

# Curriculum Framework - Design and Technology

Knowledge						
EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	<p>Pupils should know:</p> <ul 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> <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>• how to name and sort foods into the five groups in The eatwell 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> </ul>		<p><b><u>(Covered in Food for Thought topic -2 year Rolling Programme - Year A - See Yearly Overview for more detail)</u></b></p> <p><b><u>(Covered in 'What Have the Romans Done for us?' topic -2 year Rolling Programme - Year A - See Yearly Overview for more detail)</u></b></p> <p><b><u>(Covered in 'Anglo Saxons' topic -2 year Rolling Programme - Year A - See Yearly Overview for more detail)</u></b></p> <p>Pupils should know:</p> <ul style="list-style-type: none"> <li>• that materials have both functional properties and aesthetic qualities</li> <li>• that materials can be combined and mixed to create more useful characteristics</li> <li>• that mechanical and electrical systems have an input, process and output</li> <li>• the correct technical vocabulary for the projects they are undertaking</li> <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> <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> </ul>			<p>Pupils should know:</p> <ul style="list-style-type: none"> <li>• how to use learning from science to help design and make products that work</li> <li>• how to use learning from mathematics to help design and make products that work</li> <li>• the correct technical vocabulary for the projects they are undertaking</li> <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> <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> <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> </ul>

			<ul 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 eatwell plate</li> <li>• that to be active and healthy, food and drink are needed to provide energy for the body</li> </ul>			
Skills						
EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<b>Designing</b>						
	<p>Pupils should:</p> <ul style="list-style-type: none"> <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> <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> </ul>		<p>pupils should:</p> <ul style="list-style-type: none"> <li>• describe the purpose of their products</li> <li>• indicate the design features of their products that will appeal to intended users</li> <li>• explain how particular parts of their products work</li> <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> <li>• share and clarify ideas through discussion</li> <li>• model their ideas using prototypes and pattern pieces</li> <li>• use annotated sketches, cross-sectional drawings and exploded diagrams to develop and communicate their ideas</li> <li>• use computer-aided design to develop and communicate their ideas</li> <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> </ul>		<p>Pupils Should:</p> <ul style="list-style-type: none"> <li>• work confidently within a range of contexts, such as the home, school, leisure, culture, enterprise, industry and the wider environment</li> <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> <li>• generate innovative ideas, drawing on research</li> <li>• make design decisions, taking account of constraints such as time, resources and cost</li> </ul>	
<b>Making</b>						

	<p>Pupils should:</p> <ul 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> <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> <li>• how to use techniques such as cutting, peeling and grating</li> </ul>	<p>pupils should:</p> <ul style="list-style-type: none"> <li>• <b>select tools and equipment suitable for the task</b></li> <li>• explain their choice of tools and equipment in relation to the skills and techniques they will be using</li> <li>• <b>select materials and components suitable for the task</b></li> <li>• explain their choice of materials and components according to functional properties and aesthetic qualities In</li> <li>• order the main stages of making</li> <li>• <b>follow procedures for safety and hygiene</b></li> <li>• use a wider range of materials and components than KS1, including construction materials and kits, textiles, <b>food ingredients</b>, mechanical components and electrical components</li> <li>• <b>measure, mark out, cut and shape materials and components with some accuracy</b></li> <li>• <b>assemble, join and combine materials and components with some accuracy</b></li> <li>• <b>apply a range of finishing techniques, including those from art and design, with some accuracy</b></li> <li>• <b>prepare and cook a variety of predominantly savoury dishes safely and hygienically including, where appropriate, the use of a heat source</b></li> <li>• <b>use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking</b></li> </ul>	<p>Pupils Should:</p> <ul 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> <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> </ul>
<b>Evaluating</b>			
	<p>Pupils should:</p> <ul 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> <li>• suggest how their products could be improved</li> <li>• what products are</li> <li>• who products are for</li> <li>• what products are for</li> </ul>	<p>Pupils should:</p> <ul style="list-style-type: none"> <li>• <b>identify the strengths and areas for development in their ideas and products</b></li> <li>• <b>consider the views of others, including intended users, to improve their work</b></li> <li>• <b>refer to their design criteria as they design and make</b></li> <li>• use their design criteria to evaluate their completed products</li> <li>• how well products have been designed</li> </ul>	<ul 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> <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</li> </ul> </li> </ul>

	<ul style="list-style-type: none"> <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>	<ul style="list-style-type: none"> <li>• <b>how well products have been made</b></li> <li>• <b>why materials have been chosen</b></li> <li>• what methods of construction have been used</li> <li>• <b>how well products work</b></li> <li>• <b>how well products achieve their purposes</b></li> <li>• <b>how well products meet user needs and wants</b></li> <li>• investigate and analyse:</li> <li>• <b>who designed and made the products</b></li> <li>• where products were designed and made</li> <li>• <b>when products were designed and made</b></li> <li>• whether products can be recycled or reused</li> </ul>	<ul style="list-style-type: none"> <li>• what impact products have beyond their intended purpose</li> </ul>
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Vocabulary

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
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All Topics:

	<p>design designer materials tools construct planning, investigating design, evaluate, make, user, purpose, ideas, product,</p>	<p>design designer materials tools brief product evaluate label technology problem-solving Design technology product intended user annotated sketch component design criteria computer-aided design</p>	<p>Design technology product intended user design criteria Cross- sectional diagram exploded diagram innovation</p>
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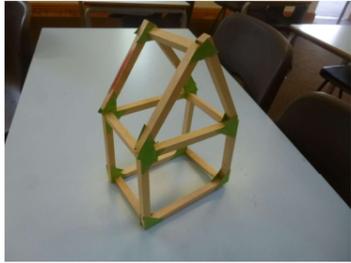
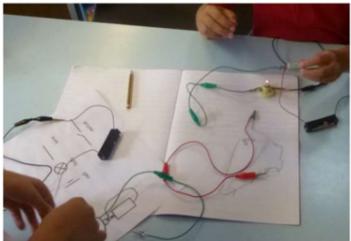
<b>Construction:</b>			
	<p>Make Cut Join strong fix bond</p>	<p>boat buoyant (DT) water-proof (DT) stable Isambard Kingdom Brunel net scoring tab accuracy packaging product designer graphic designer shelf-appeal battery circuit switch bulb electrical engineer Alexander Graham Bell Nikola Tesla</p>	<p>frame structure triangulation strengthen reinforce greenhouse agricultural engineering architect Nicolas Grimshaw mechanical system pulley driver follower load transport mechanical engineer Ismail Al-Jazari Edmund Cartwright George Stephenson</p>
<b>Food:</b>			
	<p>fruit and vegetable names, names of equipment and utensils sensory vocabulary e.g. soft, juicy, crunchy, sweet, sticky, smooth, sharp, crisp, sour, hard flesh, skin, seed, pip, core,  slicing, peeling, cutting, squeezing, healthy diet, choosing, ingredients,</p>	<p>hygiene balanced nutritious appealing Jamie Oliver hygiene grown reared Local producer seasonal produce dough knead bake Clare Smyth</p>	<p>hygiene cross contamination local produce seasonality cooking technique deconstructed food Heston Blumenthal</p>
<b>Textiles:</b>			

	<p>textiles needle thread  pin pattern piece applique  William Morris  joining and finishing techniques,  tools,  fabrics and components,  template,  pattern pieces,  mark out,  join,  decorate,  finish</p>	<p>pattern piece  running stitch  cross stitch  applique  embroidery  textile designer  Cath Kidston</p>	<p>pattern  pieces  back stitch  tension  seam  allowance  turn out  fastener  fashion designer  ethical product  corporate  social responsibility</p>
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Assessment

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
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**Construction**

**Food**

						
						
<b>Textiles</b>						