National Centre for Computing Education

Raspberry Pi

Year 6 – 3D Modelling

Lesson	Brief overview	Learning objectives
1 Introduction to 3D modelling	Learners will be introduced to the concept of 3D modelling by creating a range of 3D shapes that they select and move. Learners also examine shapes from a variety of views within the 3D space.	To recognise that you can work in three dimensions on a computer • I can add 3D shapes to a project • I can view 3D shapes from different perspectives • I can move 3D shapes relative to one another
2 Modifying 3D objects	Learners will manipulate 3D objects digitally. They will resize objects in one, two, and three dimensions. They will also lift and lower 3D objects relative to the workplane, and combine two 3D objects to make a new shape. Finally learners will recolour 3D objects.	To identify that digital 3D objects can be modified • I can resize an object in three dimensions • I can lift/lower 3D objects • I can recolour a 3D object
3 Make your own name badge	Learners will develop their understanding of manipulating digital 3D objects. They will rotate objects in three dimensions, duplicate objects, and then use grouping and ungrouping to manipulate many objects at once. They will combine these skills to create their own 3D name badge. Finally, learners will consider the practicality of 3D printing the objects they have made.	To recognise that objects can be combined in a 3D model • I can rotate objects in three dimensions • I can duplicate 3D objects • I can group 3D objects

4 Making a desk tidy	Learners will be introduced to the dimensions of shapes in Tinkercad which will enable them to accurately resize and move shapes. Learners will then be introduced to placeholders which can be used to create holes in objects. Finally learners will duplicate, then resize multiple objects to create a meaningful 3D object.	To create a 3D model for a given purpose • I can accurately size 3D objects • I can show that placeholders can create holes in 3D objects • I can combine a number of 3D objects
5 Planning a 3D model	Learners will see how architects use 3D design to visualise and plan buildings and communicate with clients. They will explode 3D models of buildings to see what shapes they comprise of. Learners will then look at real world structures and identify the shapes that they include. They will then plan their own 3D building design, thinking about some of the ways in which real-world architects use these tools.	To plan my own 3D model • I can analyse a 3D model • I can choose objects to use in a 3D model • I can combine objects in a design
6 Make your own 3D model	Learners will create a computer 3D model based on their design. They will explore why architects might use CAD software alongside traditional skills. They will then evaluate their model and that of another learner, before modifying their own model to improve it.	To create my own digital 3D model • I can construct a 3D model based on a design • I can explain how my 3D model could be improved • I can modify my 3D model to improve it