



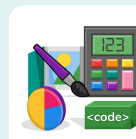
Unit: 4.1

Coding

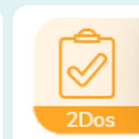
Key Learning

- 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

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

Alert

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

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.

Button

A type of object that responds to being clicked on.

Code blocks

A way to write code using blocks which each have an object or an action. Each group of blocks will run when a specific condition is met or when an event occurs.

Command

A single instruction in 2Code.

Debug/Debugging

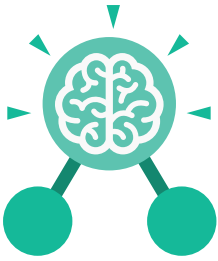
Fixing code that has errors so that the code will run the way it was designed to.

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.

Execute

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



Unit: 4.1

Coding

Key Vocabulary

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 (when Key) or clicking or swiping the screen (when Clicked, when Swiped). In

2Code, the event commands are used to create blocks of code that are run when events happen.

Nest

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

Implement

When a design is turned into a program using coding.

Repeat until

In 2Code this command will repeat a block of commands until a condition is met.

Flowchart

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

'If/Else' Statement

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.

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.

Predict

Use your understanding of a situation to say what will happen in the future or will be a consequence of something.

'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.

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.

Prompt

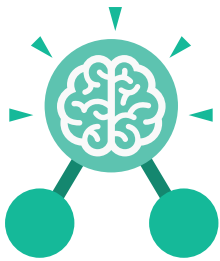
A question or request asked in coding to obtain information from the user in order to select which code to run.

Repeat

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

Run

Clicking the Play button to make the computer respond to the code.



Unit: 4.1 Coding

Key Vocabulary

Properties

These determine the look and size of an object. Each object has properties such as the image, scale and position of the object.

Timer

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

Selection

Selection is a decision command. When selection is used, a program will choose which bit of code to run depending on a condition.

Sequence

This is when a computer program runs commands in order.

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.

Key Images



Design

Open design mode in 2Code.

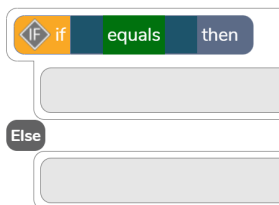


Exit Design

Switch to code mode in 2Code.



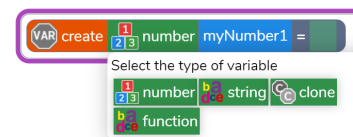
A change variable block.



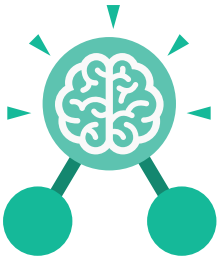
An 'if/Else' command.



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 to code 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.