# 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

purple mash
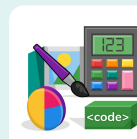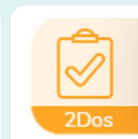
Tools   2Dos   2Chart   Free code gibbon

Key Vocabulary

Action
Types of commands which are run on an object. They could be used to move an object or change a property.

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

Background
The part of the program design that shows behind everything else. It sets the scene for the story or game.

Button
An object that can trigger an event in response to being clicked.

Code Block
An individual code command represented visually by a block on the screen.

Command
A single instruction in a computer program.

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

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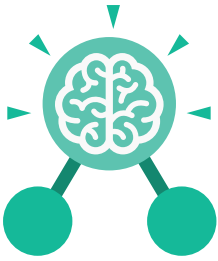Looking for any problems in the code, fixing and testing them.

Execute
To run a computer program.

Flowchart
A diagram which represents an algorithm.

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

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Unit: 4.1
Coding

Key Vocabulary

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.

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

Number Variable
A variable that is numerical.

Object Types
The visual components within 2Code that have different properties and different actions to respond to events.

Predict
Say what you think will happen when a piece of code is run.

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

Prompt for Input
A code command that visually presents the user with text.

Properties
All objects have properties that can be changed in design or by writing code e.g. image, colour and scale properties.

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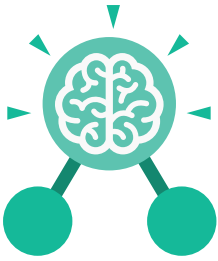
Timer
Use this command to run a block of commands after a timed delay or at regular intervals.

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

Variable Value
In 2Code, this can be a string (text) a number or a function. It can be changed by the code and is stored in machine memory for the duration of the program.

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Unit: 4.1
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Key Images

Open design mode in 2Code.
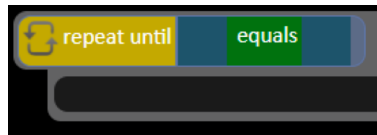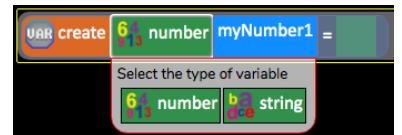

Switch to code mode in 2Code.

A change variable block.
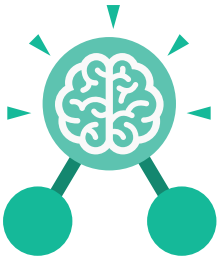

An 'if/Else' command.

Repeat until.

Creating a variable in 2Code.

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 then suitable for different type 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.

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