



**Design & Technology Skills, knowledge and vocabulary progression**

<b>Year</b>  <b>KS1</b>	<p><b>Design</b> - purposeful, functional, appealing products for themselves and other users based on design criteria</p> <p>Design - generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information</p>	<p><b>Make</b>- select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing] select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics</p>	<p><b>Evaluating processes and products</b>—explore and evaluate a range of existing products evaluate their ideas and products against design criteria</p>	<p><b>Knowledge</b>- build structures, exploring how they can be made stronger, stiffer and more stable explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products.</p>
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1	<ul style="list-style-type: none"> <li>• use own ideas to design something and describe how their own idea works</li> <li>• design a product which moves</li> <li>• explain to someone else how they want to make their product and make a simple plan before making</li> </ul>	<ul style="list-style-type: none"> <li>• use own ideas to make something</li> <li>• make a product which moves</li> <li>• choose appropriate resources and tools</li> </ul>	<ul style="list-style-type: none"> <li>• describe how something works</li> <li>• explain what works well and not so well in the model they have made</li> </ul>	<p><u>Mechanisms -Sliders and levers</u></p> <ul style="list-style-type: none"> <li>· Generating, modelling and communicating ideas.</li> <li>· Planning making, selecting tools and using finishing techniques.</li> <li>· Exploring books and products; evaluating own product against original criteria.</li> <li>· Exploring sliders and levers; understanding types of movement; technical vocabulary.</li> </ul> <p><u>Food - Preparing fruit and vegetables</u></p> <ul style="list-style-type: none"> <li>· Designing appealing products for a user; investigating fruit and vegetables and generating ideas; communicating through talk and drawings.</li> <li>· Selecting a range of fruits and vegetables; using simple utensils and equipment.</li> <li>· Tasting and evaluating user's preference; evaluating ideas and finished products against original criteria.</li> <li>· Understand where ingredients come from and the basis of a healthy and varied diet.</li> </ul> <p><u>Textiles Templates and joining techniques</u></p> <ul style="list-style-type: none"> <li>· Design a functional, appealing product for a chosen user and purpose.</li> <li>· Generate, develop, and communicate ideas.</li> <li>· Use a range of textiles, tools and equipment to perform practical tasks.</li> <li>· Explore and evaluate existing textile products and their own ideas and products.</li> <li>· Understand how 3-D textile products are</li> </ul>
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				made, using joining, templates and finishing creating two identical shapes.
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2	<ul style="list-style-type: none"> <li>• think of an idea and plan what to do next</li> <li>• explain why they have chosen specific textiles</li> </ul>	<ul style="list-style-type: none"> <li>• choose tools and materials and explain why they have chosen them</li> <li>• join materials and components in different ways</li> <li>• measure materials to use in a model or structure</li> </ul>	<ul style="list-style-type: none"> <li>• explain what went well with their work</li> </ul>	<p><u>Food Preparing fruit and vegetables</u></p> <ul style="list-style-type: none"> <li>· Designing appealing products for a user; investigating fruit and vegetables and generating ideas; communicating through talk and drawings. · Selecting a range of fruits and vegetables; using simple utensils and equipment. · Tasting and evaluating user's preference; evaluating ideas and finished products against original criteria. · Understand where ingredients come from and the basis of a healthy and varied diet.</li> </ul> <p><u>Textiles Templates and joining techniques</u></p> <ul style="list-style-type: none"> <li>· Design a functional, appealing product for a chosen user and purpose. · Generate, develop, and communicate ideas. · Use a range of textiles, tools and equipment to perform practical tasks. · Explore and evaluate existing textile products and their own ideas and products. · Understand how 3-D textile products are made, using joining, templates and finishing creating two identical shapes.</li> </ul> <p><u>Structures Freestanding structures</u></p> <ul style="list-style-type: none"> <li>· Generating design ideas; developing modelling and explaining using talk, mock-ups and drawings. · Planning making, selecting tools and new and recycled materials;</li> </ul>
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				<p>using finishing techniques. · Exploring existing freestanding structures; evaluating their own products against original criteria. · Know about strengthening structures; knowledge of vocabulary.</p>
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<p><b>Year</b></p> <p><b>Lower KS2</b></p>	<p><b>Design</b> - 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</p>	<p><b>Make</b>- 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 wide range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities</p>	<p><b>Evaluating processes and products</b>—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</p>	<p><b>Knowledge</b>- 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, mon</p>
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Year 3	<ul style="list-style-type: none"> <li>• prove that a design meets a set criteria.</li> <li>• design a product and make sure that it looks attractive</li> <li>• choose a material for both its suitability and its appearance</li> </ul>	<ul style="list-style-type: none"> <li>• follow a step-by-step plan, choosing the right equipment and materials</li> <li>• select the most appropriate tools and techniques for a given task</li> <li>• make a product which uses both electrical and mechanical components</li> <li>• work accurately to measure, make cuts and make holes</li> </ul>	<ul style="list-style-type: none"> <li>• explain how to improve a finished model</li> <li>• know why a model has, or has not, been successful</li> </ul>	<p><u>Electric Systems</u></p> <ul style="list-style-type: none"> <li>· Gather information and develop and communicate realistic design ideas using annotated sketches and prototypes.</li> <li>· Connect simple electrical components in a series circuit and program an interface to enhance the way the product works.</li> <li>· Investigate and analyse a range of powered products, including programmed, and evaluate their own products and design criteria.</li> </ul> <p>Shell structures</p> <ul style="list-style-type: none"> <li>· Generate and develop realistic ideas and design criteria collaboratively and through analysis of existing products.</li> <li>· Order the stages of making; selecting tools and using with some accuracy.</li> <li>· Investigate and evaluate shell structures, and construct strong, stiff shell structures.</li> </ul> <p><u>Pulleys and Levers</u></p> <ul style="list-style-type: none"> <li>· Generate ideas through research and develop and communicate a simple design specification.</li> <li>· Select use a range of tools and equipment to make products that that are accurately assembled and well finished within the constraints of time, resources and cost.</li> <li>· Compare the final product to the original design specification and test the</li> </ul>
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				<p>quality of the design, manufacture and functionality with the user. · Investigate famous manufacturing and engineering companies relevant to the project.</p> <p><u>Healthy and varied Diet</u></p> <p>· Generate ideas and develop design criteria for an appealing product for a user and purpose. · Plan the main stages of a recipe, listing ingredients, utensils and equipment. · Select from a range of ingredients to make appropriate food products. · Carry out and record evaluations of a variety of ingredients and products. · Know a range of appropriate ingredients, and whether they are grown, reared or caught.</p> <p><u>Textiles 2-D shape to 3-D product</u></p> <p>· Generate design criteria for an appealing, functional product for specific users. · Produce annotated sketches, prototypes, final product sketches and pattern pieces. · Select fabrics and fastenings according to their functional characteristics.</p>
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Year 4	<p>use ideas from other people when designing • produce a plan and explain it • persevere and adapt work when original ideas do not work • communicate ideas in a range of ways, including by sketches and drawings which are annotated</p>	<p>know which tools to use for a particular task and show knowledge of handling the tool • know which material is likely to give the best outcome • measure accurately</p>	<p>evaluate and suggest improvements for design • evaluate products for both their purpose and appearance • explain how the original design has been improved • present a product in an interesting way</p>	<p><u>Food Healthy and varied diet</u></p> <p>Key learning</p> <ul style="list-style-type: none"> <li>· Generate ideas and develop design criteria for an appealing product for a user and purpose.</li> <li>· Plan the main stages of a recipe, listing ingredients, utensils and equipment.</li> <li>· Select from a range of ingredients to make appropriate food products.</li> <li>· Carry out and record evaluations of a variety of ingredients and products.</li> <li>· Know a range of appropriate ingredients, and whether they are grown, reared or caught.</li> </ul> <p><u>Textiles 2-D shape to 3-D product</u></p> <p>Key learning</p> <ul style="list-style-type: none"> <li>· Generate design criteria for an appealing, functional product for specific users.</li> <li>· Produce annotated sketches, prototypes, final product sketches and pattern pieces.</li> <li>· Select fabrics and fastenings according to their functional characteristics.</li> <li>· Investigate a range of 3-D textile products.</li> <li>· Test their product against the original criteria and with the intended user.</li> </ul> <p><u>Mechanical Systems Levers and linkages</u></p>
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				<p>Key learning</p> <ul style="list-style-type: none"><li>· Generate realistic ideas and use annotated sketches and prototypes to develop, model and communicate ideas.</li><li>· Select and use tools with some accuracy to cut, shape and join paper and card.</li><li>· Investigate and analyse their own and others' products with lever and linkage mechanisms.</li><li>· Understand and use lever and linkages, and fixed and loose pivots</li></ul>
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<p><b>Year</b></p> <p><b>Upper KS2</b></p>	<p><b>Design</b> - 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</p>	<p><b>Make</b>- 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 wide range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities</p>	<p><b>Evaluating processes and products</b>—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</p>	<p><b>Knowledge</b>- 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.</p>
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<p>Year 5</p>	<ul style="list-style-type: none"> <li>• come up with a range of ideas after collecting information from different sources</li> <li>• produce a detailed, step-by-step plan</li> <li>• explain how a product will appeal to a specific audience</li> <li>• design a product that requires p</li> </ul>	<ul style="list-style-type: none"> <li>• use a range of tools and equipment competently</li> <li>• make a prototype before making a final version</li> <li>• make a product that relies on pulleys or gears</li> </ul>	<ul style="list-style-type: none"> <li>• suggest alternative plans; outlining the positive features and draw backs</li> <li>• evaluate appearance and function against original criteria</li> </ul>	<p><u>NEW Structures Shell structures using computer-aided design (CAD)</u></p> <ul style="list-style-type: none"> <li>· Generate ideas and designs, developing them through analysis of shell structures and use CAD to model and communicate ideas. · Plan the making and use appropriate tools and software, explaining their choices. Use computer-generated finishing techniques· Develop knowledge of nets of cubes and cuboids and more complex 3D shapes and how to construct strong, stiff shell structures.</li> </ul> <p><u>Structures Frame structures</u></p> <ul style="list-style-type: none"> <li>· Research user needs and existing products and develop and model innovative ideas into a design specification. · Formulate a plan with a step-by-step list of tasks and resources. · Use tools to accurately measure, mark out, cut, shape and join materials to make frameworks. · Use finishing techniques suitable for the product and critically evaluate their products against a range of criteria. · Research key events and individuals relevant to frame structures.</li> </ul> <p><u>Food Celebrating culture and seasonality</u></p> <ul style="list-style-type: none"> <li>· Generate and explore innovative ideas through research and discussion to develop a design brief. · Write a step-by-step recipe, including a list of</li> </ul>
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				<p>ingredients, equipment and utensils. · Using appropriate utensils and equipment accurately, make, decorate and present a food product for the intended user and purpose. · Evaluate a range of relevant products and ingredients and the final product with reference to the design brief and specification. · Understand seasonality and the source of different food products.</p>
Year 6	<ul style="list-style-type: none"> <li>• use market research to inform plans and ideas.</li> </ul>	<ul style="list-style-type: none"> <li>• know which tool to use for a specific practical task</li> </ul>	<ul style="list-style-type: none"> <li>• know how to test and evaluate designed products</li> </ul>	<p><u>Textiles Combining different fabric shapes</u></p> <p>Key learning</p> <ul style="list-style-type: none"> <li>· Generate and communicate innovative ideas</li> </ul>

	<ul style="list-style-type: none"> <li>• follow and refine original plans</li> <li>• justify planning in a convincing way</li> <li>• show that culture and society is considered in plans and designs</li> </ul>	<ul style="list-style-type: none"> <li>• know how to use any tool correctly and safely</li> <li>• know what each tool is used for</li> <li>• explain why a specific tool is best for a specific action</li> </ul>	<ul style="list-style-type: none"> <li>• explain how products should be stored and give reasons</li> <li>• evaluate product against clear criteria</li> </ul>	<p>through research. · Produce detailed lists of equipment and fabrics and formulate step-by-step plans for making. · Investigate and analyse textile products linked to their final product and compare the final product to the original design specification. · Know that a 3-D textile product can be made from a combination of pattern pieces, fabric shapes and different fabrics and those fabrics can be strengthened, stiffened and reinforced.</p> <p><u>Mechanical Systems Pulleys or gears</u></p> <p>Key learning</p> <ul style="list-style-type: none"> <li>· Generate ideas through research and develop and communicate a simple design specification. · Select use a range of tools and equipment to make products that that are accurately assembled and well finished within the constraints of time, resources and cost. · Compare the final product to the original design specification and test the quality of the design, manufacture and functionality with the user. · Investigate famous manufacturing and engineering companies relevant to the project.</li> </ul>
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