### Click events

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

### Collision detection

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

### Command

A single instruction in 2Code.

### Debug / Debugging

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

### 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.

### Execute

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

## 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.

## 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.