

## Progression of Skills in Design and Technology

Strands	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Beyond primary expectations
<b>Design, make, evaluate and improve</b>	<ul style="list-style-type: none"> <li>• Explain what they are making and which materials they are using.</li> <li>• Design products that have a clear purpose and an intended user.</li> <li>• Use pictures and words to convey what they want to make.</li> <li>• Make products, using a range of tools to cut, shape, join and finish.</li> <li>• Say what they like and don't like about their product and explain why.</li> <li>• Talk about how closely their finished product meets their design criteria.</li> <li>• Begin to use software to represent 2D designs.</li> </ul>		<ul style="list-style-type: none"> <li>• Investigate existing products, including drawing them to analyse and understand how they are made.</li> <li>• Plan a sequence of actions to make a product.</li> <li>• Develop more than one design.</li> <li>• Develop prototypes.</li> <li>• Generate designs with annotated sketches and computer-aided design (CAD) where appropriate.</li> <li>• Refine work and techniques as work progresses, continually evaluating the product design.</li> <li>• Identify strengths and weaknesses of their design ideas.</li> <li>• Talk about how closely their finished product meets their design criteria and meets the need of the user.</li> </ul>		<ul style="list-style-type: none"> <li>• Undertake research to inform design process. This may include surveys and interviews.</li> <li>• Use prototypes, cross-sectional diagrams, exploded diagrams and CAD software to represent designs.</li> <li>• Consider the views of others when evaluating their own work.</li> <li>• Ensure products have a high quality finish, using art skills where appropriate.</li> <li>• Justify their decisions about materials and methods of construction.</li> <li>• Make suggestions on how their design/ product could be improved.</li> </ul>		<ul style="list-style-type: none"> <li>• Communicate ideas and designs skilfully and accurately in 2D and 3D, using a variety of techniques, including computing.</li> </ul>

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<b>Cooking and nutrition</b>	<ul style="list-style-type: none"> <li>• Understand where food comes from.</li> <li>• Group familiar food products e.g. fruit and vegetables.</li> <li>• Cut ingredients safely.</li> <li>• Prepare simple dishes-safely and hygienically-without using a heat source.</li> </ul>	<ul style="list-style-type: none"> <li>• Group foods into the five groups in The Eatwell Plate.</li> <li>• Cut, grate or peel ingredients safely.</li> <li>• Prepare simple dishes-safely and hygienically-without using a heat source.</li> <li>• Measure or weigh using cups or electronic scales.</li> </ul>	<ul style="list-style-type: none"> <li>• Cut materials accurately and safely by selecting appropriate tools.</li> <li>• Know that a healthy diet is made up from a variety of different food and drink, as depicted in The Eatwell Plate.</li> <li>• Measure and weigh ingredients appropriately.</li> <li>• Follow a recipe.</li> </ul>	<ul style="list-style-type: none"> <li>• Apply appropriate cutting and shaping techniques that include cuts within the perimeter of the material (such as slots or cut outs).</li> <li>• Measure ingredients using scales.</li> <li>• Prepare ingredients hygienically and using the appropriate utensils by following a recipe.</li> </ul>	<ul style="list-style-type: none"> <li>• Assemble or cook ingredients, controlling the temperature of the oven or hob if cooking.</li> <li>• Measure accurately using different equipment.</li> <li>• Create recipes, including ingredients, methods, cooking times and temperatures.</li> <li>• Understand the importance of correct storage and handling of ingredients.</li> </ul>	<ul style="list-style-type: none"> <li>• Combine ingredients appropriately e.g. beating or rubbing.</li> <li>• Measure ingredients to the nearest gram and millilitre and calculate ratios of ingredients to scale up or down from a recipe.</li> <li>• Understand seasonality and know where and how a variety of ingredients are grown, reared, caught and processed.</li> <li>• Create and refine recipes, including ingredients, methods, cooking times and temperatures.</li> </ul>	<ul style="list-style-type: none"> <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> </ul>
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<p style="text-align: center;"><b>Construction, mechanics and electronics</b></p>	<ul style="list-style-type: none"> <li>• Mark out materials to be cut using a template.</li> <li>• Attach wheels to chassis using an axle.</li> <li>• With support cut strip wood/dowel using a hacksaw.</li> <li>• Make vehicles with construction kits which contain free running wheels.</li> </ul>	<ul style="list-style-type: none"> <li>• Use a range of materials to create models with wheels and axles e.g. tubes, dowel and cotton reels.</li> <li>• Use materials to practise drilling, screwing, nailing and gluing to strengthen products.</li> </ul>	<ul style="list-style-type: none"> <li>• Create series circuits.</li> <li>• Strengthen frames using diagonal struts.</li> <li>• Begin to use mechanical systems in their products e.g. gears, pulleys and levers.</li> </ul>	<ul style="list-style-type: none"> <li>• Create series and parallel circuits.</li> <li>• Investigate how to make structures more stable e.g by widening the base.</li> <li>• Understand and use mechanical structures in their products e.g. gears, pulleys, levers and gears.</li> </ul>	<ul style="list-style-type: none"> <li>• Control a model using an ICT control model.</li> <li>• Use a glue gun with close supervision.</li> <li>• Join materials using appropriate methods. Use a hand drill to drill tight and loose fit holes.</li> </ul>	<ul style="list-style-type: none"> <li>• Create circuits that employ a number of components (such as LEDs, resistors and transistors).</li> <li>• Cut wood accurately to 1mm. Build frameworks using a range of materials e.g. wood, card and corrugated plastic.</li> <li>• Use a cam to make an up and down mechanism.</li> </ul>	<ul style="list-style-type: none"> <li>• Develop sophisticated practical skills and carry out diagnostic, repair and maintenance tasks in a range of contexts.</li> <li>• Develop well-conceived and well-executed practical solutions.</li> <li>• Increase skills, knowledge and competence in using materials, machinery, technique and processes.</li> </ul>
<p style="text-align: center;"><b>Materials</b></p>	<ul style="list-style-type: none"> <li>• Fold, tear and cut paper or card.</li> <li>• Investigate strengthening sheet materials.</li> <li>• Roll paper to create tubes.</li> <li>• Demonstrate a range of joining techniques such as gluing or taping.</li> <li>• Measure and mark out lines.</li> </ul>	<ul style="list-style-type: none"> <li>• Demonstrate a range of joining techniques such as gluing, taping or creating hinges.</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>• Use simple pop-ups.</li> </ul>	<ul style="list-style-type: none"> <li>• Measure and mark out accurately.</li> <li>• Cut materials accurately and safely by selecting appropriate tools.</li> <li>• Cut slots.</li> </ul>	<ul style="list-style-type: none"> <li>• Measure and mark out to the nearest mm.</li> <li>• Use and explore complex pop-ups.</li> <li>• Cut slots and internal shapes.</li> <li>• Create nets.</li> </ul>	<ul style="list-style-type: none"> <li>• Cut materials with precision.</li> <li>• Cut accurately and safely to a marked line.</li> <li>• Join/combine materials with temporary, fixed or moving joints.</li> </ul>	<ul style="list-style-type: none"> <li>• Cut materials with precision and refine the finish with appropriate tools (such as sanding wood).</li> <li>• Show an understanding of the qualities of materials to choose appropriate tools to cut and shape.</li> </ul>	

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<p>Take inspiration from design throughout history</p>	<ul style="list-style-type: none"><li>• Explore objects and designs to identify likes and dislikes.</li><li>• Explore how products have been created.</li></ul>	<ul style="list-style-type: none"><li>• Disassemble products to understand how they work.</li><li>• Improve on existing designs, giving reasons for choices.</li><li>• Identify some of the great designers in different areas of study to generate ideas from their designs.</li></ul>	<ul style="list-style-type: none"><li>• Use knowledge of inventors, designers, engineers, chefs and manufacturers who have developed ground-breaking products to create their own innovative designs.</li></ul>	<ul style="list-style-type: none"><li>• Analyse the work of others, including iconic designs to informal work.</li><li>• Understand developments in D and T and the responsibilities of designers, including environmental responsibilities.</li></ul>
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