

## Progression of key skills and knowledge in Design Technology

Technical knowledge		Designing and making	Evaluation	Nutrition and cookery
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 design and make products that solve real and relevant problems within a variety of contexts, considering their own and others' needs, wants and values.  Pupils learn how to take risks, becoming resourceful, innovative, enterprising and capable citizens.	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.
Emerging knowledge skills and concepts	I can explain what I am making and which tools I am using.	I can show that I can create products for a use and purpose using my practical ideas.  I use models, pictures and words to describe what I want to do.  I can use tools and manipulate materials with help where needed.	I can talk about my and other people's work in simple terms and describe how a product works.	I am beginning to understand where food comes from. I am beginning to know what a healthy diet is. I can prepare simple dishes.
Expected by the end of KS1  Year 2	Build structures, exploring how they can be made stronger, stiffer and more stable <ul style="list-style-type: none"> <li>• that a 3-D textiles product can be assembled from two identical fabric shapes</li> <li>• the correct technical vocabulary for the projects they are undertaking</li> </ul> <p>Explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products.</p> <p>I can select appropriate tools, techniques and materials and explain my choice.</p>	Design purposeful, functional, appealing products for themselves and other users based on design criteria. <i>Across KS1 pupils should:</i> <ul style="list-style-type: none"> <li>• work confidently within a range of contexts, such as imaginary, story-based, home, school etc.</li> <li>• state what products they are designing and making</li> <li>• say whether their products are for themselves or other users</li> <li>• describe what their products are for</li> <li>• say how their products will work</li> <li>• say how they will make their products suitable for their intended users</li> <li>• use simple design criteria to help develop their ideas</li> </ul> <p>Generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology. <i>Across KS1 pupils should:</i></p> <ul style="list-style-type: none"> <li>• generate ideas by drawing on their own experiences</li> <li>• use knowledge of existing products to help come up with ideas</li> <li>• develop and communicate ideas by talking and drawing</li> <li>• model ideas by exploring materials, components and construction kits and by making templates and mock-ups</li> <li>• use information and communication technology, where appropriate, to develop and communicate their ideas</li> </ul> <p>Select from and use a range of tools and equipment to perform practical tasks. [for example, cutting, shaping, joining and finishing] <i>Measure, mark out, cut and shape materials and components</i></p> <p>Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics explaining their choices.</p>	Explore and evaluate a range of existing products.  Evaluate their ideas and products against design criteria.  I can recognise what I have done well and I can suggest what I can do better in the future. <ul style="list-style-type: none"> <li>• suggest how their products could be improved</li> </ul> <p><b>Across KS1 pupils should explore:</b></p> <ul style="list-style-type: none"> <li>• what products are</li> <li>• who products are for</li> <li>• what products are for</li> <li>• how products work</li> <li>• how products are used</li> <li>• where products might be used</li> <li>• what materials products are made from</li> <li>• what they like and dislike about products</li> </ul>	I can name and sort foods into the five groups in the 'eatwell plate.'  I know that everyone should eat at least five portions of fruit and vegetables every day.  I know how to prepare simple dishes safely and hygienically, without using a heat source.  I can use techniques such as cutting, peeling and grating.  Use the basic principles of a healthy and varied diet to prepare dishes. <ul style="list-style-type: none"> <li>• that food ingredients should be combined according to their sensory characteristics</li> </ul> <p>I understand where food comes from.</p> <ul style="list-style-type: none"> <li>• that all food comes from plants or animals</li> <li>• that food has to be farmed, grown elsewhere (e.g. home) or caught</li> <li>• follow procedures for safety and hygiene</li> </ul>

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<p><b>Expected by the end of lower KS2 Year 4</b></p>	<p>I can choose appropriate tools, equipment, components and techniques to make functional products.</p> <p>I can my apply my technical knowledge and understanding of the nature of materials to cut, shape and join them with some accuracy.</p> <p>Apply their understanding of how to strengthen, stiffen and reinforce more complex structures.</p> <ul style="list-style-type: none"> <li>• <i>how mechanical systems such as levers and linkages or pneumatic systems create movement</i></li> <li>• <i>how simple electrical circuits and components can be used to create functional products</i></li> <li>• <i>how to program a computer to control their products</i></li> <li>• <i>how to make strong, stiff shell structures</i></li> <li>• <i>that a single fabric shape can be used to make 3D textiles product</i></li> </ul>	<p>I can generate ideas and recognise my designs could meet a range of different needs and users.</p> <ul style="list-style-type: none"> <li>• <i>gather information about the needs and wants of particular individuals and groups</i></li> <li>• <i>generate realistic ideas, focusing on the needs of the user</i></li> </ul> <p>I can think ahead about the order of my work and make a realistic plan for achieving my aims.</p> <ul style="list-style-type: none"> <li>• <i>develop their own design criteria and use these to inform their ideas</i></li> <li>• <i>make design decisions that take account of the availability of resources</i></li> </ul> <p>I produce step by step plans to generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and patterns and select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately.</p> <p>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.</p> <ul style="list-style-type: none"> <li>• <i>order the main stages of making</i></li> </ul>	<p>I can reflect on the design and make process and identify some improvements to my products.</p> <ul style="list-style-type: none"> <li>• <i>refer to their design criteria as they design and make</i></li> <li>• <i>use their design criteria to evaluate their completed products</i></li> </ul> <p>Understand how key events and individuals in design and technology have helped shape the world.</p> <p><i>Across KS2 pupils should know about inventors, designers, engineers, chefs and manufacturers who have developed ground-breaking products</i></p> <p><b><i>In early KS2 pupils should also investigate and analyse:</i></b></p> <ul style="list-style-type: none"> <li>• <b><i>who designed and made the products</i></b></li> <li>• <b><i>where products were designed and made</i></b></li> <li>• <b><i>when products were designed and made</i></b></li> <li>• <b><i>whether products can be recycled or reused</i></b></li> </ul>	<p>I am beginning to understand and apply the principles of a healthy and varied diet.</p> <ul style="list-style-type: none"> <li>• <i>that a healthy diet is made up from a variety and balance of different food and drink, as depicted in the 'eatwell plate'</i></li> <li>• <i>that to be active and healthy, food and drink are needed to provide energy for the body</i></li> </ul> <p>I can prepare and cook a variety of predominantly savoury dishes safely and hygienically including, where appropriate, the use of a heat source.</p> <p>I know how to use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking.</p> <p>I understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.</p> <ul style="list-style-type: none"> <li>• <i>that food ingredients can be fresh, pre-cooked and processed</i></li> <li>• <i>that food is grown (such as tomatoes, wheat and potatoes), reared (such as pigs, chickens and cattle) and caught (such as fish) in the UK, Europe and the wider world</i></li> </ul>

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<p><b>Expected by the end of KS2</b></p> <p><b>Year 6</b></p>	<p>Understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages].</p> <ul style="list-style-type: none"> <li>• <i>how mechanical systems such as cams or pulleys or gears create movement</i></li> </ul> <p>Understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors].</p> <ul style="list-style-type: none"> <li>• <i>how more complex electrical circuits and components can be used to create functional products</i></li> </ul> <p>Apply their understanding of computing to program, monitor and control their products.</p> <ul style="list-style-type: none"> <li>• <i>how to program a computer to monitor changes in the environment and control their products</i></li> <li>• <i>how to reinforce and strengthen a 3D framework</i></li> <li>• <i>that a 3D textiles product can be made from a combination of fabric shapes</i></li> </ul>	<p>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.</p> <p><i>In late KS2 pupils should also:</i></p> <ul style="list-style-type: none"> <li>• <i>carry out research, using surveys, interviews, questionnaires and web-based resources</i></li> <li>• <i>identify the needs, wants, preferences and values of particular individuals and groups</i></li> </ul> <p>Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design.</p> <ul style="list-style-type: none"> <li>• <i>develop a simple design specification to guide their thinking</i></li> <li>• <i>produce appropriate lists of tools, equipment and materials that they need</i></li> <li>• <i>formulate step-by-step plans as a guide to making</i></li> </ul> <p>Select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately.</p> <ul style="list-style-type: none"> <li>• <i>explain their choice of tools and equipment in relation to the skills and techniques they will be using</i></li> </ul> <p>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.</p> <ul style="list-style-type: none"> <li>• <i>make design decisions, taking account of constraints such as time, resources and cost</i></li> </ul>	<p>Investigate and analyse a range of existing products.</p> <p>Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work.</p> <ul style="list-style-type: none"> <li>• <i>critically evaluate the quality of the design, manufacture and fitness for purpose of their products as they design and make</i></li> <li>• <i>evaluate their ideas and products against their original design specification</i></li> </ul> <p>Understand how key events and individuals in design and technology have helped shape the world.</p> <p><i>Across KS2 pupils should know about inventors, designers, engineers, chefs and manufacturers who have developed ground-breaking products</i></p> <p>I can identify what is working well and what could be improved to overcome technical problems.</p> <p>When evaluating I pay attention to the quality of finish.</p>	<p>Understand and apply the principles of a healthy and varied diet.</p> <p>Prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques.</p> <p>Understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.</p> <ul style="list-style-type: none"> <li>• <i>that seasons may affect the food available</i></li> <li>• <i>how food is processed into ingredients that can be eaten or used in cooking</i></li> <li>• <i>that a recipe can be adapted by adding or substituting one or more ingredients</i></li> <li>• <i>that recipes can be adapted to change the appearance, taste, texture and aroma</i></li> <li>• <i>that different food and drink contain different substances – nutrients, water and fibre – that are needed for health</i></li> </ul>