

Key Stage 2 National Curriculum Objectives and Milestones

Year 3 Design & Technology

Objectives	Topics-ideas	Milestone 2
<p>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].</p> <p>When designing and making, pupils should be taught to:</p> <p>Design</p> <ul style="list-style-type: none"> <input type="checkbox"/> <input type="checkbox"/> 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 <input type="checkbox"/> <input type="checkbox"/> generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design <p>Make</p> <ul style="list-style-type: none"> <input type="checkbox"/> <input type="checkbox"/> select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately <input type="checkbox"/> <input type="checkbox"/> 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 <p>Evaluate</p> <ul style="list-style-type: none"> <input type="checkbox"/> <input type="checkbox"/> investigate and analyse a range of existing products <input type="checkbox"/> <input type="checkbox"/> evaluate their ideas and products against their own design criteria and consider the views of others to improve their work <input type="checkbox"/> <input type="checkbox"/> understand how key events and individuals in design and technology have helped shape the world <p>Technical knowledge</p> <ul style="list-style-type: none"> <input type="checkbox"/> <input type="checkbox"/> apply their understanding of how to strengthen, stiffen and reinforce more complex structures 	<p>Term 1 Chocolate recipes</p> <p>Term 2 Tudor Houses</p> <p>Term 3 Bridge Building/Towers with Meccano Construction Kit Salt Dough- amulets</p>	<p>To Master Practical Skills Food Chocolate Recipes</p> <p>Prepare ingredients hygienically using appropriate utensils.</p> <ul style="list-style-type: none"> • Measure ingredients to the nearest gram accurately. • Follow a recipe. • Assemble or cook ingredients (controlling the temperature of the oven or hob, if cooking). <p>Material Tudor House</p> <p>Cut materials accurately and safely by selecting appropriate tools.</p> <ul style="list-style-type: none"> • Measure and mark out to the nearest millimetre. • Apply appropriate cutting and shaping techniques that include cuts within the perimeter of the material (such as slots or cut outs). • Select appropriate joining techniques. <p>Construction Tudor Houses</p> <ul style="list-style-type: none"> • Choose suitable techniques to construct products or to repair items. • Strengthen materials using suitable techniques. <p>Mechanics Bridge/Building/Towers</p> <ul style="list-style-type: none"> • Use scientific knowledge of the transference of forces to choose appropriate mechanisms for a product (such as levers, winding mechanisms, pulleys and gears). <p>To design, make, evaluate and improve</p> <ul style="list-style-type: none"> • Design with purpose by identifying opportunities to design. • Make products by working efficiently (such as by carefully selecting materials). • Refine work and techniques as work progresses, continually evaluating the product design. • Use software to design and represent product designs. <p>To take inspiration from design throughout history</p> <ul style="list-style-type: none"> • Identify some of the great designers in all of the areas of study (including pioneers in horticultural techniques) to generate ideas for designs. • Improve upon existing designs, giving reasons for choices. • Disassemble products to understand how they work.

Key Stage 2 National Curriculum Objectives and Milestones

Year 4 Design & Technology

Objectives	Topics-ideas	Milestone 2
<p>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].</p> <p>When designing and making, pupils should be taught to:</p> <p>Design</p> <ul style="list-style-type: none"> <input type="checkbox"/> <input type="checkbox"/> 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 <input type="checkbox"/> <input type="checkbox"/> generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design <p>Make</p> <ul style="list-style-type: none"> <input type="checkbox"/> <input type="checkbox"/> select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately <input type="checkbox"/> <input type="checkbox"/> 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 <p>Evaluate</p> <ul style="list-style-type: none"> <input type="checkbox"/> <input type="checkbox"/> investigate and analyse a range of existing products <input type="checkbox"/> <input type="checkbox"/> evaluate their ideas and products against their own design criteria and consider the views of others to improve their work <input type="checkbox"/> <input type="checkbox"/> understand how key events and individuals in design and technology have helped shape the world <p>Technical knowledge</p> <ul style="list-style-type: none"> <input type="checkbox"/> <input type="checkbox"/> apply their understanding of how to strengthen, stiffen and reinforce more complex structures 	<p>Term 1 Bread Snacks Pancakes</p> <p>Term 2 Sewing Project-padded animals Viking Ships</p> <p>Term 3 Making Containers or Vases using coils</p>	<p>To Master Practical Skills Food Bread Snacks & Pancakes</p> <p>Prepare ingredients hygienically using appropriate utensils.</p> <ul style="list-style-type: none"> • Measure ingredients to the nearest gram accurately. • Follow a recipe. • Assemble or cook ingredients (controlling the temperature of the oven or hob, if cooking). <p>Textiles Making padded animals</p> <ul style="list-style-type: none"> • Understand the need for a seam allowance. • Join textiles with appropriate stitching. • Select the most appropriate techniques to decorate textiles. <p>Computing (part of ICT)</p> <ul style="list-style-type: none"> • Control and monitor models using software designed for this purpose. <p>Electronics</p> <p>Science (Electricity)</p> <ul style="list-style-type: none"> • Create series and parallel circuits

Key Stage 2 National Curriculum Objectives and Milestones

Year 5 Design & Technology

Objectives	Topics-ideas	Milestone 3
<p>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].</p> <p>When designing and making, pupils should be taught to:</p> <p>Design</p> <ul style="list-style-type: none"> <input type="checkbox"/> <input type="checkbox"/> 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 <input type="checkbox"/> <input type="checkbox"/> generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design <p>Make</p> <ul style="list-style-type: none"> <input type="checkbox"/> <input type="checkbox"/> select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately <input type="checkbox"/> <input type="checkbox"/> 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 <p>Technical knowledge</p> <ul style="list-style-type: none"> <input type="checkbox"/> <input type="checkbox"/> apply their understanding of how to strengthen, stiffen and reinforce more complex structures <input type="checkbox"/> <input type="checkbox"/> understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages] <input type="checkbox"/> <input type="checkbox"/> understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors] <input type="checkbox"/> <input type="checkbox"/> apply their understanding of computing to program, monitor and control their products. <p>Evaluate</p> <ul style="list-style-type: none"> <input type="checkbox"/> <input type="checkbox"/> investigate and analyse a range of existing products <input type="checkbox"/> <input type="checkbox"/> evaluate their ideas and products against their own design criteria and consider the views of others to improve their work <input type="checkbox"/> <input type="checkbox"/> understand how key events and individuals in design and technology have helped shape the world 	<p>Term 1 CAMs Moving Toys</p> <p>Term 3 Textiles-knitting, printing, sewing a cushion</p>	<p>Material CAMs Moving Toy & Textiles</p> <ul style="list-style-type: none"> • 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). • 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). <p>Construction CAMs Moving Toy</p> <ul style="list-style-type: none"> • Develop a range of practical skills to create products (such as cutting, drilling and screwing, nailing, gluing, filling and sanding). <p>Textiles Textiles</p> <ul style="list-style-type: none"> • Create objects (such as a cushion) that employ a seam allowance. • Join textiles with a combination of stitching techniques (such as back stitch for seams and running stitch to attach decoration). • 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). <p>To design, make, evaluate and improve Textiles</p> <ul style="list-style-type: none"> • Design with the user in mind, motivated by the service a product will offer (rather than simply for profit). • Make products through stages of prototypes, making continual refinements. • Ensure products have a high quality finish, using art skills where appropriate. • Use prototypes, cross-sectional diagrams and computer aided designs to represent designs.

Key Stage 2 National Curriculum Objectives and Milestones

Year 6 Design & Technology

Objectives	Topics-ideas	Milestone 3
<p>When designing and making, pupils should be taught to:</p> <p>Design</p> <ul style="list-style-type: none"> <input type="checkbox"/> <input type="checkbox"/> 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 <input type="checkbox"/> <input type="checkbox"/> generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design <p>Make</p> <ul style="list-style-type: none"> <input type="checkbox"/> <input type="checkbox"/> select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately <input type="checkbox"/> <input type="checkbox"/> 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 <p>Evaluate</p> <ul style="list-style-type: none"> <input type="checkbox"/> <input type="checkbox"/> investigate and analyse a range of existing products <input type="checkbox"/> <input type="checkbox"/> evaluate their ideas and products against their own design criteria and consider the views of others to improve their work <input type="checkbox"/> <input type="checkbox"/> understand how key events and individuals in design and technology have helped shape the world <p>Cooking and nutrition</p> <p>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:</p> <p>Key stage 2</p> <ul style="list-style-type: none"> <input type="checkbox"/> <input type="checkbox"/> understand and apply the principles of a healthy and varied diet <input type="checkbox"/> <input type="checkbox"/> prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques <input type="checkbox"/> <input type="checkbox"/> understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed. 	<p>Term 1</p> <p>WW2 recipes Army helmets WW2 shelter WW2 armchairs</p> <p>Term 2</p> <p>Savoury Recipes from around the world</p> <p>Term 3</p> <p>Making a Fairground which lights up</p>	<p>To Master Practical Skills Food WW2 Recipes</p> <p>Understand the importance of correct storage and handling of ingredients (using knowledge of micro-organisms).</p> <ul style="list-style-type: none"> • Measure accurately and calculate ratios of ingredients to scale up or down from a recipe. • Demonstrate a range of baking and cooking techniques. • Create and refine recipes, including ingredients, methods, cooking times and temperatures. <p>To take inspiration from design throughout history Fairground and WW2 armchair</p> <ul style="list-style-type: none"> • Combine elements of design from a range of inspirational designers throughout history, giving reasons for choices. • Create innovative designs that improve upon existing products. • Evaluate the design of products so as to suggest improvements to the user experience. <p>Electrical and Electronics Fairground</p> <p>Create circuits using electronics kits that employ a number of components (such as LEDs, resistors, transistors and chips).</p> <p>Mechanics Fairground</p> <ul style="list-style-type: none"> • Convert rotary motion to linear using cams. • Use innovative combinations of electronics (or computing) and mechanics in product designs. <p>Computing (link to ICT Car models)</p> <ul style="list-style-type: none"> • Write code to control and monitor models or products.