

Wansbeck Primary School



Progression in Design and Technology Knowledge and Skills



Progression in Design and Technology

Teaching Sequence	<ul style="list-style-type: none"> • Presentation of the contextual challenge - posing a problem to be solved in a context the children understand • Product analysis - analysing existing products and possible construction materials/ingredients/tools • Client Profiling and Research through questionnaires and 1:1 interview. Present results linking with maths / computing • Development of own design specification in response to the brief and their research • Make the product • Critical Evaluation of the product including peer evaluation 						
Strand	EYFS	Key Stage 1		Lower KS2		Upper KS2	
Research	<p>3-4</p> <p>Explore how things work.</p> <p>ELG</p> <p>Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.</p> <p>Share their creations, explaining the process they have used.</p>	<p>Explore a range of existing products, discussing how they are made and how they work.</p> <p>Discuss how these products could help them with their own design</p>		<p>Learn about how key events and individuals in design and technology have helped shape the world.</p> <p>Investigate and analyse a range of existing products, discussing their features, construction, purpose and intended users.</p> <p>Identify a target audience for the product and ask some questions</p> <p>Use research to develop design criteria</p>		<p>Learn about how key events and individuals in design and technology have helped shape the world.</p> <p>Investigate and analyse a range of existing products, discussing their features, construction, purpose and intended users.</p> <p>Identify a target audience for the product and carry out research, using surveys, interviews, questionnaires and web-based resources</p> <p>Present research in graphs, charts including using computer programs such as Excel (Year 6)</p>	
Design	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	<p>3-4</p> <p>Choose the right resources to y out their own plan.</p> <p>Explore how things work.</p> <p>4-5</p> <p>Create collaboratively, sharing ideas, resources and skills</p>	<ul style="list-style-type: none"> • Select pictures to help develop ideas and explain what they are making and which materials they are using • Use own ideas to design and describe how it works through 	<ul style="list-style-type: none"> • Use pictures and words to convey what they want to make • use knowledge of existing products to help come up with ideas • Use drawings to record ideas 	<ul style="list-style-type: none"> • Design with purpose by identifying users to base the design round • Develop ideas and plans through discussion and annotated drawings 	<ul style="list-style-type: none"> • investigate and analyse a range of existing functional survival products and draw/sketch products to help understand how and why they are made 	<ul style="list-style-type: none"> • Come up with a range of ideas after collecting information from different sources to develop design criteria • Produce a step by step plan • sketch and model 	<ul style="list-style-type: none"> • Develop and present a range of ideas after collecting information from different sources to develop design criteria • Produce a detailed step by step plan

	Explore, use and refine a variety of artistic effects to express their ideas and feelings.	<p>talking and drawing</p> <ul style="list-style-type: none"> say whether their products are for themselves or other users Make a simple plan before making 	<p>as they are developed</p> <ul style="list-style-type: none"> Add notes to drawings to help explanations say how their products will work Design products that have a clear purpose and an intended user using talking, drawing, templates and mock ups 	<ul style="list-style-type: none"> Think ahead about the order of their work · describe the purpose of their products 	<ul style="list-style-type: none"> develop more than one design or adaptation of an initial design indicate the design features of their products that will appeal to intended users explain how particular parts of their products work 	<p>alternative ideas and record ideas using annotated diagrams with increasing detail</p> <ul style="list-style-type: none"> generate innovative ideas, drawing on research 	<ul style="list-style-type: none"> make design decisions, taking account of constraints such as time, resources and cost identify the needs, wants, preferences and values of particular individuals and groups
Make Food	EYFS	KS1		Lower KS2		Upper KS2	
	<p>4-5</p> <p>Develop their small motor skills so that they can use a range of tools competently, safely and confidently</p> <p>ELG Fine motor skills</p> <p>Use a range of small tools, including scissors, paintbrushes and cutlery.</p>	<ul style="list-style-type: none"> Cut, peel or grate ingredients safely Measure and weigh food items using non-statutory measures such as cups Understanding the basic principles of a healthy diet Know that all food comes from plants or animals how to name and sort foods into the five groups in The eatwell plate that everyone should eat at least five portions of fruit and vegetables every day Developing a food vocabulary using taste, smell, touch and texture Demonstrate how to work safely and hygienically 		<ul style="list-style-type: none"> Prepare ingredients hygienically using appropriate utensils. Measure ingredients to the nearest gram accurately. Follow a recipe. Use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking · Assemble or cook ingredients sweet or savoury (controlling the temperature of the oven or hob, if cooking). Build on their food vocabulary acquired in key stage 1 by increasing their sensory vocabulary and knowledge around how foods feel, smell and taste Make healthy eating choices from an understanding of a balanced diet when designing their product. 		<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. Cut and shape ingredients using appropriate tools and equipment Create and refine recipes, including ingredients, methods, cooking times and temperatures. Understand the importance of correct storage and handling of ingredients (using knowledge of micro-organisms). Work within a budget to create a meal how to use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking · 	

			<ul style="list-style-type: none"> • Know that to be active and healthy, food and drink are needed to provide energy for the body • Understand seasonality and which products can be grown locally and which can't. 	
Make Textiles	<p>3-4</p> <p>Develop their own ideas and then decide which materials to use to express them</p> <p>ELG</p> <p>Creating with Materials</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"> • Join their fabrics with glue or by using running stitch, staples, or over-sewing • Decorate their design with buttons, beads, sequins, braids and ribbons 	<ul style="list-style-type: none"> • join textiles neatly using basic stitch techniques (running, back and oversewing) • Decorate using cross stitch • explore fastening and recreate some e.g. sew on buttons and create loops 	<ul style="list-style-type: none"> • Join fabrics by pinning and tacking pieces together • Stitch using a range of stitches including blanket stitch • Create objects 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).
Make Construction	<p>3-4</p> <p>Use one-handed tools and equipment, carrfor example, making snips in paper with scissors.</p> <p>4-5</p> <p>Develop their small motor skills so that they can use a range of tools competently,</p>	<ul style="list-style-type: none"> • Materials • • Measure and mark out card to be cut using a template • • Join the card to make a 3D container using glue and tape • • Cut materials safely using tools provided. • • Demonstrate a range of cutting and shaping techniques (such as tearing, cutting, folding and curling). • • Cut materials safely using tools provided. • • Measure and mark out to the nearest centimetre. 	<ul style="list-style-type: none"> • Construction • • Use the coiling technique with clay to build a pot • • Join coils accurately using tools selected. • • Understand how a wide base of a 3D object makes it more stable • • Cut materials accurately and safely by selecting appropriate tools. (including within the perimeter of the material) • • Measure and mark out to the nearest millimetre. • • Select appropriate joining techniques. 	<ul style="list-style-type: none"> • Construction • • Cut wood using a hacksaw • • Glue wood to strengthening corners • • Measure and mark out to the nearest centimetre. • • Demonstrate a range of joining techniques (such as gluing, hinges or combining materials to strengthen). • • Use wood to practise drilling, screwing, gluing and nailing materials to make products • • Cut materials with precision and refine the finish with appropriate tools (such

	<p>safely and confidently.</p> <p>ELG</p> <p>Fine motor skills</p> <p>Use a range of small tools, including scissors, paintbrushes and cutlery.</p> <p>Creating with Materials</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"> • Demonstrate a range of joining techniques (such as gluing, hinges or combining materials to strengthen) 	<ul style="list-style-type: none"> • Choose suitable techniques to construct products or to repair items. 	<p>as sanding wood after cutting or a more precise scissor cut after roughly cutting out a shape).</p> <ul style="list-style-type: none"> • 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).
Make Mechanisms		<ul style="list-style-type: none"> • Create a mechanism using a lever • Use the lever to move an object/picture 	<ul style="list-style-type: none"> • build on their scientific knowledge of the transference of forces to choose appropriate mechanisms for a product (such as levers, winding mechanisms, pulleys and gears). • draw on their knowledge of pulley systems to solve a problem • build a wooden frame and strengthen this with diagonal struts • measure, mark and cut the wood to 1cm • Attach and construct the pulley system. 	<ul style="list-style-type: none"> • Build frameworks using a range of material to support mechanisms • Know how mechanical systems such as cams or pulleys or gears create movement • Convert rotary motion to linear using cams
Make Electronics		<ul style="list-style-type: none"> • 	<ul style="list-style-type: none"> • Understand and create an electrical circuit • Create series and parallel circuits • Know how simple electric circuits and components can be used to create functional products • How to program a computer to control products 	<ul style="list-style-type: none"> • Draw on their knowledge of year 6 computing and science work on electrical circuits to design and create circuits using electronic kits that employ a number of components (such as resistor, LED's, transistors and chips) • Know how more complex electric circuits and components can be used to create functional products

				<ul style="list-style-type: none"> • Know how to program a computer to monitor changes in the environment and control their product
Evaluate	<p>4-5</p> <p>Return to and build on their previous learning, refining ideas and developing their ability to represent them</p> <p>ELG</p> <p>Share their creations, explaining the process they have used.</p>	<p><u>Evaluate Existing Products:</u></p> <p>what products are who products are for what products are for how products work what materials products are made from what they like and dislike about products</p> <p><u>Own product</u></p> <p>Say what they like and do not like about the product they have made and why Talk about their design and identify good and bad points</p>	<p><u>Evaluate existing products</u></p> <p>where products were designed and made when products were designed and made Whether products can be recycled or reused</p> <p><u>Own Product</u></p> <p>Discuss how well the product meets the design criteria and how well it meets the needs of the user Evaluate their product and consider and explain how it could be improved.</p> <p>Year 4 - evaluate against own design criteria consider the strengths and weaknesses of their work in relation to its function</p>	<p><u>Evaluate existing Products</u></p> <p>how much products cost to make how innovative products are how sustainable the materials in products are what impact products have beyond their intended purpose</p> <p><u>Own Product</u></p> <p>Consider the viewpoints of other when evaluating their work Evaluate the process of design and making the product</p> <p>Year 6 - Critically evaluate the quality of the design, manufacture and fitness for purpose of their products as they design and make Justify decisions about materials and methods of construction</p>