



Design and Technology



Burnham on Crouch Primary School - KNOWLEDGE PROGRESSION

In **Design and Technology**, children learn about the designed and made world and how things work and learn to design and make functional products for particular purposes and users.

In EYFS, children explore and discuss the use and properties of different construction materials. They select materials and techniques for a purpose, design and create products, evaluate the product's effectiveness and adapt their product.

In KS1 and KS2 each sequence of lessons children:

- begin by considering the **user and purpose of the product** they will design to create design criteria for their product. They **investigate and evaluate existing products** thinking about how they are made and how well they fulfil their purpose.
- **perform focused tasks** developing particular aspects of knowledge and technical skills
- **design 'something' for 'somebody' for 'some purpose'**
- **make the product applying knowledge** and understanding of materials and components, mechanisms and control systems, structures and health and safety
- **evaluate their own product** against the design criteria

	EYFS	KS1	LKS2	UKS2
Design Understanding contexts, users and purposes Generating, developing, modelling and communicating ideas Plan	Select and use materials for particular purposes. Use what they have learnt about materials in original ways thinking about uses and purposes. Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.	<ul style="list-style-type: none"> • Use templates, patterns and models to test their ideas. • Use I.C.T to develop their ideas. • Work in a range of relevant contexts. • Understand and follow a design criteria. • Use their knowledge of existing products and their own experience to help generate their ideas. • Design products that have a purpose and are aimed at an intended user. • Explain how a product will look and work through talking and simple annotated drawings. 	<ul style="list-style-type: none"> • Share and clarify ideas through discussion. • Develop and follow simple design criteria. • Test out ideas using prototypes. • Use annotated sketches, cross-sectional drawings and exploded diagrams to develop and communicate their ideas • Use computer-aided design to develop and communicate their ideas. • Identify the design features of their products that will appeal to intended users. • Explain how particular parts of their products work. • When planning, start to explain their choice of material and components including function and aesthetics. • Think about their ideas as they make progress and be willing to change designs if this helps improve their work. • Work in a range of relevant contexts (for example, the home, school, leisure, culture, enterprise, industry and the wider environment) 	<ul style="list-style-type: none"> • Generate ideas through brainstorming and discussion with peers. • Use research to inform and develop detailed design criteria. • Generate a range of ideas and clearly communicate a final design. • Design products that have a clear purpose. • Work in a broad range of relevant contexts, for example conservation, the home, school, leisure, culture, enterprise, industry and the wider environment. • Use their knowledge of a range of existing products to help generate their ideas. • Draw up a specification for their design. • Use annotated sketches and diagrams to communicate their ideas. • Research designers around the world in order to take inspiration for their own designs. • Explain how their product will work. • Develop a clear understanding of what has to be done, planning how to use materials, equipment and processes.

				<ul style="list-style-type: none"> • Create prototypes to show their ideas. • Use ICT to develop their design ideas.
<p>Evaluate</p> <p>Existing products</p> <p>Evaluate Own products</p>	<p>Recognise that a range of technology is used in homes and schools.</p> <p>Share their creations, explaining the process they have used.</p> <p>Talk about what they are making and the materials they are using.</p>	<ul style="list-style-type: none"> • Evaluate their products and ideas against their simple design criteria. • Explore and evaluate existing products mainly through discussions, comparisons and simple written evaluations. • Identify strengths and weaknesses of their products and suggest possible changes they would make. • Talk about their design and what they are making. • Start to understand that the iterative process sometimes involves repeating different stages of the process. • Explore what products are made from. 	<ul style="list-style-type: none"> • Evaluate their product against original design criteria. • Identify the strengths and areas for development in their ideas and products. • Explore what materials/ingredients are made from. • Explore and evaluate existing products, explaining the purpose of the product and whether it is designed well to meet the intended purpose. • Evaluate the designs of individuals in design and technology that have helped shape the world. 	<ul style="list-style-type: none"> • Critically evaluate the quality of design, manufacture and fitness for purpose of products as they design and make. • Evaluate their products, identifying strengths and areas for development. • Evaluate their ideas and products against the original design criteria, making changes as needed. • Use design criteria to evaluate product – looking at quality of end product and design and whether it is fit for its intended purpose. • Compare their own product to similar products on the market.
<p>Practical skills and techniques</p>	<p>Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.</p>	<ul style="list-style-type: none"> • Measure and cut materials with some accuracy. • Assemble, join and combine materials in order to make a product • Demonstrate how to cut, shape and join fabric to make a simple product. • Begin to use simple finishing techniques to improve the 	<ul style="list-style-type: none"> • Plan the order of their work before starting. • Identify a purpose for what they are making and establish criteria for a successful product • Work safely and accurately with a range of tools. • Select from a wide range of tools and equipment explaining their choices. • Use a wider range of materials and components including construction 	<ul style="list-style-type: none"> • Independently select appropriate materials, tools and equipment. • Independently plan what to do next. • Give clear reasons for their choice of materials, linking to their properties and functionality e.g. waterproof, opaque etc. • Use a range of tools and equipment safely and accurately. • Independently take exact measurements and mark out to within a millimetre.

		<p>appearance of their product, such as simple decorations.</p> <ul style="list-style-type: none"> • Select, name and use appropriate tools safely for a task. • Select from a range of materials, textiles and components according to their characteristics. • Use a basic running stitch. • Follow a plan with support. 	<p>materials and kits, textiles, food ingredients and mechanical components.</p> <ul style="list-style-type: none"> • Measure, mark out, cut and shape materials and components with some accuracy • Assemble, join and combine materials and components with some accuracy • Apply a range of finishing techniques, including those from art and design, with some accuracy. • Join textiles with an appropriate sewing technique. 	<ul style="list-style-type: none"> • Cut, assemble and join materials with accuracy to ensure a good-quality finish to the product. • Demonstrate how to measure, tape, pin, cut, shape and join fabric with precision. • Make modifications as they go along. • Use results of investigations and information sources when planning. • Demonstrate both verbal and written understanding of choice of materials. • Achieve a high quality product based on research and carefully selected materials. • Apply a range of finishing techniques including those from art and design. • Accurately measure, mark out, cut and shape materials and components. • Use techniques that involve a number of steps. • Demonstrate resourcefulness when tackling practical problems
<p>Technical knowledge</p> <p>Structures</p> <p>Mechanisms</p> <p>Textiles</p> <p>Electronics</p>	<p>Select and use materials for particular purposes including selecting appropriate construction kits and materials for building structures</p> <p>Talk about what they are making and the materials they are using.</p> <p>Make imaginative and complex ‘small worlds’ with blocks and construction kits, such as a city with different buildings and a park.</p>	<ul style="list-style-type: none"> • Measure and cut materials with some accuracy. • Assemble, join and combine materials in order to make a product • Demonstrate how to cut, shape and join fabric to make a simple product. • Begin to use simple finishing techniques to improve the appearance of their product, such as simple decorations. • Select, name and use appropriate tools safely for a task. • Select from a range of materials, textiles and components according to their characteristics. • Use a basic running stitch. 	<ul style="list-style-type: none"> • Understand that materials have a practical and aesthetic purpose. • Explain how mechanical systems such as levers and linkages create movement. • Use mechanical systems in their product. • Apply their understanding of how to strengthen and stiffen structures. • Use the correct technical vocabulary for the projects they are undertaking. 	<ul style="list-style-type: none"> • Confidently select from a wide range of tools and equipment, explaining their choices. • Measure, mark, cut and shape materials and components accurately. • Join, assemble and combine materials and components accurately. • Demonstrate problem solving skills when encountering a mistake or practical problem. • Record a step by step plan for making. • Select and use tools and equipment safely and accurately. • Take exact measurements and mark out to within a millimetre. • Use a full range of materials and components, including construction materials and kits, textiles, and mechanical components. • Cut a range of materials with precision and accuracy. • Shape and score materials with precision and accuracy.

		<ul style="list-style-type: none"> Follow a plan with support. 		<ul style="list-style-type: none"> Assemble, join and combine materials and components with accuracy. Demonstrate how to measure, make a seam allowance, tape, pin, cut, shape and join fabric with precision to make a more complex product. Join textiles using a greater variety of stitches, such as backstitch, whip stitch, blanket stitch. Refine the finish using techniques to improve the appearance of their product, such as sanding or a more precise scissor cut after roughly cutting out a shape. Choose materials to use based on suitability of their properties and aesthetic qualities Accurately apply a range of finishing techniques, including those from art and design.
Cooking and Nutrition	<p>Understand the need to eat a variety of foods to stay healthy know the importance for good health of a healthy diet Use knives, forks and spoons.</p> <p>Make healthy choices about food, drink, activity and tooth brushing.</p>	<ul style="list-style-type: none"> Discuss food choices and give reasons for their choices based on simple nutrition knowledge and understanding. Understand that all food has to be farmed, grown or caught. Name 5 food groups and understand how to sort foods into the five groups in 'The Eat well plate'. Understand that everyone should eat at least five portions of fruit and vegetables every day and start to explain why. Learn to use kitchen equipment safely and appropriately and learn to follow hygiene procedures. Prepare simple dishes with help. Cut, peel and grate ingredients, including measuring and weighing ingredients using measuring cups. Follow a simple recipe with support. 	<ul style="list-style-type: none"> Understand and apply the principles of a healthy and varied diet. Sort foods into the 5 groups using The Eatwell Plate and identify that this makes up a healthy diet. Start to understand seasonality. Start to know when, where and how food is grown. Start to independently follow a recipe. Work safely and accurately with a range of simple tools in order to slice and cut ingredients successfully. Measure and weigh ingredients. Use cooking techniques such as chopping, peeling, grating, slicing, mixing, kneading, spreading and baking. Prepare ingredients safely and hygienically using appropriate cooking utensils. 	<ul style="list-style-type: none"> Identify a clear purpose for their product. Draw up a specification for their design, including all key food components. Make links to a healthy, balanced diet when choosing ingredients. Consider time needed in order to create their food product. Demonstrate how to prepare and cook a savoury dish safely and hygienically including, where appropriate, the use of heat. Understand that food is processed into ingredients that can be eaten or used in cooking. Weigh and measure ingredients accurately (e.g. dry ingredients and liquids). Apply the rules for basic food hygiene and other safe practises e.g. hazards relating to the use of ovens. Alter methods, cooking times and/or temperatures. Explain that foods contain different substances, such as calcium that are needed to keep healthy. Independently follow a recipe. Evaluate their food creations against their designs.

		<ul style="list-style-type: none">• Explain where in the world different food come from.• Begin to select from a hand of kitchen equipment such as scissors, graters, zesters, safe knives, and juicer.		
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