

## **DT INTENT:**

Design and Technology prepares children to deal with tomorrow's rapidly changing world. It encourages children to become independent, creative problem solvers and thinkers as individuals and part of a team. It enables them to identify needs and opportunities and to respond to them by developing a range of ideas and by making products and systems. At Greenfields, children receive a design and technology curriculum which allows them to exercise their creativity through designing and making. The children are taught to combine their designing and making skills with knowledge and understanding in order to design and make a variety of products.

Evaluation is an integral part of the design process and allows children to adapt and improve their products, this is a key skill which they need throughout their life. D&T allows children to apply the knowledge and skills learned in other subjects, particularly Maths, Science and Art. Children's interests are captured through topic learning, ensuring that links are made in a cross curricular way, giving children motivation and meaning for their learning. Children will also learn basic cooking skills.

## **DT Progression map**

Subject: Design Technology	EYFS/ KS1	LOWER KS2	UPPER KS2
<b>As designers we learn to:</b>			
<b>Master practical skills</b>			
Food	<ul style="list-style-type: none"><li>• Cut, peel or grate ingredients safely and hygienically.</li><li>• Measure or weigh using measuring cups or electronic scales.</li><li>• Assemble or cook ingredients.</li></ul>	<ul style="list-style-type: none"><li>• Prepare ingredients hygienically using appropriate utensils.</li><li>• Measure ingredients to the nearest gram accurately.</li><li>• Follow a recipe.</li><li>• Assemble or cook ingredients (controlling the temperature of the oven or hob, if cooking).</li></ul>	<ul style="list-style-type: none"><li>• Understand the importance of correct storage and handling of ingredients (using knowledge of microorganisms).</li><li>• Measure accurately and calculate ratios of ingredients to scale up or down from a recipe.</li><li>• Demonstrate a range of baking and cooking techniques.</li><li>• Create and refine recipes, including ingredients, methods, cooking times and temperatures.</li></ul>
Materials	<ul style="list-style-type: none"><li>• Cut materials safely using tools provided.</li><li>• Measure and mark out to the nearest centimetre.</li><li>• Demonstrate a range of cutting and shaping techniques (such as tearing, cutting, folding and curling).</li><li>• Demonstrate a range of joining techniques (such as glueing, hinges or combining materials to strengthen).</li></ul>	<ul style="list-style-type: none"><li>• Cut materials accurately and safely by selecting appropriate tools.</li><li>• Measure and mark out to the nearest millimetre.</li><li>• Apply appropriate cutting and shaping techniques that include cuts within the perimeter of the material (such as slots or cut outs).</li><li>• Select appropriate joining techniques.</li></ul>	<ul style="list-style-type: none"><li>• 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).</li><li>• 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).</li></ul>

Textiles	<ul style="list-style-type: none"> <li>• Shape textiles using templates.</li> <li>• Join textiles using running stitch.</li> <li>• Colour and decorate textiles using a number of techniques (such as dyeing, adding sequins or printing).</li> </ul>	<ul style="list-style-type: none"> <li>• Understand the need for a seam allowance.</li> <li>• Join textiles with appropriate stitching.</li> <li>• Select the most appropriate techniques to decorate textiles.</li> </ul>	<ul style="list-style-type: none"> <li>• Create objects (such as a cushion) that employ a seam allowance.</li> <li>• Join textiles with a combination of stitching techniques (such as back stitch for seams and running stitch to attach decoration).</li> <li>• 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).</li> </ul>
Electrical and electronics	<ul style="list-style-type: none"> <li>• Diagnose faults in battery operated devices (such as low battery, water damage or battery terminal damage).</li> </ul>	<ul style="list-style-type: none"> <li>• Create series and parallel circuits</li> </ul>	<ul style="list-style-type: none"> <li>• Create circuits using electronics kits that employ a number of components (such as LEDs, resistors, transistors and chips).</li> </ul>
Computing	<ul style="list-style-type: none"> <li>• Model designs using software.</li> </ul>	<ul style="list-style-type: none"> <li>• Control and monitor models using software designed for this purpose.</li> </ul>	<ul style="list-style-type: none"> <li>• Write code to control and monitor models or products.</li> </ul>
Construction	<ul style="list-style-type: none"> <li>• Use materials to practise drilling, screwing, glueing and nailing materials to make and strengthen products.</li> </ul>	<ul style="list-style-type: none"> <li>• Choose suitable techniques to construct products or to repair items.</li> <li>• Strengthen materials using suitable techniques.</li> </ul>	<ul style="list-style-type: none"> <li>• Develop a range of practical skills to create products (such as cutting, drilling and screwing, nailing, gluing, filing and sanding).</li> </ul>
Mechanics	<ul style="list-style-type: none"> <li>• Create products using levers, wheels and winding mechanisms.</li> </ul>	<ul style="list-style-type: none"> <li>• Use scientific knowledge of the transference of forces to choose appropriate mechanisms for a product (such as levers, winding mechanisms, pulleys and gears).</li> </ul>	<ul style="list-style-type: none"> <li>• Convert rotary motion to linear using cams.</li> <li>• Use innovative combinations of electronics (or computing) and mechanics in product designs.</li> </ul>
<b>Design, make, evaluate and improve</b>			
	<ul style="list-style-type: none"> <li>• Design products that have a clear purpose and an intended user.</li> <li>• Make products, refining the design as work progresses.</li> <li>• Use software to design.</li> </ul>	<ul style="list-style-type: none"> <li>• Design with purpose by identifying opportunities to design.</li> <li>• Make products by working efficiently (such as by carefully selecting materials).</li> <li>• Refine work and techniques as work progresses, continually evaluating the product design.</li> <li>• Use software to design and represent product designs.</li> </ul>	<ul style="list-style-type: none"> <li>• Design with the user in mind, motivated by the service a product will offer (rather than simply for profit).</li> <li>• Make products through stages of prototypes, making continual refinements.</li> <li>• Ensure products have a high-quality finish, using art skills where appropriate.</li> <li>• Use prototypes, cross-sectional diagrams and computer aided designs to represent designs.</li> </ul>
<b>Take inspiration from design throughout history</b>			

	<ul style="list-style-type: none"> <li>• Explore objects and designs to identify likes and dislikes of the designs.</li> <li>• Suggest improvements to existing designs.</li> <li>• Explore how products have been created.</li> </ul>	<ul style="list-style-type: none"> <li>• Identify some of the great designers in all of the areas of study (including pioneers in horticultural techniques) to generate ideas for designs.</li> <li>• Improve upon existing designs, giving reasons for choices.</li> <li>• Disassemble products to understand how they work.</li> </ul>	<ul style="list-style-type: none"> <li>• Combine elements of design from a range of inspirational designers throughout history, giving reasons for choices.</li> <li>• Create innovative designs that improve upon existing products.</li> <li>• Evaluate the design of products so as to suggest improvements to the user experience.</li> </ul>
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		EYFS/ KS1		
Topic/ Unit of work:		Thread (where appropriate)	KNOWLEDGE Describe the work of notable artists, artisans and designers	SKILLS Use some of the ideas of artists studied to create pieces
Year A	Japan Computing  (Harvest/Christmas)		Computing	<ul style="list-style-type: none"> <li>• Model designs using software.</li> </ul>
	Our World Food		Cooking: R/1 learn about local food, its origin tasting sweet local food/fruit kebabs 2 learn about food from Scotland sweet Scottish food/make shortbread	<ul style="list-style-type: none"> <li>• Cut, peel or grate ingredients safely and hygienically.</li> <li>• Measure or weigh using measuring cups or electronic scales.</li> <li>• Assemble or cook ingredients.</li> </ul> Nutrition and healthy eating links
	Great Fire of London Materials		Building Houses using key skills in DT progression. Ex. Create domes.	<ul style="list-style-type: none"> <li>• Cut materials safely using tools provided.</li> <li>• Measure and mark out to the nearest centimetre.</li> <li>• Demonstrate a range of cutting and shaping techniques (such as tearing, cutting, folding and curling).</li> <li>• Demonstrate a range of joining techniques (such as gluing, hinges or combining materials to strengthen).</li> </ul>

Yar B	Polar Explorers Electricals and Electronics  (Harvest/Christmas)		Learn about electricity during the polar explorations, what did they use it for? Learn about torches and other battery devices used during this period. How are they used now?	<ul style="list-style-type: none"> <li>• Diagnose faults in battery operated devices (such as low battery, water damage or battery terminal damage).</li> </ul>
	Extreme Weather Food		Cooking: R/1 learn about local food, its origin tasting savoury local food/cheese tasting (vegan option available) 2 learn about food from Scotland sweet Scottish food/make Scotch Oatcake (vegan option available)	<ul style="list-style-type: none"> <li>• Cut, peel or grate ingredients safely and hygienically.</li> <li>• Measure or weigh using measuring cups or electronic scales.</li> <li>• Assemble or cook ingredients.</li> </ul> Nutrition and healthy eating links
	Castles Construction and Mechanics	Legacy	Mechanism for a portcullis and a drawbridge. Mechanism for winding and dropping portcullis into place.	<ul style="list-style-type: none"> <li>• Create products using levers, wheels and winding mechanisms.</li> <li>• Use materials to practise drilling, screwing, gluing and nailing materials to make and strengthen products.</li> </ul>
Ye ar C	Gunpowder Plot Food  (Harvest/Christmas)		Cooking: R/1 learn about local food, its origin tasting sweet local food/fruit kebabs 2 learn about food from Scotland sweet Scottish food/make shortbread	<ul style="list-style-type: none"> <li>• Cut, peel or grate ingredients safely and hygienically.</li> <li>• Measure or weigh using measuring cups or electronic scales.</li> <li>• Assemble or cook ingredients.</li> </ul> Nutrition and healthy eating links
	Flight & Transport Materials & Construction		Michelangelo inventions/flight and Wright Brothers flight.	<ul style="list-style-type: none"> <li>• Cut materials safely using tools provided.</li> <li>• Measure and mark out to the nearest centimetre.</li> <li>• Demonstrate a range of cutting and shaping techniques (such as tearing, cutting, folding and curling).</li> <li>• Demonstrate a range of joining techniques (such as glueing, hinges or combining materials to strengthen).</li> <li>• Use materials to practise drilling, screwing, glueing and nailing materials to make and strengthen products.</li> </ul>
	Dinosaurs		Non- topic related	<ul style="list-style-type: none"> <li>• Shape textiles using templates.</li> </ul>

	Textiles		Stitched product for Mothers Day or Easter	<ul style="list-style-type: none"> <li>• Colour and decorate textiles using a number of techniques (such as dyeing, adding sequins or printing).</li> </ul> <p>Year 2 Join textiles using running stitch.</p>
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		Lower KS2		
Topic/ Unit of work:		Thread (where appropriate)	KNOWLEDGE Describe the work of notable artists, artisans and designers	SKILLS Use some of the ideas of artists studied to create pieces
Year A	Rainforests Textiles / Art		Continue with study of: Collage and Textile artists/sustainability Create dyes from natural products  Study textile artists who combine collage with textile skills, create designs for work and evaluate work in progress.	<ul style="list-style-type: none"> <li>• Join textiles with appropriate stitching.</li> <li>• Select the most appropriate techniques to decorate textiles.</li> <li>• Refine work and techniques as work progresses, continually evaluating the product design.</li> </ul> <p>Art</p> <ul style="list-style-type: none"> <li>• Select and arrange materials for a striking effect.</li> <li>• Ensure work is precise.</li> <li>• Use coiling, overlapping, tessellation, mosaic and montage.</li> <li>• Shape and stitch materials.</li> </ul> <p>Art Textiles</p> <ul style="list-style-type: none"> <li>• Use basic cross stitch and back stitch.</li> <li>• Colour fabric.</li> <li>• Create weavings.</li> <li>• Quilt, pad and gather fabric.</li> </ul>
	Active Planet Food		Reducing food miles! Comparison of food miles and nutrition  Competition to design/plan low food mile nutritional dish.	<ul style="list-style-type: none"> <li>• Prepare ingredients hygienically using appropriate utensils.</li> <li>• Measure ingredients to the nearest gram accurately.</li> <li>• Follow a recipe.</li> <li>• Assemble or cook ingredients (controlling the temperature of the oven or hob, if cooking).</li> <li>• Refine work and techniques as work progresses, continually evaluating the product design.</li> </ul>

	Egyptians Construction & Mechanics	Legacy	Design and construct mechanisms to move large objects.  Investigate levers and the processes used by the Egyptians. Link to study of mechanisms of castles, what was developed between the two time periods?	<ul style="list-style-type: none"> <li>Choose suitable techniques to construct products <del>or to repair items</del>.</li> <li>Strengthen materials using suitable techniques.</li> <li>Use scientific knowledge of the transference of forces to choose appropriate mechanisms for a product (such as levers, winding mechanisms, pulleys and gears).</li> </ul>
Y e a r B	Maya Materials	Civilisation, Community and Culture	Musical instruments, drums using parchment/ rainmakers.	<ul style="list-style-type: none"> <li>Cut materials accurately and safely by selecting appropriate tools.</li> <li>Measure and mark out to the nearest millimetre.</li> <li>Apply appropriate cutting and shaping techniques that include cuts within the perimeter of the material (such as slots or cut outs).</li> <li>Select appropriate joining techniques.</li> </ul>
	UK & Beyond Cooking	Civilisation, Community and Culture	What sort of food is traditional for us?  Lunchtime working together/celebration of diversity/ sharing a 'fact file' on the food/origin and personal importance.	<ul style="list-style-type: none"> <li>Prepare ingredients hygienically using appropriate utensils.</li> <li>Measure ingredients to the nearest gram accurately.</li> <li>Follow a recipe.</li> <li>Assemble or cook ingredients (controlling the temperature of the oven or hob, if cooking).</li> </ul>
	River Thames  Electrics and Electronics		Illumination of the Thames  An illuminated London land-mark/ diorama /scale (maths link)	<ul style="list-style-type: none"> <li>Create series and parallel circuits</li> </ul>

		Upper KS2		
Topic/ Unit of work:		Thread (where appropriate)	KNOWLEDGE Describe the work of notable artists, artisans and designers	SKILLS Use some of the ideas of artists studied to create pieces
Year A	World War 2 Electricals & Electronics	Cause and Consequence	Study of advances in communication and code breaking systems used in WW2.  Devise own signalling/code devise.	<ul style="list-style-type: none"> <li>• Create circuits using electronics kits that employ a number of components (such as LEDs, resistors, transistors and chips).</li> </ul>
	World Culture Food	Civilisation, Community and Culture	Reducing food miles! Part 2 Comparison of food miles and nutrition  Competition to design/plan low food mile nutritional dish including marketing materials.  Presentation to panel.	<ul style="list-style-type: none"> <li>• Understand the importance of correct storage and handling of ingredients (using knowledge of micro-organisms).</li> <li>• Measure accurately and calculate ratios of ingredients to scale up or down from a recipe.</li> <li>• Demonstrate a range of baking and cooking techniques.</li> <li>• Create and refine recipes, including ingredients, methods, cooking times and temperatures.</li> </ul>
	Native American Civilisation Textile and Materials	Comparison	A study of textile toys, including a comparison of toys from WW2.  Design a textile toy for a child today.	<ul style="list-style-type: none"> <li>• Create objects (such as a cushion) that employ a seam allowance.</li> <li>• Join textiles with a combination of stitching techniques (such as back stitch for seams and running stitch to attach decoration).</li> <li>• 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).</li> <li>• Evaluate the design of products so as to suggest improvements to the user experience.</li> <li>• Evaluate the design of products so as to suggest improvements to the user experience.</li> </ul>
Year B	The Monarchy Construction & Mechanics	Legacy	A vehicle fit for a monarch.  Using knowledge of electronics and mechanisms to design and make a (toy) vehicle.	<ul style="list-style-type: none"> <li>• Develop a range of practical skills to create products (such as cutting, drilling and screwing, nailing, gluing, filing and sanding).</li> <li>• Convert rotary motion to linear using cams.</li> <li>• Use innovative combinations of electronics (or computing) and mechanics in product designs.</li> </ul>

	<p>Natural Wonders on Earth and Beyond Food</p>		<p>Food Fair</p> <p>Research nutrition, looking at 'healthy snacks' that are available now. How are they marketed and packaged?</p> <p>Design a healthy snack, including packaging and marketing.</p> <p>Create snack for food fair.</p> <p>Link to PSHE, healthy living unit and science, nutrition and skeleton.</p>	<ul style="list-style-type: none"> <li>• Understand the importance of correct storage and handling of ingredients (using knowledge of micro-organisms).</li> <li>• Measure accurately and calculate ratios of ingredients to scale up or down from a recipe.</li> <li>• Demonstrate a range of baking and cooking techniques.</li> <li>• Create and refine recipes, including ingredients, methods, cooking times and temperatures.</li> <li>• Design with the user in mind, motivated by the service a product will offer (rather than simply for profit).</li> <li>• Make products through stages of prototypes, making continual refinements.</li> <li>• Ensure products have a high-quality finish, using art skills where appropriate.</li> </ul>
	<p>Ancient Greece Textile and Materials</p>		<p>Legacy Banner!</p> <p>Inspired by Greek textiles and patterns create a legacy banner celebrating the 5/6 cohort.</p>	<ul style="list-style-type: none"> <li>• 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).</li> <li>• Create objects (such as a cushion) that employ a seam allowance.</li> <li>• Join textiles with a combination of stitching techniques (such as back stitch for seams and running stitch to attach decoration).</li> <li>• 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).</li> <li>• Make products through stages of prototypes, making continual refinements.</li> <li>• Ensure products have a high-quality finish, using art skills where appropriate.</li> </ul>