

## Design Technology – Progression of Skills

	→ → → Progression of skills – Skills from previous year groups to still be covered					
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<b>Designing</b>						
<p><b>Background research</b> Understanding contexts, users and purposes.</p>	<ul style="list-style-type: none"> <li>○ Explore existing products.</li> <li>○ Who is it for?</li> <li>○ What is the product used for?</li> <li>○ Where might you find the product?</li> </ul>	<ul style="list-style-type: none"> <li>○ Which materials are used?</li> <li>○ How products work?</li> <li>○ Express and opinion about the product.</li> </ul>	<ul style="list-style-type: none"> <li>○ Who made the product?</li> <li>○ When was the product made?</li> <li>○ Where was the product designed and made?</li> <li>○ Evaluate the product: design and use and materials.</li> <li>○ Understand and gather information about what a particular group of people want from a product.</li> </ul>	<ul style="list-style-type: none"> <li>○ Evaluate the product: design and use.</li> <li>○ What methods of construction have been used?</li> <li>○ How well does the product achieve its purpose?</li> <li>○ Research famous inventors/ designers.</li> </ul>	<ul style="list-style-type: none"> <li>○ How environmentally friendly is the product?</li> <li>○ How environmentally friendly are the resources?</li> <li>○ Evaluate the product on appearance.</li> <li>○ Identify the cost to make the product.</li> <li>○ Gather information using questionnaires, interviews and surveys etc.</li> </ul>	<ul style="list-style-type: none"> <li>○ Identify if the product has any other purposes e.g. leading innovation of the time, tread setting.</li> <li>○ How much does a product cost to make? Sell? Profit margin?</li> </ul>
<p>Generating, developing, modeling and communicating ideas.</p>	<ul style="list-style-type: none"> <li>○ Explain what product they will be designing and making.</li> <li>○ Describe what their product are for.</li> <li>○ Use a simple design criteria to help develop their ideas.</li> <li>○ Amend simple templates to create model ideas.</li> </ul>	<ul style="list-style-type: none"> <li>○ Use own experiences and existing products to develop ideas.</li> <li>○ Explain how their product will work.</li> <li>○ Say who their product is for – themselves or others.</li> <li>○ Communicate ideas by talking, drawing and computing (if appropriate).</li> <li>○ Create templates/ pattern pieces.</li> </ul>	<ul style="list-style-type: none"> <li>○ Use annotated sketches, cross-sectional drawings and diagrams to develop and communicate their ideas.</li> <li>○ Generate realistic ideas that meet needs of users.</li> <li>○ Share and discuss ideas with others.</li> <li>○ Represent ideas in diagrams, annotated sketches and computer based programmes.</li> </ul>	<ul style="list-style-type: none"> <li>○ Develop their own design criteria and use for planning ideas.</li> <li>○ Identify design features that will appeal to intended users.</li> <li>○ Explain how parts of their product works – through annotation and discussion.</li> <li>○ Consider the availability of resources and tools when making design decisions.</li> </ul>	<ul style="list-style-type: none"> <li>○ Share and clarify ideas through discussion.</li> <li>○ Create a design description for their product.</li> </ul>	<ul style="list-style-type: none"> <li>○ Draw on research to generate innovative ideas.</li> <li>○ Highlight the impact of time, resources and cost within their design ideas – make decisions based on these restrictions.</li> </ul>

Making						
<b>Planning</b>	<ul style="list-style-type: none"> <li>○ Talk about what they need to do next.</li> <li>○ Communicate ideas by talking and drawing.</li> <li>○ Select from a range of tools.</li> <li>○ Select from a range of materials.</li> </ul>	<ul style="list-style-type: none"> <li>○ Choose materials based on their properties.</li> <li>○ Choose suitable tools for making – whilst explaining why they should be used.</li> </ul>	<ul style="list-style-type: none"> <li>○ Order the main stages of making.</li> <li>○ Create pattern pieces and prototypes.</li> <li>○ Explain reasons for material and tool choice – from a limited selection.</li> </ul>	<ul style="list-style-type: none"> <li>○ Explain reasons for material and tool choice – from a wider selection.</li> </ul>	<ul style="list-style-type: none"> <li>○ Record a step-by-step plan for making.</li> <li>○ Produce lists for the tools, equipment, and materials they will be using.</li> <li>○ Choose materials to use based on suitability of their properties and aesthetic qualities.</li> </ul>	<ul style="list-style-type: none"> <li>○ Record a step-by-step plan for making.</li> <li>○ Produce lists for the tools, equipment, and materials they will be using.</li> <li>○ Draw on research when selecting materials.</li> </ul>
<b>Making</b> (2-3 lessons) Practical skills and techniques	<ul style="list-style-type: none"> <li>○ Use tools safely and/or hygienically.</li> <li>○ Measure, mark, cut and shape materials and components.</li> <li>○ Join, assemble, combine materials and components.</li> </ul>	<ul style="list-style-type: none"> <li>○ Use a range of materials and components.</li> <li>○ Use finishing techniques, including skills learnt in art.</li> </ul>	<ul style="list-style-type: none"> <li>○ Use design criteria whilst making.</li> <li>○ Measure, mark, cut and shape materials <b>with some accuracy.</b></li> <li>○ Join, assemble, combine materials and components <b>with some accuracy.</b></li> <li>○ Use finishing techniques, including skills learnt in art <b>with some accuracy.</b></li> </ul>	<ul style="list-style-type: none"> <li>○ Measure, mark, cut and shape materials <b>with increasing accuracy.</b></li> <li>○ Join, assemble, combine materials and components <b>with increasing accuracy.</b></li> <li>○ Use finishing techniques, including skills learnt in art <b>with increasing accuracy.</b></li> </ul>	<ul style="list-style-type: none"> <li>○ Measure, mark, cut and shape materials <b>accurately.</b></li> <li>○ Join, assemble, combine materials and components <b>accurately.</b></li> <li>○ Demonstrate problem solving skills when encountering a mistake or problem.</li> <li>○ Use finishing techniques, including skills learnt in art <b>accurately.</b></li> </ul>	<ul style="list-style-type: none"> <li>○ Measure, mark, cut and shape materials with <b>skill, accuracy and flair.</b></li> <li>○ Join, assemble, combine materials and components with <b>skill, accuracy and flair.</b></li> <li>○ Demonstrate problem solving skills when encountering a mistake or problem.</li> <li>○ Use finishing techniques, including skills learnt in art with <b>skill, accuracy and flair.</b></li> </ul>
Evaluating						
<b>Evaluation</b> Referring to planning and initial ideas in	<ul style="list-style-type: none"> <li>○ Talk about their design and what they have made.</li> <li>○ Make simple</li> </ul>	<ul style="list-style-type: none"> <li>○ Suggest how their product could be improved.</li> </ul>	<ul style="list-style-type: none"> <li>○ Refer to their design criteria whilst they are designing and making.</li> </ul>	<ul style="list-style-type: none"> <li>○ Consider the views of the user whilst evaluating.</li> </ul>	<ul style="list-style-type: none"> <li>○ Use design criteria to evaluate the end product. Look at the quality of the end</li> </ul>	<ul style="list-style-type: none"> <li>○ Evaluate whether the end product is fit for its intended purpose.</li> </ul>

evaluating their product.	judgements of how the product met their design ideas.		<ul style="list-style-type: none"> <li>○ Use design criteria to evaluate product; identifying strengths and areas for development.</li> </ul>		product and design.	
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### Technical Knowledge, Skill Progression and Tool Use.

Structures	<ul style="list-style-type: none"> <li>○ Create freestanding structures.</li> <li>○ How to make structures: <ul style="list-style-type: none"> <li>- Stiffer</li> <li>- Stronger</li> <li>- More stable.</li> </ul> </li> <li>○ How to join using; <ul style="list-style-type: none"> <li>- Glue</li> <li>- Tape</li> <li>- Glue gun (supervised)</li> </ul> </li> <li>-Use a template.</li> </ul>	<ul style="list-style-type: none"> <li>○ Create shell or frame structures.</li> <li>○ How to make structures: <ul style="list-style-type: none"> <li>- Stiffer</li> <li>- Stronger (frames with diagonal struts)</li> <li>- More stable (wide base)</li> </ul> </li> <li>○ Measure, mark and cut to an accuracy of 1cm.</li> <li>○ Use tools: <ul style="list-style-type: none"> <li>- Junior Hacksaw</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>○ Create complex structures: <ul style="list-style-type: none"> <li>- Stiffer</li> <li>- Reinforced</li> </ul> </li> <li>○ Join materials.</li> <li>○ Use tools: <ul style="list-style-type: none"> <li>- Bradawl (to mark hole positions).</li> <li>- Hand drill (to make tight and loose fit holes).</li> </ul> </li> <li>○ Create frameworks to support mechanisms.</li> <li>○ How to make structures: <ul style="list-style-type: none"> <li>- Stiffer</li> <li>- Stronger</li> <li>- More stable.</li> </ul> </li> <li>○ Measure, mark and cut, to an accuracy of 1mm.</li> </ul>
Food	<ul style="list-style-type: none"> <li>○ Prepare ingredients: <ul style="list-style-type: none"> <li>- Cut</li> <li>- Peel</li> <li>- Grate</li> <li>- Chop</li> </ul> </li> <li>○ Measure &amp; weigh – non-statutory measures</li> <li>○ Ingredients should be combined according to their sensory characteristics.</li> </ul>	<ul style="list-style-type: none"> <li>○ Follow recipes.</li> <li>○ Join &amp; combine a range of ingredients: <ul style="list-style-type: none"> <li>- Slicing</li> <li>- Mixing</li> <li>- Spreading</li> <li>- Baking</li> </ul> </li> <li>○ Explore seasonality of fruit &amp; vegetables.</li> <li>○ Cook using a heat source: <ul style="list-style-type: none"> <li>- Oven – with supervision</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>○ Join &amp; combine a range of ingredients: <ul style="list-style-type: none"> <li>- Kneading</li> </ul> </li> <li>○ Measure &amp; weigh – Using scales.</li> <li>○ Know how to prepare food products taking into account the properties of the ingredients.</li> <li>○ Know that recipes can be adapted to change the appearance, taste, texture and aroma.</li> <li>○ Know that a recipe can be adapted by adding or substituting one or more ingredients.</li> <li>○ Cook using a heat source: <ul style="list-style-type: none"> <li>- Oven – with some supervision → set the temperature and monitor the time independently.</li> </ul> </li> </ul>
Mechanisms (KS1) / Mechanical & Electrical Systems (KS2)	<ul style="list-style-type: none"> <li>- Use appropriate tools: <ul style="list-style-type: none"> <li>- Hole punch</li> <li>- Hacksaw and bench hook</li> <li>- Scissors</li> </ul> </li> <li>- Join materials: <ul style="list-style-type: none"> <li>- Glue</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>○ Use mechanical systems and know how they create movement: <ul style="list-style-type: none"> <li>- Gears</li> <li>- Pulleys</li> <li>- Levers</li> <li>- Linkages – make movements larger or more</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>○ Use mechanical systems and know how they create movement: <ul style="list-style-type: none"> <li>- Cams</li> <li>- Pulleys</li> <li>- Gears</li> </ul> </li> <li>○ Use electrical systems (to make a product</li> </ul>

	<ul style="list-style-type: none"> <li>- Tape</li> <li>- Know about the working/movement of: <ul style="list-style-type: none"> <li>- Levers</li> <li>- Sliders</li> <li>- Wheels</li> <li>- Axels</li> </ul> </li> <li>- Experiment with levers and sliders.</li> </ul>	<p>varied</p> <ul style="list-style-type: none"> <li>o Use electrical systems (to make a product functional): <ul style="list-style-type: none"> <li>- Switches</li> <li>- Bulbs</li> <li>- Buzzers</li> <li>- ICT to control products</li> </ul> </li> </ul>	<p>functional):</p> <ul style="list-style-type: none"> <li>- Motors</li> <li>o Use ICT systems (to make a product functional): <ul style="list-style-type: none"> <li>- Programme, monitor and control using ICT.</li> <li>- Monitor changes in the environment</li> </ul> </li> </ul>
Textiles	<ul style="list-style-type: none"> <li>- Draw around a template</li> <li>- Cut out fabric</li> <li>- Join fabrics: <ul style="list-style-type: none"> <li>- Glue</li> <li>- Tape</li> <li>- Staples</li> <li>- Over sewing</li> <li>- Running stitch</li> </ul> </li> <li>→ <b>Understand that 3D textile products can be assembled from two identical fabric shapes</b></li> <li>- Decorate fabric with attached items <ul style="list-style-type: none"> <li>- Buttons</li> <li>- Beads</li> <li>- Sequins</li> <li>- Braids</li> <li>- Ribbons</li> </ul> </li> <li>- Colour fabrics: <ul style="list-style-type: none"> <li>- Fabric paints</li> <li>- Printing</li> <li>- Painting</li> </ul> </li> </ul> <p><i>(Joining, decorating and colouring fabrics needs to be secure by the end of KS1)</i></p>	<ul style="list-style-type: none"> <li>- Create a prototype and use this to make a pattern.</li> <li>- Join fabrics: <ul style="list-style-type: none"> <li>- Over sewing</li> <li>- Running stitch</li> <li>- Blanket stitch</li> </ul> </li> <li>→ <b>Understand that a single fabric shape can be used to make a 3D textiles product.</b></li> <li>→ <b>Understand seam allowance.</b></li> <li>- Explore fastenings.</li> <li>- Sew on buttons and make loops.</li> <li>- Explore the strength and stiffness of fabrics.</li> </ul>	<ul style="list-style-type: none"> <li>-<b>Create a 3D product</b></li> <li>-Follow a pattern. <ul style="list-style-type: none"> <li>- Use pattern pieces with a seam allowance.</li> <li>- Understand pattern layout.</li> </ul> </li> <li>-Decorate (often before joining components)</li> <li>-Join fabrics: <ul style="list-style-type: none"> <li>- Pin and tack pieces first.</li> <li>- Over sew</li> <li>- Back stitch</li> <li>- Blanket stitch</li> <li>- Machine (with supervision)</li> </ul> </li> <li>→ <b>Understand that a 3D textiles product can be made from a combination of fabric shapes.</b></li> <li>→ <b>Use a variety of fabrics and decorations.</b></li> <li>o Make a quality product.</li> </ul>