



**Oliver's Battery Primary School**

**Skills Progression and Assessment Document  
for  
Design & Technology**

**The purpose of this document is to support the planning and assessment of Design & Technology, ensuring full coverage of the curriculum and opportunities to scaffold and challenge learning.**

# The National Curriculum

## Purpose of Study

Design and technology is an inspiring, rigorous and practical subject. Using creativity and imagination, pupils design and make products that solve real and relevant problems within a variety of contexts, considering their own and others' needs, wants and values. They acquire a broad range of subject knowledge and draw on disciplines such as mathematics, science, engineering, computing and art. Pupils learn how to take risks, becoming resourceful, innovative, enterprising and capable citizens. Through the evaluation of past and present design and technology, they develop a critical understanding of its impact on daily life and the wider world. High-quality design and technology education makes an essential contribution to the creativity, culture, wealth and well-being of the nation.

## Aims

The national curriculum for design and technology aims to ensure that all pupils:

- develop the creative, technical and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world
- build and apply a repertoire of knowledge, understanding and skills in order to design and make high-quality prototypes and products for a wide range of users
- critique, evaluate and test their ideas and products and the work of others
- understand and apply the principles of nutrition and learn how to cook.

## Attainment targets

By the end of each key stage, pupils are expected to know, apply and understand the matters, skills and processes specified in the relevant programme of study. **Schools are not required by law to teach the example content in [square brackets].**

### Key stage 2

Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making. They should work in a range of relevant contexts [for example, the home, school, leisure, culture, enterprise, industry and the wider environment].

When designing and making, pupils should be taught to:

#### Design

- 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, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design

#### Make

- 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 materials, textiles and ingredients, according to their functional properties and aesthetic qualities

#### Evaluate

- 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 have helped shape the world

#### Technical knowledge

- 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 products [for example, series circuits incorporating switches, bulbs, buzzers and motors]
- Apply their understanding of computing to program, monitor and control their products.

### Cooking and nutrition

As part of their work with food, pupils should be taught how to cook and apply the principles of nutrition and healthy eating. Instilling a love of cooking in pupils will also open a door to one of the great expressions of human creativity. Learning how to cook is a crucial life skill that enables pupils to feed themselves and others affordably and well, now and in later life.

Pupils should be taught to:

- understand and apply the principles of a healthy and varied diet
- prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques
- understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.

## Skills Progression

Learning Objective		Year 1 and 2	Year 3 and 4	Year 5 and 6
To master practical skills	Food	<ul style="list-style-type: none"> <li>• Cut, peel or grate ingredients safely and hygienically.</li> <li>• Measure or weigh using measuring cups or electronic scales.</li> <li>• Assemble or cook ingredients.</li> </ul>	<ul style="list-style-type: none"> <li>• Prepare ingredient hygienically using appropriate utensils.</li> <li>• Measure ingredients to the nearest gram accurately.</li> <li>• Follow a recipe.</li> <li>• Assemble or cook ingredients (controlling the temperature of the oven or hob, if cooking).</li> </ul>	<ul style="list-style-type: none"> <li>• Understand the importance of correct storage and handling of ingredients (using knowledge of micro-organisms).</li> <li>• Measure accurately and calculate ratios of ingredients to scale up or down a recipe.</li> <li>• Demonstrate a range of baling and cooking techniques.</li> <li>• Create and refine recipes, including ingredients, methods, cooking times and temperatures.</li> </ul>
	Materials	<ul style="list-style-type: none"> <li>• Cut materials safely using tools provided.</li> <li>• Measure and mark out to the nearest centimetre.</li> <li>• Demonstrate a range of cutting and shaping techniques (such as tearing, cutting, folding and curling.)</li> <li>• Demonstrate a range of joining techniques (such as gluing, using hinges or combining materials to strengthen.)</li> <li>• Use materials to practice drilling, screwing, gluing and nailing materials to make and strengthen products.</li> <li>• Create products using levers, wheels and winding mechanisms.</li> </ul>	<ul style="list-style-type: none"> <li>• Cut materials accurately and safely by selecting appropriate tools.</li> <li>• Measure and mark out to the nearest millimetre.</li> <li>• Apply appropriate cutting and shaping techniques that include cuts within the perimeter of the material (such as slots or cut-outs).</li> <li>• Select appropriate joining techniques.</li> <li>• Choose suitable techniques to construct products or to repair items.</li> <li>• Strengthen materials using suitable techniques.</li> <li>• Use scientific knowledge of the transference of forces to choose appropriate mechanisms for a product (such as levers, winding mechanisms, pulleys and gears).</li> </ul>	<ul style="list-style-type: none"> <li>• Cut materials with precision and refine the finish with appropriate tools (such as sanding wood after cutting or a more precise scissor cut after roughly cutting out a shape.)</li> <li>• Show an understanding of the qualities of materials to choose appropriate tools to cut and shape (such as the nature of fabric may require sharper scissors that would be used to cut paper.)</li> <li>• Develop a range of practical skills to create products (such as cutting, drilling and screwing, nailing gluing, filling and sanding).</li> <li>• Convert rotary motion into linear using cams.</li> <li>• Use innovative combinations of electronics (or computing) and mechanics in product designs.</li> </ul>

	Textiles	<ul style="list-style-type: none"> <li>• Shape textiles using templates.</li> <li>• Join textiles using running stitch.</li> <li>• Colour and decorate textiles using a number of techniques (such as dyeing, adding sequins or printing)</li> </ul>	<ul style="list-style-type: none"> <li>• Understand the need for a seam allowance.</li> <li>• Join textiles with appropriate stitching.</li> <li>• Select the most appropriate techniques to decorate textiles.</li> </ul>	<ul style="list-style-type: none"> <li>• Create objects (such as a cushion) that employ a seam allowance.</li> <li>• Join textiles with a combination of stitching techniques (such as back stitch for seams and running stitch to attach decoration).</li> <li>• Use the qualities of materials to create suitable visual and tactile effects in the decoration of textiles (such as a soft decoration for comfort on a cushion).</li> </ul>
	Electricals and electronics		<ul style="list-style-type: none"> <li>• Create a series and parallel circuits.</li> </ul>	<ul style="list-style-type: none"> <li>• Create circuits using electronics kits that employ a number of components (such as LEDs, resistors, transistors and chips).</li> </ul>
	Computing	<ul style="list-style-type: none"> <li>• Model designs using software.</li> </ul>	<ul style="list-style-type: none"> <li>• Control and monitor models using software designed for this purpose.</li> </ul>	<ul style="list-style-type: none"> <li>• Write code to control and monitor model or products.</li> </ul>
To design, make, evaluate and improve,		<ul style="list-style-type: none"> <li>• Design products that have a clear purpose and intended user.</li> <li>• Make products, refining the design as work progresses.</li> <li>• Use software to design.</li> </ul>	<ul style="list-style-type: none"> <li>• Design with purpose by identifying opportunities to design.</li> <li>• Make products by working efficiently (such as by carefully selecting materials).</li> <li>• Refine work and techniques as work progresses, continually evaluating the product design.</li> <li>• Use software to design and represent product designs.</li> </ul>	<ul style="list-style-type: none"> <li>• Design with the user in mind motivated by the service a product will offer (rather than simply for profit).</li> <li>• Make products through stages of prototypes, making continual refinements.</li> <li>• Ensure products have a high-quality finish using art skills where appropriate.</li> <li>• Use prototypes, cross-sectional diagrams and computer-aided designs to represent designs.</li> </ul>
To take inspiration from design throughout history		<ul style="list-style-type: none"> <li>• Explore objects and designs to identify like and dislikes of the designs.</li> <li>• Suggests improvements to existing designs.</li> <li>• Explore how products have been created.</li> </ul>	<ul style="list-style-type: none"> <li>• Identify some of the great designers in all of the areas of study (including pioneers in horticultural techniques) to generate ideas for designs.</li> <li>• Improve upon existing designs, giving reasons for choices.</li> <li>• Disassemble products to understand how they work.</li> </ul>	<ul style="list-style-type: none"> <li>• Combine elements of design from a range of inspirational designers throughout history, giving reasons for choice.</li> <li>• Create innovative designs that improve upon existing products.</li> <li>• Evaluate the design of products so as to suggest improvements to the user experience.</li> </ul>

## Progression of vocabulary

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Key vocabulary	Peel, cut, grate, measure, shape, join, stitch.		Recipe, accuracy, mark-out, saw, seam		Micro-organisms, ratio, scale, baking, refine, precise.	

## Additional and extra-curricular opportunities

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## Long term Plan

	Autumn	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year R/1	<b>Marvellous Me Seasons</b>	<b>One Small Step</b>	<b>Are we nearly there?</b>	<b>How does your garden grow?</b>	<b>Once Upon a Time</b>	<b>Spectacular Sunflowers</b>
	<ul style="list-style-type: none"> <li>-Explore objects and designs to identify like and dislikes of the designs.</li> <li>-Suggests improvements to existing designs.</li> </ul>		<b>Food:</b> <ul style="list-style-type: none"> <li>•Measure or weigh using measuring cups or electronic scales.</li> <li>•Assemble or cook ingredients.</li> </ul>		<ul style="list-style-type: none"> <li>-Design products that have a clear purpose and intended user.</li> <li>-Make products, refining the design as work progresses.</li> <li>•Cut materials safely using tools provided.</li> <li>•Demonstrate a range of cutting and shaping techniques (such as tearing, cutting, folding and curling.)</li> <li>•Demonstrate a range of joining techniques (such as gluing, using hinges or combining materials to strengthen.)</li> <li>•Explore objects and designs to identify like and dislikes of the designs.</li> <li>•Suggests improvements to existing designs.</li> </ul>	
Year 2	<b>Amazing Me and Other Beasts</b>	<b>My House or Yours?</b>	<b>Fire Fire</b>	<b>Big Wide World</b>	<b>Where are we?</b>	<b>Awesome Artists</b>
		<ul style="list-style-type: none"> <li>•-Design products that have a clear purpose and intended user.</li> <li>-Make products, refining the design as work progresses.</li> <li>Use materials to practice drilling, screwing, gluing and nailing materials to make and strengthen products.</li> <li>Explore objects and designs to identify like and dislikes of the designs.</li> </ul>				

		<ul style="list-style-type: none"> <li>•Suggests improvements to existing designs.</li> </ul>				
<b>Year 3/4</b>	<b>The Dreamer of Dreams</b>	<b>Savage Stone Age</b>	<b>Daring and Dangerous</b>	<b>Friend or Foe?</b>	<b>Magnetic Madness</b>	<b>Sailing the High Seas</b>
	<p>Sewing</p> <p>Shape and stitch materials.</p> <ul style="list-style-type: none"> <li>- Use basic cross stitch and back stitch.</li> </ul>	<p>Cooking</p> <ul style="list-style-type: none"> <li>• Prepare ingredient hygienically using appropriate utensils.</li> <li>• Measure ingredients to the nearest gram accurately.</li> <li>• Follow a recipe.</li> </ul> <p>Assemble or cook ingredients (controlling the temperature of the oven or hob, if cooking).</p>	<p>Cut materials accurately and safely by selecting appropriate tools.</p> <ul style="list-style-type: none"> <li>• Measure and mark out to the nearest millimetre.</li> <li>• Apply appropriate cutting and shaping techniques that include cuts within the perimeter of the material (such as slots or cut-outs).</li> <li>• Select appropriate joining techniques.</li> <li>• Choose suitable techniques to construct products or to repair items.</li> </ul> <p>Strengthen materials using suitable techniques.</p> <p>Cooking</p> <ul style="list-style-type: none"> <li>• Prepare ingredient hygienically using appropriate utensils.</li> <li>• Measure ingredients to the nearest gram accurately.</li> <li>• Follow a recipe.</li> </ul> <p>Assemble or cook ingredients (controlling the temperature of the oven or hob, if cooking).</p>		<ul style="list-style-type: none"> <li>• Design with purpose by identifying opportunities to design.</li> <li>• Create a series and parallel circuits.</li> <li>• Make products by working efficiently (such as by carefully selecting materials).</li> <li>• Refine work and techniques as work progresses, continually evaluating the product design. Use software to</li> </ul>	

Year 5/6	Spooky Scientists	Mystery History	Evolutions	Shaping Up
	<p>Understanding the qualities of materials, design and make a Gothic room.</p> <ul style="list-style-type: none"> <li>• Cut materials with precision and refine the finish with appropriate tools (such as sanding wood after cutting or a more precise scissor cut after roughly cutting out a shape.)</li> <li>• Show an understanding of the qualities of materials to choose appropriate tools to cut and shape (such as the nature of fabric may require sharper scissors that would be used to cut paper.)</li> </ul>			<p>Link with Forces – Motors, Fairground rides.</p> <ul style="list-style-type: none"> <li>• Design with the user in mind motivated by the service a product will offer (rather than simply for profit).</li> <li>• Create circuits using electronics kits that employ a number of components (such as LEDs, resistors, transistors and chips).</li> <li>• Make products through stages of prototypes, making continual refinements.</li> <li>• Ensure products have a high-quality finish using art skills where appropriate.</li> </ul> <ul style="list-style-type: none"> <li>• Understand the importance of correct storage and handling of ingredients (using knowledge of micro-organisms).</li> <li>• Measure accurately and calculate ratios of ingredients to scale up or down a recipe.</li> <li>• Demonstrate a range of baling and cooking techniques.</li> <li>• Create and refine recipes, including ingredients, methods, cooking times and temperatures.</li> </ul>