

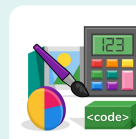
Unit: 4.1

Coding

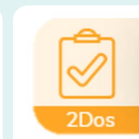
Key Learning

- To begin to understand selection in computer programming.
- To understand how an IF statement works.
- To understand how to use co-ordinates in computer programming.
- To understand the 'repeat until' command.
- To understand how an IF/ELSE statement works.
- To understand what a variable is in programming.
- To use a number variable.
- To create a playable game.

Key Resources



Tools



2Dos



2Chart



Free code gibbon

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.

Design Mode

Used to create the look of a 2Code computer program when it is run.

Alert

This is a type of output. It shows a pop-up of text on the screen.

Code Design

Design what your program will look like and what it will do.

Event

Something that causes a block of code to be run.

Algorithm

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

Co-ordinates

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

Flowchart

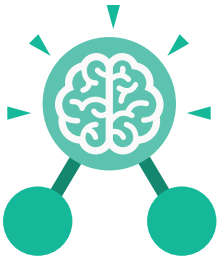
A diagram which represents an algorithm.

Debug/Debugging

Looking for any problems in the code, fixing and testing them.

Get Input

This puts the text that a user types into the computer's temporary memory to be used to control the program flow.



Unit: 4.1

Coding

Key Vocabulary

If

A conditional command. This tests a statement. If the condition is true, then the commands inside the block will be run.

If/Else

A conditional command. 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.

Input

Information going into the computer. Can include moving or clicking the mouse, using the keyboard, swiping and tilting the device.

Nesting

When you write a command inside something else eg. a block of commands could be nested inside a timer.

Output

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

Object

An element in a computer program that can be changed using actions or properties. In 2Code, buttons, characters and vehicles are types of objects.

Prompt

A question or request asked in coding to obtain information from the user in order to select which code to run.

Repeat

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

Repeat Until

This command can be used to make a block of commands run until something certain happens.

Selection

This is a conditional/decision command. When selection is used, a program will choose a different outcome depending on a condition.

Sequence

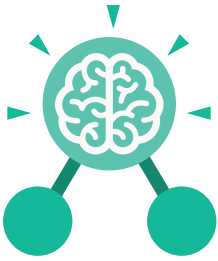
when a computer program runs commands in order.

Timer

Use this command to run a block of commands after a timed delay or at regular intervals.

Variable

A named area in computer memory. A variable has a name and a value. The program can change this variable value.



Unit: 4.1

Coding

Key Images



Design

Open design mode in 2Code.



Exit Design

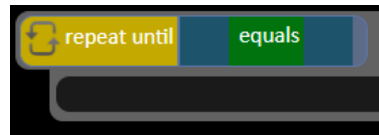
Switch to code mode in 2Code.



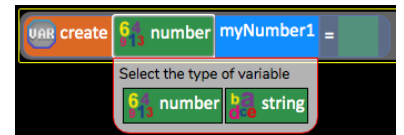
A change variable block.



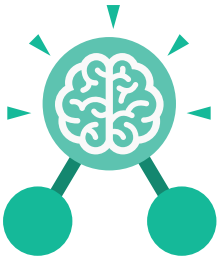
An 'if/Else' command.



Repeat until.



Creating a variable in 2Code.



Unit: 4.1

Coding

Key Questions

Explain the stages of the design, code, test, debug coding process.

This is a process to go through as you create a program using coding

- Design: Create a design which could be a flowchart, a labelled diagram or a storyboard. This helps to think through the algorithms required
- Code: code the algorithms using 2Code and adapting the design.
- Test and Debug: see if the program works and fix any errors.

How can variables and if/else statements be useful when coding programs with selection?

The variable could be set either to 0 or 1 and this could be changed by user action or a timer. If/else statement outcomes could depend upon the value of the variable. command for selection.

What does selection mean in coding and how can you achieve this in 2Code?

The code will contain commands that require a decision and the next code to run will depend upon the outcome of this decision. In 2Code we used the 'if' command for selection.

What is the difference between the different object types in 2Code Gibbon level?

The different objects have different properties. This makes them suitable for different types of programs.

- Buttons can only be clicked and have their colour and text changed.
- Vehicles have speed and angle.
- Characters have movement in 4 directions.
- Turtles have rotation, pen up and down.