**Year 6 Computing Curriculum – Summer 1**

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| **Theme: 3D Modelling** |
| **Curriculum objectives** | **Vocabulary** | **Links across the curriculum** |
| - 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 | **Keyword** | Definition | cube | 3D shape with six square faces | **Art and design – KS2*** To improve their mastery of art and design techniques, including drawing, painting, and sculpture with a range of materials

**Design and technology – KS2*** Generate, develop, model, and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design

**Mathematics – KS2 (Y6)*** Recognise, describe, and build simple 3D shapes, including making nets

[**Education for a Connected World links**](https://www.gov.uk/government/publications/education-for-a-connected-world)* Lesson 1 and Lesson 3 – Privacy and Security (Y4) – I can describe strategies for keeping my personal information private, depending on context
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| TinkerCAD | Programme to be used | cuboid | 3D shape with 2 square faces and 4 rectangular faces |
| perspective | How something is viewed in different planes | sphere | A 3D shape that is perfectly round |
| construct | To make or build | cone | A 3D shape with 2 sides: one flat and circular |
| resize | To alter the size of something  | pyramid | A 3D shape with a triangular or squared-based bottom, with all other sides meeting at one apex |
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| **Prior Knowledge:**Year 1 – Digital Painting, Digital Writing; Year 2 – Digital Photography; Year 3 –Desktop Publishing; Year 4 – Photo Editing, Audio Production; Year 5 – Vector Drawing, Video Production | **Future Knowledge:**Year 6 - Web Page Creation |
| **Lesson Sequence** | **Key Knowledge** | **Key Skills** |
| 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
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| 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
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| 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
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| 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
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| 5 Planning a 3D model | Learners will see how computer-based 3D design is used in architecture to plan buildings. 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. | 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
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| 6 Make your own 3D model | Learners will create a computer 3D model based on their design. 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
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| **Themes and links** |
| **Computing themes** | **Where these are covered:** |
| **Technology around us** Autumn 1  | * Scratch links to the real world and computer games the children know.
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| **Digital painting** Autumn 2  | * Understanding the need for coding and algorithms
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| **Programming A** Spring 1  | * Programming the Scratch
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| **Data /information** Spring 2  | * Storing the commands and the effect on language on the outcome of your commands.
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| **Creating media** Summer 1  | * Your own designs of Scratch
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| **Programming B** Summer 2  | * Using Scratch to implement an algorithm as a code
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