



## Westfield Primary School-Design and Technology Skills Progression

By the end of Key Stage 2 pupils and through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making. They should work in a range of relevant contexts (for example, the home, school, leisure, culture, enterprise, industry and the wider environment).

### **When designing and making pupils should be taught to:**

<b>Design</b>	<ul style="list-style-type: none"><li>• 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.</li><li>• generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design.</li></ul>
<b>Make</b>	<ul style="list-style-type: none"><li>• select from and use a wider range of tools and equipment to perform practical tasks (for example, cutting, shaping, joining and finishing), accurately.</li><li>• 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.</li></ul>
<b>Evaluate</b>	<ul style="list-style-type: none"><li>• investigate and analyse a range of existing products.</li><li>• evaluate their ideas and products against their own design criteria and consider the views of others to improve their work.</li><li>• understand how key events and individuals in design and technology have helped shape the world.</li></ul>
<b>Technical Knowledge</b>	<ul style="list-style-type: none"><li>• apply their understanding of how to strengthen, stiffen and reinforce more complex structures.</li><li>• understand and use mechanical systems in their products (for example, gears, pulleys, cams, levers and linkages).</li><li>• understand and use electrical systems in their products (for example, series circuits incorporating switches, bulbs, buzzers and motors).</li><li>• apply their understanding of computing to program, monitor and control their products.</li></ul>



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### Cooking and nutrition.

As part of their work with food, pupils should be taught how to cook and apply the principles of nutrition and healthy eating. Instilling a love of cooking in pupils will also open a door to one of the great expressions of human creativity. Learning how to cook is a crucial life skill that enables pupils to feed themselves and others affordably and well, now and in later life.

### Pupils should be taught to:

- understand and apply the principles of a healthy and varied diet.
- prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques.
- understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.

	EYFS
<b>Understanding the World (Technology)</b>	<p><b>30-50 months</b></p> <ul style="list-style-type: none"> <li>• Knows how to operate simple equipment.</li> <li>• Shows an interest in technological toys with knobs or pulleys, or real objects.</li> <li>• Shows skill in making toys work by pressing parts or lifting flaps to achieve effects such as sound, movements or new images.</li> </ul> <p><b>ELG</b></p> <p>Children recognise that a range of technology is used in places such as homes and schools. They select and use technology for particular purposes.</p>
<b>Expressive Arts and design (Exploring and Using Media and</b>	<p><b>30-50 months</b></p> <ul style="list-style-type: none"> <li>• Explores colour and how colours can be changed</li> <li>• Understands that they can use lines to enclose a space, and then begin to use these shapes to represent objects.</li> <li>• Beginning to be interested in and describe the texture of things.</li> <li>• Uses various construction materials.</li> </ul>



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<b>Materials)</b>	<ul style="list-style-type: none"> <li>• Beginning to construct, stacking blocks vertically and horizontally, making enclosures and creating spaces.</li> <li>• Joins construction pieces together to build and balance.</li> <li>• Realises tools can be used for a purpose.</li> </ul> <p><b>40-60+ months</b></p> <ul style="list-style-type: none"> <li>• Understands that different media can be combined to create new effects.</li> <li>• Manipulates materials to achieve a planned effect.</li> <li>• Constructs with a purpose in mind, using a variety of resources.</li> <li>• Uses simple tools and techniques competently and appropriately.</li> <li>• Selects appropriate resources and adapts work where necessary.</li> <li>• Selects tools and techniques needed to shape, assemble and join materials they are using.</li> </ul> <p><b>ELG</b> Children safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.</p>	
	<b>Year 1</b>	<b>Year 2</b>
<b>Topics Studied</b>	<p><b>Superhero capes</b> <b>Snowmen</b> <b>3D maps = construction</b> <b>Dinosaur habitat making</b> <b>Cooking - healthy diet</b> <b>Cooking - healthy choices</b></p>	<p><b>Superhero capes</b> <b>Snowmen</b> <b>3D maps = construction</b> <b>Dinosaur habitat making</b> <b>Cooking - healthy diet</b> <b>Cooking - healthy choices</b></p>
<b>Design</b>	<p>Pupils should be able to:</p> <ul 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> </ul>	<p>Pupils should be able to:</p> <ul 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> </ul>



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	<ul style="list-style-type: none"> <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>• Label drawings and diagrams including colours and materials</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>	<ul style="list-style-type: none"> <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>• Label drawings and diagrams including colours and materials</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>
<b>Make</b>	<p>Pupils should be able to:</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,</li> </ul>	<p>Pupils should be able to:</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,</li> </ul>



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	<p>explaining their choices</p> <ul style="list-style-type: none"> <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> </ul>	<p>explaining their choices</p> <ul style="list-style-type: none"> <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> </ul>
<b>Evaluate</b>	<p>Pupils should be able to:</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> </ul> <p>Across KS1 pupils should explore:</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> </ul>	<p>Pupils should be able to:</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> </ul> <p>Across KS1 pupils should explore:</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> </ul>



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	<ul style="list-style-type: none"><li>• what they like and dislike about products</li></ul>	<ul style="list-style-type: none"><li>• what they like and dislike about products</li></ul>
<b>Technical Knowledge</b>	<p>Across KS1 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></ul>	<p>Across KS1 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></ul>
<b>Cooking and nutrition</b>	<p>Across KS1 pupils should know:</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>• 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, slicing, grating and spreading</li></ul>	<p>Across KS1 pupils should know:</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>• 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, slicing, grating and spreading</li></ul>



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	<ul style="list-style-type: none"> <li>how to evaluate their product based on appearance, texture and taste</li> </ul>	<ul style="list-style-type: none"> <li>how to evaluate their product based on appearance, texture and taste</li> </ul>
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	Year 3	Year 4	Year 5	Year 6
<b>Topics studied</b>	<p>Skills with a focus on mouldable materials- clay (Skills with a focus on textiles) Design and make an Egyptian death mask</p> <p>Skills with a focus on food Skills with a focus on textiles</p> <p>Skills with a focus on electrical and skills with a focus on stiff and flexible materials. <i>to use finishing techniques to strengthen and improve the appearance of their product using a range of equipment including ICT</i></p>	<p>Skills with a focus on mouldable materials- clay (Skills with a focus on textiles) Design and make an Egyptian death mask</p> <p>Skills with a focus on food Skills with a focus on textiles</p> <p>Skills with a focus on electrical and skills with a focus on stiff and flexible materials. <i>to use finishing techniques to strengthen and improve the appearance of their product using a range of equipment including ICT</i></p>	<p>Skills using stiff and flexible materials Making Christmas decorations. Mouldable materials. Design and make a space ship/alien. Cooking Textiles, design and make an item of clothing.</p>	<p>Skills using stiff and flexible materials Making Christmas decorations. Mouldable materials. Design and make a space ship/alien. Cooking Textiles, design and make an item of clothing.</p>



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Design	<p>Generate ideas for an item, considering its purpose and the user/s. Identify a purpose and establish criteria for a successful product. Plan the order of their work before starting. Explore, develop and communicate design proposals by modelling ideas.</p> <p>Make drawings with labels when designing.</p>	<p>Generate ideas, considering the purposes for which they are designing. Make labelled drawings from different views showing specific features. Develop a clear idea of what has to be done, planning how to use materials, equipment and processes, and suggesting alternative methods of making, if the first attempts fail. Evaluate products and identify criteria that can be used for their own designs.</p>	<p>Generate ideas through brainstorming and identify a purpose for their product. Draw up a specification for their design. Develop a clear idea of what has to be done, planning how to use materials, equipment and processes, and suggesting alternative methods of making if the first attempts fail. Use results of investigations, information sources, including ICT when developing design ideas.</p>	<p>Communicate their ideas through detailed labelled drawings. Develop a design specification. Explore, develop and communicate aspects of their design proposals by modelling their ideas in a variety of ways. Plan the order of their work, choosing appropriate materials, tools and techniques.</p>





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<b>Make</b>	<p>Select tools and techniques for making their product. Measure, mark out, cut, score and assemble components with more accuracy. Work safely and accurately with a range of simple tools. Think about their ideas as they progress and be willing change things if this improves their work. Measure, tape or pin, cut and join fabric with some accuracy. Demonstrate hygienic food preparation and storage. Use finishing techniques.</p>	<p>Select appropriate tools and techniques for making their product. Measure, mark out, cut and shape a range of materials, using appropriate tools, equipment and techniques. Join and combine materials and components accurately in temporary and permanent ways. Sew using a range of different stitches, weave and knit. Measure, tape or pin, cut and join fabric with some accuracy. Use simple graphical communication techniques.</p>	<p>Select appropriate materials, tools and techniques. Measure and mark out accurately. Use skills in using different tools and equipment safely and accurately. Cut and join with accuracy to ensure a good-quality finish to the product. Accurately apply a range of finishing techniques, including those from art and design. Use techniques that involve a number of steps. Demonstrate resourcefulness, e.g.</p>	<p>Select appropriate tools, materials, components and techniques. Assemble components make working models Use tools safely and accurately. Construct products using permanent joining techniques. Make modifications as they go along. Pin, sew and stitch materials together create a product. Achieve a quality product.</p>



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			make refinements.	
<b>Evaluate</b>	Evaluate their product against original design criteria e.g. how well it meets its intended purpose. Disassemble and evaluate familiar products.	Evaluate their work both during and at the end of the assignment. Evaluate their products carrying out appropriate tests.	Evaluate a product against the original design specification. Evaluate it personally and seek evaluation from others.	Evaluate their products, identifying strengths and areas for development, and carrying out appropriate tests. Record their evaluations using drawings with labels.
<b>Technical knowledge</b>	Understand how levers and linkages or pneumatic systems create movement. Understand how simple electrical circuits and components can be used to create functional products. Understand how to program a computer to control their products. Know how to make strong, stiff shell structures. Know that a single fabric shape can be used to make a 3D textiles product. Know that food ingredients can be fresh, pre-cooked and processed.		Understand how cams, pulleys and gears create movement. Understand how more complex electrical circuits and components can be used to create functional products. Understand how to program a computer to monitor changes in the environment / control their products. Know how to reinforce/strengthen a 3D framework. Know that a 3D textiles product can be made from a combination of fabric shapes. Know that a recipe can be adapted a by adding or substituting one or more ingredients.	



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<p>Cooking and nutrition</p>	<p>Know that a healthy diet is made up from a variety and balance of different foods and drinks, as depicted in the 'eat well' plate.</p> <p>Know that to be active and healthy, food is needed to provide energy for the body.</p> <p>Measure using grams.</p> <p>Follow a recipe.</p> <p>Know that food is grown, reared and caught in the UK, Europe and the wider world.</p> <p>Know that seasons may affect the food available.</p> <p>Understand how food is processed into ingredients that can be eaten or used in cooking.</p>	<p>Know that recipes can be adapted to change the appearance, taste, texture and aroma.</p> <p>Know that different foods contain different substances - nutrients, water and fibre - that are needed for health. Understand the need for correct storage.</p> <p>Measure accurately. Work out ratios in recipes.</p> <p>Know that food is grown, reared and caught in the UK, Europe and the wider world.</p> <p>Know that seasons may affect the food available.</p> <p>Understand how food is processed into ingredients that can be eaten or used in cooking.</p>
	<p>Know how to prepare and cook a variety of predominantly savoury dishes safely and hygienically including, where appropriate, the use of a heat source. Know to use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking.</p>	<p>Know how to prepare and cook a variety of predominantly savoury dishes safely and hygienically including, where appropriate, the use of a heat source. Know how to use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking.</p>