

Year 4 Autumn 1 Knowledge Organiser – Computing

Unit 1: Coding



Purple Mash Computing Scheme of Work: Knowledge Organisers

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



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.'		

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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.	Flowchart A diagram that uses specifically shaped, labelled boxes and arrows to represent an algorithm as a diagram.	'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.
Nest When coding commands are put inside other commands. These commands only run when the outer command runs.	'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.	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.
Implement When a design is turned into a program using coding.	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.	Prompt A question or request asked in coding to obtain information from the user in order to select which code to run.
Repeat until In 2Code this command will repeat a block of commands until a condition is met.	Predict Use your understanding of a situation to say what will happen in the future or will be a consequence of something.	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.

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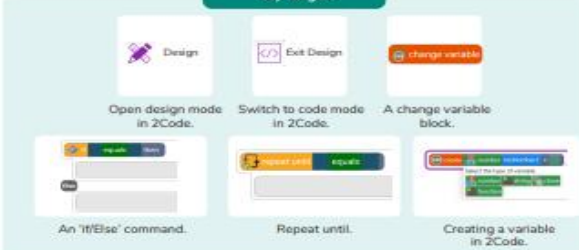
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Key Vocabulary

Properties These determine the look and size of an object. Each object has properties such as the image, scale and position of the object.	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.
Timer In coding, use a timer 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. Variables are used in programming to keep track of things that can change while a program is running.

Key Images



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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 <ul style="list-style-type: none"> 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. 	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.
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 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. <ul style="list-style-type: none"> 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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