

What should I already know?

- Coding—Introducing block coding · Objects and actions · Events (Click event, sound output) · Executing a program · Design view: Planning Algorithms · Collision detection · Timers · Object types · Buttons · Debugging Flowcharts · Timers · Repeat · Code, test, debug process
- Lego Builders—Algorithms · Logical decision making · Sequencing instructions · Following instructions
- Maze Explorers—Coding a 'turtle' · Creating programs using sequencing and repeat · Visual use of the Logo programming language · Program logic and structure.
- Questioning—Logical decision processing · Forward planning to achieve a solution
- Branching Databases—Logical decision processing · Modelling selection on a binary model
- Use of 2Dos, saving, opening and editing work, sharing work, copying and pasting, mouse, keyboard and device skills.

What will I know by the end of the unit?

What is 'Design, Code, Test and Debug'?

- You can explore different object types in 2Code. You can use a background and objects to create a scene. You can plan an algorithm for their scene and use 2Code to program it.

How do I know if an IF statement works?

- You can create a program that includes an IF statement. You can interpret a flowchart that depicts an IF statement

How do I use co ordinates in computer programming?

- You can make use of the X and Y attributes (properties) of objects in their coding. You can create a program that includes an IF statement.

What is the Repeat until command?

- You can read code that includes repeat until and IF/ ELSE and explain how it works. You can create a program that includes an IF/ ELSE statement. You can interpret a flowchart that depicts an IF/ ELSE statement.

What is a variable in programming?

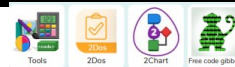
- You can explain what a variable is in programming. You can create and use variables when programming.

Can I create a playable game?

- You can read code that includes repeat until and IF/ ELSE and explain how it works. You can create a program that includes and IF/ ELSE statement. You can interpret a flowchart that depicts an IF/ ELSE statement.

Purple Mash 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.
- **Button** A type of object that responds to being clicked on.
- **Background** In 2Code the background is an image in the design that does not change. 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.
- **Algorithm** A precise, step-by-step set of instructions used to solve a problem or achieve an objective.
- **Execute** This is the proper word for when you run the code. We say 'the program (or code) executes.'
- **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.
- **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.
- **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/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.
- **Nest** When coding commands are put inside other commands. These commands only run when the outer command runs.
- **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.
- **Implement** When a design is turned into a program using coding.
- **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.
- **Repeat until** In 2Code this command will repeat a block of commands until a condition is met.
- **Run** Clicking the Play button to make the computer respond to the code.
- **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.
- **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 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.

