

Key Learning

To design algorithms using flowcharts.

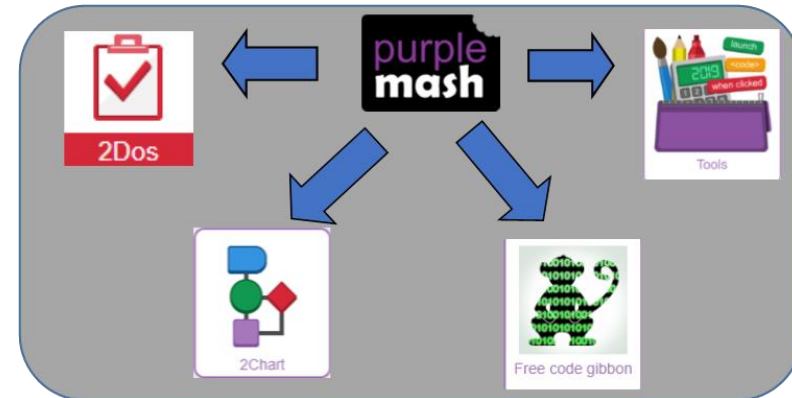
To design an algorithm that represents a physical system and code this representation.

To use selection in coding with the 'if' command.

To understand and use variables in 2Code.

To deepen understanding of the difference between timers and repeat commands.

## Unit: 3.1 – Coding

Key ResourcesKey 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.

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

**Code block** - A group of commands that are joined together and are run when a specific condition is met or when an event occurs.

**Code Design** – Design what your program will look like and what it will do.

**Command** - A single instruction in a computer program.

**Control** - These commands determine whether parts of the program will run, how often and sometimes, when.

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

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

**Event** – Something that causes a block of code to be run.

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

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

**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.

**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.

**Computer simulation** - A program that models a real-life situation.

**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.

## Unit: 3.1 – Coding

Key Images

Open the main menu



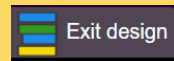
Save your work



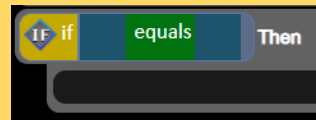
Open design mode in 2Code



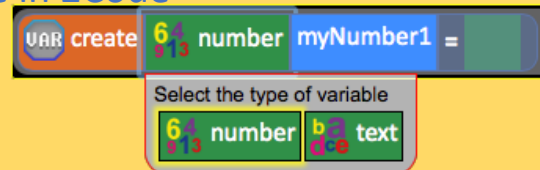
Switch to code mode in 2Code



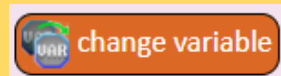
An 'if' command



Creating a variable in 2Code



A change variable block

Key Questions

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.

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.

Give an example of how you could use a variable in coding.

Some examples are:

- A timer that counts every second and displays the value.
- A value that changes depending upon whether a switch is on or off.
- Storing how many times a user has clicked on an object.