



St Andrew's Church of England Junior School - Progression of Skills and Knowledge: Design & Technology



At St Andrew's our vision statement is 'Shining Light on a World of Possibilities' and we have designed our curriculum to be relevant, exciting and creative, underpinned by our school values and based around our 'curriculum drivers':

- Curiosity, enquiry and creativity
- Community
- Possibilities

This document aims to give guidance on the progression of D&T knowledge and skills across the year groups.

National Curriculum	Design and Technology National Curriculum					
	Key stage 2 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: Design • 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 Make • 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 Evaluate • 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					
Research	Technical knowledge • 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. 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.					
	Year 2	Year 3	Year 4	Year 5	Year 6	
		• Investigate and analyse a range of existing products, discussing their features, construction,	• Investigate and analyse a range of existing products, discussing their features, construction,	• Investigate and analyse a range of existing products, discussing their features, construction,	• Investigate and analyse a range of existing products, discussing their features, construction,	

		purpose and intended users. Learn about how key events and individuals in Design and technology have helped shape the world.	purpose and intended users. Learn about how key events and individuals in Design and technology have helped shape the world.	purpose and intended users. Learn about how key events and individuals in Design and technology have helped shape the world.	purpose and intended users. Learn about how key events and individuals in Design and technology have helped shape the world.
Key Vocabulary:		- investigate - analyse - product - construction - purpose - research - designer	intended user		
At Greater Depth, children should: work independently, think critically during research about existing products and their own, maintain high standards of presentation during their research compilation and design brief, and ask deep and critical questions about the intended use of their product.					
Design		- Develop design criteria to inform the design of appealing products that are fit for purpose aimed at particular groups. - List the materials/ingredients/tools that they will need. - Generate, develop, model and communicate their ideas through discussion and annotated sketches. - Include some informal measurements on their design. - Order the main stages of thinking.	- Develop design criteria to inform the design of functional and appealing products that are fit for purpose aimed at particular groups. - List the materials/ingredients/tools that they will need. - Generate, develop, model and communicate their ideas through discussion and annotated sketches, cross-sections. - Include some measurements on their design. - Order the main stages of thinking.	- Develop design criteria to inform the design of innovative, functional and appealing products aimed at particular groups. - Generate, develop, model and communicate their ideas through discussion and annotated sketches, cross-sectional and exploding diagrams with prototypes. - Include measurements on their design. - List the materials/ingredients/tools that they will need. - Write brief instructions for how they intend to make their products.	- Use research and develop design criteria to inform the design 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 exploding diagrams with prototypes, pattern pieces and computer-aided design. - Include accurate measurements on their design. - List the materials/ingredients/tools that they will need. - Write brief instructions for how they intend to make their products.

Key Vocabulary:		- design - criteria - appealing - annotated - sketches - test - adjustments - measurements	- functional - appealing - cross-sections - stages	- innovative - specification - mock-up - prototypes - functional - materials - ingredients - tools - instructions - exploding diagrams	- pattern pieces - computer-aided design
At Greater Depth, children should: work independently, think critically about the design of their product with users in mind, maintain high standards of presentation during their design process, and keep their design strictly to the brief specifications.					
Evaluate		- Investigate and analyse a range of existing products. - Begin to evaluate their ideas and products against their own design criteria and understand the potential differences between their initial design and finished product. - Test their products as they work, making informed adjustments and strive to address problems. - Review their products after construction, and make suggestions on how they could improve on future products.	- Investigate and analyse a range of existing products. - Evaluate their ideas and products against their own design criteria and understand the potential differences between their initial design and finished product. - Test their products as they work, making informed adjustments and strive to address problems. - Review their products after construction, and make suggestions on how they could improve on future products.	- Investigate and analyse a range of existing products, and begin to identify how these products will impact their own design. - Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work. - Test their products as they work, making informed adjustments and strive to address problems. - Review their products after construction, and make suggestions on how they could improve on future products.	- Investigate and analyse a range of existing products, and identify how these products will impact their own design. - Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work. - Test their products as they work, making informed adjustments and strive to address problems. - Review their products after construction, and make suggestions on how they could improve on future products.
Key Vocabulary:		- investigate - evaluate - improve - test - informed adjustments			
At Greater Depth, children should: work independently, evaluate their work critically and analyse the strengths and weaknesses of their products, identify how they can improve their products and which materials or methods they would use to make those improvements, and give and receive peer assessments of products and understand how these are useful forms of feedback.					

Make - Materials		• Cut materials accurately and safely. • Apply appropriate cutting and shaping techniques to make slots or cut outs.	• Cut materials accurately and safely. • Apply appropriate cutting and shaping techniques to make slots or cut outs. • Measure and mark out to the nearest millimetre. • Select appropriate joining techniques.	• Cut materials with precision and refine the finish using scissors. • Apply appropriate cutting and shaping techniques to make slots or cut outs. • Measure and mark out to the nearest millimetre. • Select appropriate joining techniques.	• Cut materials with precision and refine the finish using sandpaper. • Show understanding of the qualities of materials to choose appropriate tools to cut and shape.
Key Vocabulary:		• cut • accurately • safely • apply • shaping • techniques • slots • cut outs	• mark out • millimetre • joining • sandpaper	• precision • refine	
At Greater Depth, children should: work independently, demonstrate creative responses to problems that arise during construction, show methodical thinking, demonstrate appropriate techniques during construction, and maintain high standards of presentation on their finished product.					

Make - Construction		• Choose suitable techniques to construct products • Strengthen materials using suitable materials. • Measure and mark materials before cutting. • Cut materials with increasing accuracy, using appropriate tools.	• Choose suitable techniques to construct products • Apply their understanding of how to strengthen, stiffen and reinforce more complex structures • Measure and mark materials before cutting. • Cut materials with increasing accuracy, using appropriate tools.	• Choose suitable techniques to construct products or to repair items • Apply their understanding of how to strengthen, stiffen and reinforce more complex structures • Develop a range of practical skills to create products (cutting, gluing, drilling, screwing, nailing, filing and sanding) • Measure and mark materials with increased accuracy before cutting. • Cut materials accurately, using appropriate tools. • Strengthen materials using suitable materials.	• Choose suitable techniques to construct products or to repair items • Apply their understanding of how to strengthen, stiffen and reinforce more complex structures • Develop a range of practical skills to create products (cutting, gluing, drilling, screwing, nailing, filing and sanding) • Measure and mark materials with increased accuracy before cutting. • Cut materials accurately, using appropriate tools. • Strengthen materials using suitable materials.
Key Vocabulary		• construct • strengthen • gluing • sanding • mark • measure • suitable	• shelf appeal • stiffen • reinforce • packaging • tab • scoring • net	• repair • drilling • screwing • nailing • filing • practical • strengthen • triangulation • reinforce • architect	
At Greater Depth, children should: work independently, demonstrate creative responses to problems that arise during construction, show methodical thinking, demonstrate appropriate techniques during construction, and maintain high standards of presentation on their finished product.					

Make - Textiles			• Understand the need for a seam • Join textiles with appropriate stitching. (running stitch, cross-stitch) • Select the most appropriate techniques to decorate textiles. • Sewing basics – threading a needle, knotting your thread and finishing off. • Sewing on simple components e.g. buttons/sequins.	• Make/use a paper pattern (front and back pieces.) • Create an object that employs a seam allowance e.g. Cushion. • Join textiles with a combination of stitching techniques e.g. back stitch for seams and running stitch for decoration. • Select the most appropriate techniques to decorate textiles.	• Make/use a paper pattern (front and back pieces.) • Create an object that employs a seam allowance e.g. Cushion. • Join textiles with a combination of stitching techniques e.g. back stitch for seams and running stitch for decoration. • Select the most appropriate techniques to decorate textiles.
Key Vocabulary			• seam • textiles • stitching • running stitch • cross-stitch • decorate • threading • finishing off • sewing • button • sequin • components	• pattern • seam allowance • back stitch • fabric	
At Greater Depth, children should: work independently, demonstrate creative responses to problems that arise during construction, show methodical thinking, demonstrate appropriate techniques during construction, and maintain high standards of presentation on their finished product.					
Make - Electronics			• Create circuits using electronic kits that employ a number of components. • Understand and use electrical systems in their products e.g. series circuits incorporating switches, bulbs, buzzers and motors.		• Create series of parallel circuits. • Understand and use electrical systems in the products e.g. series circuits incorporating switches, bulbs, buzzers and motors.

Key Vocabulary			- circuits - electronic kits - components - electrical systems - series circuits - switches - bulbs - buzzers - motors - battery		- parallel circuits - monitor - control - electrical engineer - crocodile clip
At Greater Depth, children should: work independently, demonstrate creative responses to problems that arise during construction, show methodical thinking, demonstrate appropriate techniques during construction, and maintain high standards of presentation on their finished product.					
Make - Mechanics				Use scientific knowledge of forces to choose mechanisms such as levers, winding mechanisms, pulleys and gears.	
Key Vocabulary				- levers - forces - winding - mechanisms - pulleys - levers - rotary - cams - linear - linkages - gears - Load - mechanical engineer	
At Greater Depth, children should: work independently, demonstrate creative responses to problems that arise during construction, show methodical thinking, demonstrate appropriate techniques during construction, and maintain high standards of presentation on their finished product.					

Make - Food		• Prepare ingredients hygienically using appropriate utensils. • Assemble or cook ingredients controlling the hob or oven.	• Prepare ingredients hygienically using appropriate utensils. • Measure ingredients to the nearest gram accurately. • Follow a recipe.	• Understand the importance of correct storage and handling of ingredients. • Measure ingredients to the nearest gram accurately. • Demonstrate a range of baking or cooking.	• Measure accurately and calculate ratios of ingredients in recipes. • Create recipes including ingredients and methods.
Key Vocabulary		• ingredients • hygienically • utensils • hob • oven • Sweet • Sour • Savoury	• gram • recipe • texture	• storage • baking • cross-contamination	• ratios • methods • harvested
At Greater Depth, children should: work independently, demonstrate creative responses to problems that arise during construction, show methodical thinking, demonstrate appropriate techniques during construction, and maintain high standards of presentation on their finished product.					
Cooking and Nutrition		• Understand the principles of a healthy diet.	• Understand and apply the principles of a healthy and varied diet.	• Understand and apply the principles of a healthy and varied diet.	• Understand and apply the principles of a healthy and varied diet. • Understand the seasonality and know where and how a variety of ingredients are grown, reared, caught and processed.
Key Vocabulary		• healthy diet	• varied diet	• local produce	• seasonality • grown • reared • caught • processed
At Greater Depth, children should: work independently, demonstrate thorough understanding of healthy diets and why they are important, and show this understanding through their own cooking projects.					