











DESIGN AND TECHNOLOGY National Curriculum

Key Stage 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"> • 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 • 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"> • select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately • 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"> • investigate and analyse a range of existing products • evaluate their ideas and products against their own design criteria and consider the views of others to improve their work • 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"> • apply their understanding of how to strengthen, stiffen and reinforce more complex structures • understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages] • understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors] • apply their understanding of computing to program, monitor and control their products. <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.</p> <p>Pupils should be taught to:</p> <ul style="list-style-type: none"> • 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.
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 Lower KS2 DT	 <i>Uni-structural</i>	 <i>Multi-structural</i>	 <i>Relational</i>	 <i>Extended Abstract</i>
DT Skills	Emerging	Developing	Secure	Exceeding
To master practical skills.	Use a variety of tools independently.	Select appropriate techniques and measure/mark with some accuracy.	Combine a range of techniques and consider how some items can be repaired.	Create products demonstrating effective use of a range of practical skills to others. Use a variety of tools independently.
To take inspiration from design throughout history.	Explore how some products have been created.	Identify some of the great designers and use knowledge to generate some ideas for designs.	Improve upon existing designs, using influence of designers, giving reasons for choices. Disassemble products to understand how they work.	Combine elements of different designers in own ideas.
To design, make, evaluate and improve.	Design products that have a clear purpose.	Design with purpose by identifying opportunities to design. Make products by selecting correct tools and materials.	Refine work and techniques as work progresses, continually evaluating the product design.	Make a prototype and use this to influence other designs.

 Upper KS2 DT	 <i>Uni-structural</i>	 <i>Multi-structural</i>	 <i>Relational</i>	 <i>Extended Abstract</i>
DT Skills	Emerging	Developing	Secure	Exceeding
To master practical skills.	Select appropriate techniques and measure/mark with some accuracy.	Combine a range of techniques and consider how some items can be repaired.	Create products demonstrating use of a range of practical skills and demonstrating effective use of these to others. Use a variety of tools independently.	Select and use complex tools, equipment, machinery and techniques skilfully. Carry out some diagnostic, repair and maintenance tasks.
To take inspiration from design throughout history.	Identify some of the great designers to generate ideas for designs.	Combine elements of design from different inspirational designers throughout history, giving reasons for choices.	Create innovative designs that improve upon existing products. Evaluate and suggest improvements to the user experience.	Analyse the work of others, including iconic, historical and contextual references to influence and improve.
To design, make, evaluate and improve.	Identify opportunities to design, refining some work and techniques as work progresses.	Design with a user in mind, motivated by the service a product will offer, make products by working efficiently, carefully selecting materials.	Make products through stages of prototypes, making continual refinements. Evaluate the design, suggest improvements to the user experience.	Plan, design, make and evaluate a range of quality products, in a variety of materials, that are fit for purpose.

DESIGN AND TECHNOLOGY –Progression Document

		Year 3	Year 4	Year 5	Year 6
Designing		To design a product with a purpose and make sure that it looks attractive. To select the most appropriate tools and techniques for a given task. To create and follow a step-by-step plan, choosing the right equipment and materials.	To use ideas from other people when I am designing. To produce a plan and explain it.	To use market research to inform my plans and ideas. To come up with a range of ideas after collecting information from different sources. To produce a detailed, step-by-step plan. To suggest alternative plans; outlining the positive features and draw backs. To explain how a product will appeal to a specific audience.	To show that I consider culture and society in my plans and designs. To justify my plans in a convincing way motivated by the service a product will offer (rather than simply for profit). To explain how products should be stored and give reasons. To work within a budget.
Making including Technical Knowledge and skills	Materials	To work accurately to measure and make cuts. To select appropriate joining techniques	To measure accurately. To apply appropriate cutting and shaping techniques that includes cuts within the perimeter of the material (such as slots or cut outs) To explain my choice of joining technique	To make a prototype before making a final version. To cut materials with precision and refine the finish with appropriate tools (such as sanding wood after cutting or a more precise scissor cut after cutting out the shape roughly)	To make prototypes and cross-sectional diagrams to represent designs. To follow my plans. To show an understanding of the qualities of materials to choose appropriate tools to cut and shape (such as the nature of the fabric may require sharper scissors than would be used to cut paper)
	Textiles	To choose a textile for both its suitability and appearance. I understand the need for seam allowance. To join textiles with appropriate stitching. To select the most appropriate techniques to decorate textiles.		To create objects (such as a cushion) that employs seam allowance. Join textiles with a combination of stitching techniques (e.g. back stitch for seams and running stitch to attach a decoration)	To explain how textiles are constructed. Use the qualities of materials to create suitable visual and tactile effects in the decoration of textiles.
	Construction	To choose suitable techniques to construct products. To strengthen materials using suitable techniques	To select and apply a range of practical skills to create a model (fixing, strengthening and cutting)	To develop a range of practical skills to create products (such as cutting, drilling and screwing, nailing, gluing, filing and sanding)	
	Electricals and Electronics		To create series and parallel circuits. To make a product which uses both electrical and mechanical components.	To create circuits using electronics kits that employ a number of components (e.g. LEDs, resistors, transistors and chips)	To create circuits using solar energy.
	Mechanics	To use scientific knowledge of forces to choose appropriate mechanisms for a product (e.g. levers, winding mechanisms, pulleys and gears)		To convert rotary motion to linear using cams. Use innovative combinations of electronics and mechanics in product designs	
Evaluating		To prove that my design meets some set criteria.	To evaluate and suggest improvements for my designs. To evaluate products for both their purpose and appearance. To explain how I have improved my original design. To persevere and adapt my work when my original ideas do not work.	To evaluate appearance and function against original criteria. To use a range of tools and equipment competently.	To refine my plans. I show that To test and evaluate my products. To evaluate my products against clear criteria.
Cooking and Nutrition		To begin to follow a recipe To assemble ingredient To describe how food ingredients come together. To measure ingredient to the nearest gram with support.	I know how to be both hygienic and safe when using food. To measure ingredients to the nearest gram accurately. To follow a recipe.	To show that To be both hygienic and safe in the kitchen. To demonstrate a range of baking/ cooking techniques.	I understand the importance of correct storage and handling of ingredients (using knowledge of micro-organisms). To measure accurately and calculate ratios of ingredients to scale up or down from a recipe.