

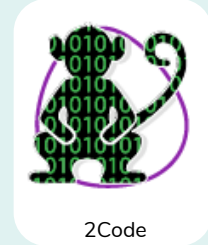


Year 4 Coding

Key Learning

- To create a simple computer program using coding structures previously encountered.
- To know what selection means in computer programming.
- To know how to use co-ordinates in computer programming.
- To explore methods that introduce loops in coding.
- To understand what a variable is in programming.
- To create a game that keeps score.

Key Resources

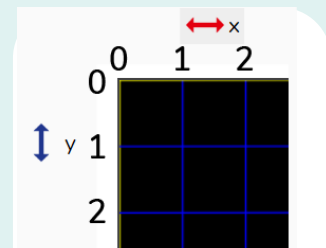


2Code

Key Images



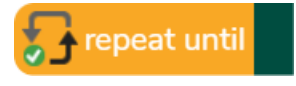
Variables



Coordinates



Timers



Repetition

Key Questions

How have you used sequencing and repetition in programming?

When a program runs commands step by step, it is a sequence.
Repetition causes part of the program to repeat; this can be done using repeat blocks, repeat until or timer every blocks.

How have you used selection in programming?

Selection is used in programs where different code runs depending upon a condition.
In 2Code, this can be achieved using 'if' and 'if/else' statements.

In what ways can you make you code efficient and easy to read?

By using sensible object names.
By using repetition where possible instead of repeating the same code many times.
By using tags to group objects that should behave in the same way.



Year 4 Coding

Key Vocabulary

Action

The way that objects change when programmed to do so. For example, move.

Alert

A type of output showing a text pop-up on the screen.

Attribute

A detail about an object in a program that can be changed. For example, its name, scale or position.

Co-ordinates

Numbers which determine the position of a point, shape or object in a particular space.

Debug\ Debugging

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

Design

In coding, this is a plan for the program showing the visual look of the user interface (the screen) with the objects. The algorithm can be represented as part of the design, showing actions and events.

Event

Something that happens in a program that causes a block of code to be run. Events include 'When Clicked', 'When Key' and 'When Swiped'.

Flowchart

A diagram that uses specifically shaped, labelled boxes and arrows to represent an algorithm as a diagram.

'If' statement

A computer uses an 'if' statement to decide which bit of code to run. If a condition is true, then the commands inside the block will be run.

'If/Else' statement

This tests a statement. If the condition is true, then the commands inside the 'if block' will be run. If the condition is not met, then the commands inside the 'else' block are run.

Initialize

Setting the starting value for a variable.

Input

Information going into the computer. This could be the user moving or clicking the mouse, or the user entering characters on the keyboard. On tablets there are other forms such as finger swipes, touch gestures and tilting the device.

Loop

A control structure that repeatedly runs a block of code as long as a specified condition is met or for a fixed number of times.



Year 4 Coding

Nesting

When coding commands are put inside other commands. These commands only run when the outer command runs.

Object

Items in a program that can be given instructions to move or change in some way (action). In 2Code Gibbon, these include character, turtle, button, vehicle, animal, food, shape, number, input and label.

Random

A way to generate values that are unpredictable within a specified range or set. In programming, this is used to introduce variability and unpredictability into the code's behaviour.

Repeat

This command can be used to make a block of commands run a set number of times or forever.

Repeat until

This command will repeat a block of commands until a condition is met.

Selection

A decision command. When selection is used, a program will choose which bit of code to run depending on a condition. In 2Code, this can be achieved using 'if' and 'if/else' statements.

Sequence

When a computer program runs commands in order.

Tag Attribute

A word attribute given to objects so that code can be written for multiple objects at once to write efficient code.

Timer

In coding, use a timer command to run a block of commands at regular intervals.

Tinker

To experiment with code, tools or ideas by making small changes, testing outcomes, and learning from experimentation or trial and error.

Variable

A named area in computer memory. A variable has a name and a value. The program can change this variable value. Variables are used in programming to keep track of things that can change while a program is running.