Unit	3D modelling	Sensing
Previous Learning	- I can use desktop publishing to create documents, which include images - I can create digital paintings - I can create, move and manipulate objects on desktop applications	- I can build sequences of commands - I can use repetition in sequences - I can create sequences that include loops - I can introduce variables into programming
Subject Knowledge (what)	**Understanding using a computer to produce 3D models.** NC: - Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information - Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact. 3D objects comprise length, width, and height (depth) - Structures can be broken down into a collection of 3D objects - Blank objects must be used as placeholders to create holes	**Understanding how to apply skills in physical computing** NC: *Design, write, and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts* *Use sequence, selection, and repetition in programs; work with variables and various forms of input and output* *Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs* *Select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information* - A variable is something that is changeable - Variables can be used in a program as a placeholder in memory of a single value - Variables have a name and a value - The value of a variable can be updated and used by a program - Variables can hold numbers (integers) or letters (strings) - A variable can be set as a constant (fixed value) - There is only one value for a variable at any one time - If you change the value of a variable, you cannot access the previous value - If you read a variable, the value remains - The same variable can be used in more that one location in a program - The name of a variable is meaningless to the computer - The name of a variable needs to be unique
Subject Discipline	- Create 3D graphical objects on a computer screen - Alter the view of 3D space	- Identify examples of information that is variable in existing programs /experiment with the value of an existing variable

(how)	• Select, duplicate and delete objects • Modify objects by repositioning, rotating, resizing and recolouring • Use objects as placeholders • Select, combine and modify multiple objects	• Choose a name that identifies the role of a variable to make it more usable (to humans) • Decide where in a program to set a variable • Updates a variable with a user input • Use an event in a program to update a carriable • Use a variable in a conditional statement to control the flow of a program • Use the same variable in more than one location in a program

Key Vocab	**2D** **3D** **3D object** **3D space** **Resize** **Colour** **Lift** **Rotate** **Position** **Select** **Duplicate** **View** **Dimensions** **Placeholder** **Group** **Ungroup** **Holes** **Design** **Modify** **Evaluate** **Improve**	**Micro:bit** **MakeCake** **Input** **Process** **Output** **Flashing** **USB** **Selection** **Condition** **If then else** **Variable** **Random** **Compass** **Direction** **Navigation** **Sensing** **Accelerometer** **Task** **Algorithm** **Step Counter** **Plan** **Create** **Test** **Debug**