

Unit: 6.1

Coding

Key Learning

- To design a playable game with a timer and a score.
- To plan and use selection and variables.
- To understand how the launch command works.
- To use functions and understand why they are useful.
- To understand how functions are created and called.
- To use flowcharts to create and debug code.
- To create a simulation of a room in which devices can be controlled.
- To understand how user input can be used in a program.
- To understand how 2Code can be used to make a text-adventure game.

Key Resources



Tools



2Dos



2Chart



Free code gorilla

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.

Algorithm

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

Code Design

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

Command

A single instruction in a computer program.

Concatenation

The action of linking things together in a series.

Control

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

Debug/Debugging

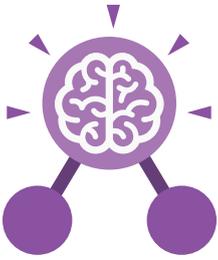
Looking for any problems in the code, fixing and testing them.

Developer

A person who writes, debugs and executes code to create a program.

Decomposition

A method of breaking down a task into manageable components. This makes coding easier as the components can then be coded separately and then brought back together in the program.



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Key Vocabulary

Event

Something that causes a block of code to be run.

Function

A block or sequence of code that you can access when you need it, so you don't have to rewrite the code repeatedly. Instead, you simply 'call' the function each time you want it.

Get Input

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

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.

Launch Command

A command that launches another program within the existing program.

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.

Procedure

A set of coded instructions that perform a certain task.

Repeat

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

Sequence

This is when a computer program runs commands in order. In 2Code this can also include "repeat" or a timer.

Selection

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

Simulation

A model that represents a real or imaginary situation.

String

A sequence of characters, which could form words, phrases or even whole sentences.

Timer

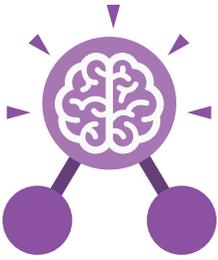
Use this command to run a block of commands after a timed delay or at regular intervals.

User Input

When a program requires an input from a user such as a click or text from a keyboard.

Variable

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



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Key Images



Design

Open design mode in 2Code.

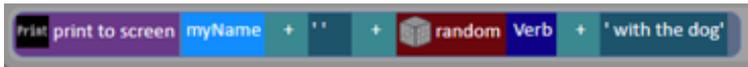


Exit Design

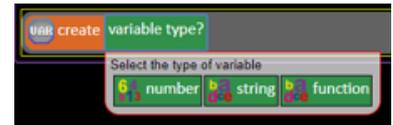
Switch to code mode in 2Code.



A change variable block.



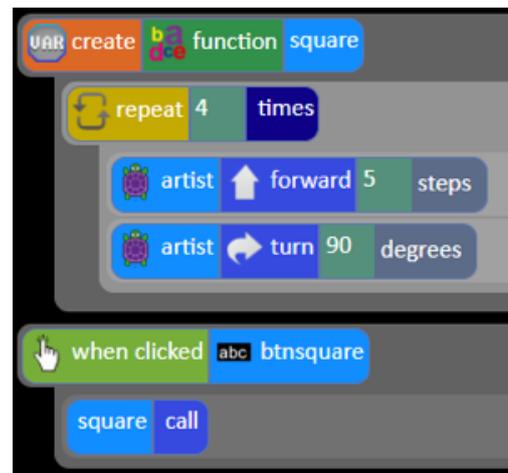
Example of combining variables and strings to print to the screen



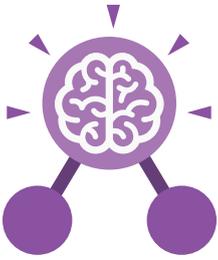
Creating a variable in 2Code



Add a new Tab to your code or move code blocks between tabs



A function called 'square' that is called by clicking on a button called btnSquare.



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Key Questions

How can you use Tabs in 2Code Gorilla?

Tabs are used to organise your code and make it more readable. This also makes it easier to debug. Give the Tabs useful names to help with this.

What is a function in coding? Give an example that you have used in 2Code Gorilla.

A function is a block of code that you can access when you need it, so you don't have to rewrite the same block repeatedly. You call the function each time you want it. In a turtle program you could have a button that will make the turtle draw a square each time you click it. In the text adventure, there were functions for each room that were called when the user navigated to the room.

In 2Code Gorilla, how can a program receive user input?

When the user clicks on an object, when the user presses keys or swipes the screen with the mouse, the 'Get Input' and 'Prompt for input' commands.
On a touchscreen: when the screen is touched or swiped.