



## Progression in Design & Technology

Children should be taught:		Progression in knowledge, skills and understanding by end of Phase Children will be able to:		
		Year 2	Year 4	Year 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 ingredients 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 from a recipe.</li> <li>• Demonstrate a range of baking and cooking techniques.</li> <li>• Create and refine recipes, including ingredients, methods, cooking times and temperatures.</li> </ul>



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	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, hinges or combining materials to strengthen).</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> </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 than would be used to cut paper).</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>• 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>	<p>Create objects (such as a cushion) that employ a seam allowance.</p> <ul style="list-style-type: none"> <li>• Join textiles with a combination of stitching techniques (such as back stitch for seams and running stitch to attach decoration).</li> </ul>



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	Textiles cont			<ul style="list-style-type: none"> <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>Diagnose faults in battery operated devices (such as low battery, water damage or battery terminal damage).</li> </ul>	<ul style="list-style-type: none"> <li>Create 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 models or products.</li> </ul>

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	Construction	<ul style="list-style-type: none"> <li>Use materials to practise drilling, screwing, gluing and nailing materials to make and strengthen products.</li> </ul>	<ul style="list-style-type: none"> <li>Choose suitable techniques to construct products or to repair items.</li> <li>Strengthen materials using suitable techniques.</li> </ul>	<ul style="list-style-type: none"> <li>Develop a range of practical skills to create products (such as cutting, drilling and screwing, nailing, gluing, filling and sanding).</li> </ul>
	Mechanics	<ul style="list-style-type: none"> <li>Create products using levers, wheels and winding mechanisms.</li> </ul>	<ul style="list-style-type: none"> <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>Convert rotary motion to linear using cams.</li> <li>Use innovative combinations of electronics (or computing) and mechanics in product designs.</li> </ul>
To design, make, evaluate and improve		Design products that have a clear purpose and an intended user. <ul style="list-style-type: none"> <li>Make products, refining the design as work progresses.</li> <li>Use software to design.</li> </ul>	Design with purpose by identifying opportunities to design. <ul style="list-style-type: none"> <li>Make products by working efficiently (such as by carefully selecting materials).</li> </ul>	Design with the user in mind, motivated by the service a product will offer (rather than simply for profit). <ul style="list-style-type: none"> <li>Make products through stages of prototypes, making continual refinements.</li> </ul>



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To design, make, evaluate and improve Cont			<ul style="list-style-type: none"> <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>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 likes and dislikes of the designs.</li> <li>Suggest 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 choices.</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>

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<p><b>Design and technology opportunities</b></p> <ul style="list-style-type: none"> <li>• Work in a number of fields including:             <ul style="list-style-type: none"> <li>materials (including textiles)</li> <li>horticulture</li> <li>electricals and electronics</li> <li>construction</li> <li>mechanics</li> <li>cooking</li> <li>emerging areas of design and technology (such as food design, design for disability, and age-related design).</li> </ul> </li> </ul>	<p><b>Mastering practical skills</b></p> <ul style="list-style-type: none"> <li>• Increase skills, knowledge and competence in using materials, machinery, technique and processes.</li> <li>• Complete common practical, diagnostic, repair and maintenance tasks and multi-stage processes.</li> <li>• Develop well-conceived and well-executed practical solutions.</li> <li>• Select and use complex tools, equipment, machinery and techniques skillfully.</li> <li>• Develop sophisticated practical skills and carry out diagnostic, repair and maintenance tasks in a range of contexts.</li> <li>• Explore materials and technological developments, and experiment with using them.</li> <li>• Understand the importance of nutrition, a balanced diet and about the characteristics of a broad range of ingredients in choosing and preparing food.</li> <li>• Cook a repertoire of savoury meals and become confident in a range of cooking techniques.</li> </ul>	<p><b>Designing, making, evaluating and improving</b></p> <ul style="list-style-type: none"> <li>• Plan, design, make and evaluate a range of quality products, in a variety of materials that are fit for purpose.</li> <li>• Communicate ideas and designs skilfully and accurately in 2D and 3D, using a variety of techniques, including computing.</li> </ul>	<p><b>Taking inspiration from design throughout history</b></p> <ul style="list-style-type: none"> <li>• Analyse the work of others, including iconic designs, to inform work.</li> <li>• Use historical and contextual references to influence and improve work.</li> <li>• Understand developments in design and technology and the responsibilities of designers, including environmental responsibilities.</li> </ul>
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