

# KS 1 D&T Coverage of skills over 2 year rolling programme.

Learning Objective	Milestone 1 (By end of Year 2)
<b>Designing</b>	
Understanding contexts, users and purposes	<ol style="list-style-type: none"> <li>work confidently within a range of contexts, such as imaginary, story-based, home, school, gardens, playgrounds, local community, industry and the wider environment</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> </ol>
Generating, developing, modelling and communicating ideas	<ol 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 mockups</li> <li>use information and communication technology, where appropriate, to develop and communicate their ideas</li> </ol>
<b>Making products work</b>	
Planning	<ol style="list-style-type: none"> <li>plan by suggesting what to do next</li> <li>select from a range of tools and equipment, explaining their choices</li> <li>select from a range of materials and components according to their characteristics</li> </ol>
Practical skills and techniques	<ol style="list-style-type: none"> <li>follow procedures for safety and hygiene</li> <li>use a range of materials and components, including construction materials and kits, textiles, food ingredients and mechanical components</li> <li>measure, mark out, cut and shape materials and components</li> <li>assemble, join and combine materials and components</li> <li>use finishing techniques, including those from art and design</li> </ol>
<b>Evaluating</b>	
Own ideas and products	<ol style="list-style-type: none"> <li>talk about their design ideas and what they are making</li> <li>make simple judgements about their products and ideas against design criteria</li> </ol>
Existing products	<ol style="list-style-type: none"> <li>Consider questions about: what products are/ who products are for/ how products work/ how products are used/ where products might be used/ what materials products are made from/ what they like and dislike about products</li> </ol>
<b>Technical knowledge</b>	
Making products work	<ol style="list-style-type: none"> <li>about the simple working characteristics of materials and components</li> <li>about the movement of simple mechanisms such as levers, sliders, wheels and axles</li> <li>how freestanding structures can be made stronger, stiffer and more stable</li> <li>that a 3-D textiles product can be assembled from two identical fabric shapes</li> <li>that food ingredients should be combined according to their sensory characteristics</li> <li>the correct technical vocabulary for the projects they are undertaking</li> </ol>
<b>Cooking and nutrition</b>	
Where food comes from	<ol 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> </ol>
Food preparation, cooking and nutrition	<ol style="list-style-type: none"> <li>how to name and sort foods into the five groups in The eat well plate</li> <li>that everyone should eat at least five portions of fruit and vegetables every day</li> <li>how to prepare simple dishes safely and hygienically, without using a heat source</li> <li>how to use techniques such as cutting, peeling and grating</li> </ol>
<b>To master practical skills</b>	
Food	<ol 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> </ol>
Materials	<ol 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, using hinges or combining materials to strengthen).</li> </ol>
Textiles	<ol 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> </ol>
Computing	<ol style="list-style-type: none"> <li>Model designs using software.</li> </ol>
Construction	<ol style="list-style-type: none"> <li>Use materials to practise drilling, screwing, gluing and nailing materials to make and strengthen products.</li> </ol>
Mechanics	<ol style="list-style-type: none"> <li>Create products using levers, wheels and winding mechanisms.</li> </ol>

## KS 2 D&T Coverage of skills over 2 year rolling programme.

Learning Objective	Milestone 2 (By end of Year 4)	Milestone 3 (By end of Year 6)
	<b>Designing</b>	
Understanding contexts, users and purposes	<ol style="list-style-type: none"> <li>gather information about the needs and wants of particular individuals and groups</li> <li>develop their own design criteria and use these to inform their ideas</li> </ol>	<ol style="list-style-type: none"> <li>carry out research, using surveys, interviews, questionnaires and web-based resources</li> <li>identify the needs, wants, preferences and values of particular individuals and groups</li> <li>develop a simple design specification to guide their thinking</li> </ol>
Generating, developing, modelling and communicating ideas	<ol style="list-style-type: none"> <li>generate realistic ideas, focusing on the needs of the user</li> <li>make design decisions that take account of the availability of resources</li> </ol>	<ol style="list-style-type: none"> <li>generate innovative ideas, drawing on research</li> <li>make design decisions, taking account of constraints such as time, resources and cost</li> </ol>
	<b>Making products work</b>	
Planning	<ol style="list-style-type: none"> <li>order the main stages of making</li> </ol>	<ol style="list-style-type: none"> <li>produce appropriate lists of tools, equipment and materials that they need</li> <li>formulate step-by-step plans as a guide to making</li> </ol>
Practical skills and techniques	<ol style="list-style-type: none"> <li>measure, mark out, cut and shape materials and components with some accuracy</li> <li>assemble, join and combine materials and components with some accuracy</li> <li>apply a range of finishing techniques, including those from art and design, with some accuracy</li> </ol>	<ol style="list-style-type: none"> <li>accurately measure, mark out, cut and shape materials and components</li> <li>accurately assemble, join and combine materials and components</li> <li>accurately apply a range of finishing techniques, including those from art and design</li> <li>use techniques that involve a number of steps</li> <li>demonstrate resourcefulness when tackling practical problems</li> </ol>
	<b>Evaluating</b>	
Own ideas and products	<ol style="list-style-type: none"> <li>refer to their design criteria as they design and make</li> <li>use their design criteria to evaluate their completed products</li> </ol>	<ol style="list-style-type: none"> <li>critically evaluate the quality of the design, manufacture and fitness for purpose of their products as they design and make</li> <li>evaluate their ideas and products against their original design specification</li> </ol>
Existing products	<ol style="list-style-type: none"> <li>investigate and analyse: <ul style="list-style-type: none"> <li>who designed and made the products</li> <li>where products were designed and made</li> <li>when products were designed and made <ul style="list-style-type: none"> <li>whether products can be recycled or reused</li> </ul> </li> </ul> </li> </ol>	<ol style="list-style-type: none"> <li>investigate and analyse: <ul style="list-style-type: none"> <li>how much products cost to make</li> <li>how innovative products are</li> <li>how sustainable the materials in products are <ul style="list-style-type: none"> <li>what impact products have beyond their intended purpose</li> </ul> </li> </ul> </li> </ol>
	<b>Technical knowledge</b>	
Making products work	<ol style="list-style-type: none"> <li>how mechanical systems such as levers and linkages or pneumatic systems create movement</li> <li>how simple electrical circuits and components can be used to create functional products</li> <li>how to program a computer to control their products</li> <li>how to make strong, stiff shell structures</li> <li>that a single fabric shape can be used to make a 3D textiles product</li> <li>that food ingredients can be fresh, pre-cooked and processed</li> </ol>	<ol style="list-style-type: none"> <li>how mechanical systems such as cams or pulleys or gears create movement</li> <li>how more complex electrical circuits and components can be used to create functional products</li> <li>how to program a computer to monitor changes in the environment and control their products</li> <li>how to reinforce and strengthen a 3D framework</li> <li>that a 3D textiles product can be made from a combination of fabric shapes</li> <li>that a recipe can be adapted by adding or substituting one or more ingredients</li> </ol>
	<b>Cooking and nutrition</b>	
Where food comes from	<ol style="list-style-type: none"> <li>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</li> </ol>	<ol style="list-style-type: none"> <li>that seasons may affect the food available</li> <li>how food is processed into ingredients that can be eaten or used in cooking</li> </ol>
Food preparation, cooking and nutrition	<ol style="list-style-type: none"> <li>that a healthy diet is made up from a variety and balance of different food and drink, as depicted in The eat well plate</li> <li>that to be active and healthy, food and drink are needed to provide energy for the body</li> </ol>	<ol style="list-style-type: none"> <li>that recipes can be adapted to change the appearance, taste, texture and aroma</li> <li>that different food and drink contain different substances – nutrients, water and fibre – that are needed for health</li> </ol>
	<b>To master practical skills</b>	
Food	<ol 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> </ol>	<ol 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> </ol>

		<ol style="list-style-type: none"> <li>4. Create and refine recipes, including ingredients, methods, cooking times and temperatures.</li> </ol>
<b>Materials</b>	<ol style="list-style-type: none"> <li>1. Cut materials accurately and safely by selecting appropriate tools.</li> <li>2. Measure and mark out to the nearest millimetre.</li> <li>3. Apply appropriate cutting and shaping techniques that include cuts within the perimeter of the material (such as slots or cut-outs).</li> <li>4. Select appropriate joining techniques.</li> </ol>	<ol style="list-style-type: none"> <li>1. 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>2. 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> <li>3. Create objects (such as a cushion) that employ a seam allowance.</li> </ol>
<b>Textiles</b>	<ol style="list-style-type: none"> <li>1. Understand the need for a seam allowance.</li> <li>2. Join textiles with appropriate stitching.</li> <li>3. Select the most appropriate techniques to decorate textiles.</li> </ol>	<ol style="list-style-type: none"> <li>2. Join textiles with a combination of stitching techniques (such as back stitch for seams and running stitch to attach decoration).</li> <li>3. 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> </ol>
<b>Electricals and electronics</b>	<ol style="list-style-type: none"> <li>1. Create series and parallel circuits.</li> </ol>	<ol style="list-style-type: none"> <li>1. Create circuits using electronics kits that employ a number of components (such as LEDs, resistors, transistors and chips).</li> </ol>
<b>Computing</b>	<ol style="list-style-type: none"> <li>1. Control and monitor models using software designed for this purpose.</li> </ol>	<ol style="list-style-type: none"> <li>2. Write code to control and monitor models or products.</li> </ol>
<b>Construction</b>	<ol style="list-style-type: none"> <li>1. Choose suitable techniques to construct products or to repair items.</li> <li>2. Strengthen materials using suitable techniques.</li> </ol>	<ol style="list-style-type: none"> <li>1. Develop a range of practical skills to create products (such as cutting, drilling and screwing, nailing, gluing, filling and sanding).</li> </ol>
<b>Mechanics</b>	<ol style="list-style-type: none"> <li>1. Use scientific knowledge of the transference of forces to choose appropriate mechanisms for a product (such as levers, winding mechanisms, pulleys and gears).</li> </ol>	<ol style="list-style-type: none"> <li>1. Convert rotary motion to linear using cams.</li> <li>2. Use innovative combinations of electronics (or computing) and mechanics in product designs.</li> </ol>