



Design and Technology

Year 3 – Structures – Constructing a Castle		
Prior Learning	Year 3	Future Learning
In EYFS, children will:	In Year 3, children will:	In KS3, children will:
Design - Making verbal plans and material choices. - Developing a junk model. Make - Improving fine motor/scissor skills with a variety of materials. - Joining materials in a variety of ways (temporary and permanent). - Joining different materials together. - Describing their junk model, and how they intend to put it together. Evaluate - Giving a verbal evaluation of their own and others' junk models with adult support. - Checking to see if their model matches their plan. - Considering what they would do differently if they were to do it again. - Describing their favourite and least favourite part of their model.	Design - Designing a castle with key features to appeal to a specific person/purpose. - Drawing and labelling a castle design using 2D shapes, labelling: -the 3D shapes that will create the features - materials needed and colours. - Designing and/or decorating a castle tower on CAD software. Make - Constructing a range of 3D geometric shapes using nets. - Creating special features for individual designs. - Making facades from a range of recycled materials. Evaluate - Evaluating own work and the work of others based on the aesthetic of the finished product and in comparison to the original design. - Suggesting points for modification of the individual designs.	Design - Use research and exploration, such as the study of different cultures, to identify and understand user needs identify and solve their own design problems and understand how to reformulate problems given to them. - Develop specifications to inform the design of innovative, functional, appealing products that respond to needs in a variety of situations. - Use a variety of approaches [for example, biomimicry and user-centred design], to generate creative ideas and avoid stereotypical responses. - Develop and communicate design ideas using annotated sketches, detailed plans, 3-D and mathematical modelling, oral and digital presentations and computer-based tools. Make - Select from and use specialist tools, techniques, processes, equipment and

Technical Knowledge - To know there are a range to different materials that can be used to make a model and that they are all slightly different. - Making simple suggestions to fix their junk model.	Technical Knowledge - To understand that wide and flat based objects are more stable. - To understand the importance of strength and stiffness in structures. Vocab 2D, 3D, castle, design, key features, net, scoring, shape, stable, stiff, strong, structure, tab	machinery precisely, including computer-aided manufacture. - Select from and use a wider, more complex range of materials components and ingredients, taking into account their properties. Evaluate - Analyse the work of past and present professionals and others to develop and broaden their understanding. - Investigate new and emerging technologies. - Test, evaluate and refine their ideas and products against a specification, taking into account the views of intended users and other interested groups. - Understand developments in design and technology, its impact on individuals, society and the environment, and the responsibilities of designers, engineers and technologists. Technical Knowledge - Understand and use the properties of materials and the performance of structural elements to achieve functioning solutions. - Understand how more advanced mechanical systems used in their products enable changes in movement and force. - Understand how more advanced electrical and electronic systems can
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		be powered and used in their products [for example, circuits with heat, light, sound and movement as inputs and outputs]. - Apply computing and use electronics to embed intelligence in products that respond to inputs [for example, sensors], and control outputs [for example, actuators], using programmable components [for example, microcontrollers].	
Pupils who are secure will be able to:			
- Draw and label a simple castle that includes the most common features. - Recognise that a castle is made up of multiple 3D shapes. - Design a castle with key features which satisfy a given purpose. - Score or cut along lines on the net of a 2D shape. - Use glue to securely assemble geometric shapes. - Utilise skills to build a complex structure from simple geometric shapes. - Evaluate their work by answering simple questions.			
National Curriculum Subject Content			
Design	Make	Evaluate	Technical Knowledge
- Use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups. - Generate, develop, model and communicate their ideas through discussion,	- Select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately - Select from and use a wider range of materials and components, including construction	- Investigate and analyse a range of existing products. - Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work. - Understand how key events and individuals in design and technology	- Apply their understanding of how to strengthen, stiffen and reinforce more complex structures. - Understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages] - Understand and use electrical systems in their

annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design.	materials, textiles and ingredients, according to their functional properties and aesthetic qualities.	have helped shape the world.	products [for example, series circuits incorporating switches, bulbs, buzzers and motors]. - Apply their understanding of computing to program, monitor and control their products.
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