

# Design and Technology Whole School Overview

The Design and Technology curriculum is based on Projects on a Page provided by the Design and Technology Association. Through the teaching of Design and Technology children are taught to develop skills, knowledge and understanding of designing and making functional products. Design and Technology education involves two important elements - learning about the designed and made world and how things work, and learning to design and make functional products for particular purposes and users. Children acquire and apply knowledge and understanding of materials and components, mechanisms and control systems, structures, existing products, quality and health and safety. The skills learned also help with learning across the curriculum. Knowledge about the properties of materials helps in Science and the practice of measuring accurately helps in Maths. Children are encouraged to be creative and innovative, and are actively encouraged to think about important issues such as sustainability and enterprise. Design and Technology has three core elements. Activities which involve investigating and evaluating existing products. Focused tasks in which children develop particular aspects of knowledge and skill. Designing and making activities in which children design and make 'something' for 'somebody' for 'some purpose'.

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Nursery			Structures: Free-standing Exploring how to make a free-standing structure when making a bird box. Explore joining materials in different ways.	Structures: Free-standing Exploring how to make a free-standing structure when making a rocket. Explore joining materials in different ways.		Cooking and Nutrition: Learn how to chop soft fruit and incorporate these when making a fruit lolly.
Reception	Structures: Free-standing Exploring how to make a free-standing structure when making a house. Explore joining materials in different ways.			Mechanisms: Sliders Explore making a moving picture using a slider.		
Year 1	Mechanisms: Wheels and Axles Explore and use wheels, axles and axle holders when designing and making a moving vehicle. Distinguish between fixed and freely moving axles.		Structures: Free-standing Understanding how to make free-standing structures stronger, stiffer and more stable when making park equipment.			Cooking and Nutrition: Preparing fruits Use the principles of a healthy and varied diet when preparing a fruit salad. Knowing how to cut food safely. Peel, slice and squeeze ingredients.

Year 2		<p><b>Cooking and Nutrition:</b> Preparing fruits and vegetables. Use the principles of a healthy and varied diet when preparing a healthy sandwich. Begin to weigh ingredients to use in a recipe. Peel, slice, grate and cut ingredients.</p>	<p><b>Mechanisms: Levers and Sliders</b> Explore and use sliders and levers when designing and making a moving picture. Understand that different mechanisms produce different types of movement.</p>			<p><b>Textiles: Templates and Joining</b> Understand how to make a simple puppet by using a template to create two identical shapes. Understand how to join fabrics using different techniques (running stitch, glue, over stitch, stapling)</p>
Year 3		<p><b>Structures: Shell</b> Develop and use knowledge of how to construct strong, stiff shell structures when designing and making a Christmas gift box. Develop and use knowledge of nets of cubes and cuboids and, where appropriate, more complex 3D shapes.</p>		<p><b>Textiles: 2D shape to 3D shape product</b> Know how to strengthen, stiffen and reinforce existing fabrics. Understand how to securely join two pieces of fabric together when designing and making a purse or wallet. (running stitch, blanket stitch, over stitch, back stitch, backwards, running stitch) Understand the need for patterns and seam allowances.</p>	<p><b>Cooking and Nutrition:</b> Healthy and varied diet Describe how food ingredients come together. Weigh out ingredients to follow a recipe and create a savoury dish (Greek food). Chop ingredients using both the bridge and claw techniques.</p>	
Year 4		<p><b>Mechanisms: Levers and Linkages</b> Understand and use lever and linkage mechanisms when making a Christmas card. Distinguish between fixed and loose mechanisms.</p>		<p><b>Electrical Systems:</b> Simple circuits and switches Understand and use a simple electrical circuit when designing and making a reading light.</p>		<p><b>Mechanisms:</b> Pneumatics Understand and use pneumatic mechanisms when making a Jack in a box.</p>

Year 5		<p><b>Mechanisms: Pulleys and Gears</b> Understand that mechanical and electrical systems have an input, process and an output. Understand how gears and pulleys can be used to speed up, slow down or change the direction of movement. Use pulleys and gears when making a fairground ride.</p>		<p><b>Cooking and Nutrition: Celebrating culture and seasonality (Bread)</b> Know how to use utensils and equipment including heat sources to prepare and cook food. Select appropriate utensils and equipment to measure and combine ingredients. Know which seasons various foods are available for harvesting.</p>		<p><b>Textiles: Combining different fabric shapes</b> Know how a 3-D textile product can be made from a combination of accurately made pattern pieces, fabric shapes and different fabrics. Understand how to strengthen, stiffen and reinforce fabrics when making a bag. (stem stitch, satin stitch, chain stitch and lazy daisy stitch)</p>
Year 6		<p><b>Electrical Systems:</b> More complex switches Understand and use electrical systems when designing and making vehicle alarms. Use computing skills to program, monitor and control their products.</p>	<p><b>Structures: Frame</b> Understand how to strengthen, stiffen and reinforce 3D frame structures when designing and making an air raid shelter.</p>			<p><b>Cooking and Nutrition: Celebrating culture and seasonality (Bread)</b> Explain how food ingredients should be stored and give reasons Work within a budget to create a meal Understand the difference between a savoury and sweet dish. Know how to use utensils and equipment including heat sources to prepare and cook food.</p>