



Cowling Community Primary School

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Design Technology Progression Plan

Curricular Goal					
Provide opportunities to design, make, evaluate, use technical knowledge and learn about cooking and nutrition, textiles, mechanisms, structures and electrical systems (KS2). Ensure and develop the creative, technical and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world.					
Design					
EYFS	KS1	End of KS1 expectations	LKS2	UKS2	End of KS2 expectations
<ul style="list-style-type: none"> Select appropriate resources Use gestures, talking and arrangements of materials and components to show design Use contexts set by the teacher and myself Use language of designing and making (join, build, shape, longer, shorter, heavier etc.) 	<ul style="list-style-type: none"> Have own ideas and plan what to do next. Explain what my product is for, and how it will work. Use pictures and words to plan, begin to use models. Design a product for myself following design criteria. Research similar existing products. Describe design using pictures, words, models, diagrams, and begin to use ICT. Design products for myself and others following design criteria. Choose best tools and materials, and explain choices. Use knowledge of existing products to produce ideas. 	Design purposeful, functional, appealing products for themselves and other users based on design criteria. Generate, develop, model and communicate their ideas through talking, drawing, templates, mockups and, where appropriate, information and communication technology.	<ul style="list-style-type: none"> Begin to research others' needs. Show design meets a range of requirements and is fit for purpose Follow a given design criteria and begin to create own design criteria. Have at least one idea about how to create product and suggest improvements for design. Create a plan which shows order, equipment and tools and explain it to others. Describe design using an accurately labelled sketch and words. Make and explain design decisions considering availability of resources Explain how product will work. Make a prototype. Begin to use computers to show design 	<ul style="list-style-type: none"> Use internet and questionnaires for research and design ideas. Take a user's view into account when designing - individual needs, wants, requirements ensuring product is fit for purpose. Create own design criteria and specification. Have a range of innovative ideas. Produce a logical, realistic plan and explain it to others. Use cross-sectional planning, annotated sketches and exploded diagrams. make design decisions, considering resources and cost. Clearly explain how parts of product will work and how they are fit for purpose. Model and refine design ideas by making prototypes and using pattern pieces. Use computer-aided designs 	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					
EYFS	KS1	End of KS1 expectations	LKS2	UKS2	End of KS2 expectations
<ul style="list-style-type: none"> Construct with a purpose, using a variety of resources. 	<ul style="list-style-type: none"> Explain what I'm making and why it fits the purpose. Consider and make suggestions as 	Select from and use a range of tools and	<ul style="list-style-type: none"> select suitable tools and equipment, explain choices in relation to required techniques and use accurately. 	<ul style="list-style-type: none"> Use selected tools/equipment with good level of precision. Produce suitable lists of tools, 	Select from and use a wider range of tools and equipment to



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<ul style="list-style-type: none"> • Use simple tools and techniques. • Build / construct with a wide range of objects. • Select tools & techniques to shape, assemble and join. • Replicate structures with materials / components. • Discuss how to make an activity safe and hygienic. • Record experiences by drawing, writing, voice recording. • Understand different media can be combined for a purpose. 	<p>to what I need to do next.</p> <ul style="list-style-type: none"> • Select tools/equipment to cut, shape, join, finish and explain choices. • join materials/components together in different ways. • Measure, mark out, cut and shape, with support. • Choose suitable materials and explain choices depending on characteristics. • Try to use finishing techniques to make product look good. • Work in a safe and hygienic manner 	<p>equipment to perform practical tasks [for example, cutting, shaping, joining and finishing].</p> <p>Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics.</p>	<ul style="list-style-type: none"> • Select appropriate materials, fit for purpose; explain choices. • Work through plan in order. • Consider how a good product will be. • Begin to measure, mark out, cut and shape materials/components with some accuracy. • Begin to assemble, join and combine materials and components with some accuracy. • Begin to apply a range of finishing techniques with some accuracy. 	<p>equipment, materials needed, considering constraints.</p> <ul style="list-style-type: none"> • select appropriate materials, fit for purpose; explain choices, considering functionality and aesthetics. • Create, follow, and adapt detailed step-by-step plans. • Explain how product will appeal to an audience; make changes to improve quality. • Mainly accurately measure, mark out, cut and shape materials/components • Mainly accurately assemble, join and combine materials/components. • Mainly accurately apply a range of finishing techniques. • Use techniques that involve a number of steps. • Begin to be resourceful with practical problems. 	<p>perform practical tasks [for example, cutting, shaping, joining and finishing], accurately</p> <p>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>
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Evaluate

EYFS	KS1	End of KS1 expectations	LKS2	UKS2	End of KS2 expectations
<ul style="list-style-type: none"> • Adapt work if necessary. • Dismantle, examine, talk about existing objects/structures. • Consider and manage some risks. • Practise some appropriate safety measures independently. • Talk about how things work. • Look at similarities and differences between existing objects / materials / 	<ul style="list-style-type: none"> • Describe what went well, thinking about design criteria. • Talk about existing products considering: use, materials, how they work, audience, where they might be used; express personal opinion. • Talk about existing products, and say what is and isn't good. • Talk about things that other people have made. • Talk about what I would do differently if I were to do it again and why. 	<p>Explore and evaluate a range of existing products.</p> <p>Evaluate their ideas and products against design criteria.</p>	<ul style="list-style-type: none"> • Look at design criteria while designing and making; evaluate quality of design while designing and making • Evaluate ideas and finished product against specification, considering purpose and appearance. • Say what I would change to make design better; test and evaluate final product. • Begin to evaluate existing products, considering: how well they have been made, materials, whether they work, how they have been made, fit for purpose. • Research whether products can be recycled or reused. • Begin to understand by whom, when 	<ul style="list-style-type: none"> • Evaluate quality of design while designing and making; is it fit for purpose? • Evaluate ideas and finished product against specification, considering purpose and appearance. • Test and evaluate the final product; explain what would improve it and the effect different resources may have had. • Evaluate and discuss existing products, considering: how well they've been made, materials, whether they work, how they have been made, fit for purpose. • Begin to evaluate how much 	<p>Investigate and analyse a range of existing products.</p> <p>Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work.</p> <p>Understand how key events and individuals in design and technology have helped shape the world</p>



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<p>tools.</p> <ul style="list-style-type: none"> Show an interest in technological toys. Describe texture. 			<p>and where products were designed.</p> <ul style="list-style-type: none"> Learn about some inventors/designers/ engineers/chefs/manufacturers of groundbreaking products. 	<p>products cost to make and how innovative they are.</p> <ul style="list-style-type: none"> Research how sustainable materials are. Discuss some key inventors/designers/ engineers/chefs/manufacturers of groundbreaking products. Consider the impact of products beyond their intended purpose. 	
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Technical knowledge: Food and nutrition.

EYFS	KS1	End of KS1 expectations	LKS2	UKS2	End of KS2 expectations
<ul style="list-style-type: none"> Begin to understand some food preparation tools, techniques and processes. Practise stirring, mixing, pouring, blending. Discuss how to make an activity safe and hygienic. Discuss use of senses. Understand the need for variety in food. Begin to understand that eating well contributes to good health 	<ul style="list-style-type: none"> Describe textures. Wash hands & clean surfaces Explain hygiene and keep a hygienic kitchen. Think of interesting ways to decorate food Say where some foods come from, (i.e. plant or animal). Describe how food is farmed, home-grown, caught. Describe differences between some food groups (i.e. sweet, vegetable etc.). Draw eat well plate; explain there are groups of food *describe “five a day” cut, peel and grate with increasing confidence. Discuss how fruit and vegetables are healthy. Cut, peel and grate safely, with support. Describe properties of ingredients and importance of varied diet. 	<p>Use the basic principles of a healthy and varied diet to prepare dishes. Understand where food comes from.</p>	<ul style="list-style-type: none"> Carefully select ingredients. Explain how to be safe/hygienic. Make products look interesting and attractive. Think about how to grow plants to use in cooking. Understand ingredients can be fresh, pre-cooked or processed Begin to understand about food being grown, reared or caught in the UK or wider world Describe the Eatwell Plate and how a healthy diet has a variety and balance of food and drinks. Explain how food and drink are needed for active/healthy bodies. Prepare and cook some dishes safely and hygienically. grow in confidence using some of the following techniques: peeling, chopping, slicing, grating, mixing, spreading, kneading and baking. 	<ul style="list-style-type: none"> Explain how to be safe / hygienic and follow own guidelines. present product well - interesting, attractive, fit for purpose. To understand the seasonality of food. Understand a recipe can be adapted by adding / substituting ingredients. learn about food processing methods Understand food can be grown, reared or caught in the UK and the wider world. Describe how recipes can be adapted to change appearance, taste, texture, aroma. Explain how there are different substances in food / drink needed for health and how they can affect health. Prepare and cook some savoury dishes safely and hygienically including, where appropriate, use of heat source. Use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and 	<p>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.</p>



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Technical knowledge:Textiles.

EYFS	KS1	End of KS1 expectations	LKS2	UKS2	End of KS2 expectations
<ul style="list-style-type: none"> There are lots of different types of fabrics that are used for different products. Materials can be joined together in different ways. 	<ul style="list-style-type: none"> To know that 'joining technique' means connecting two pieces of material together. To know that there are various temporary methods of joining fabric by using staples, glue or pins. To understand that different techniques for joining materials can be used for different purposes. To know that sewing is a method of joining fabric To know that different stitches can be used when sewing. To understand the importance of tying a knot after sewing the final stitch. To understand that a template (or fabric pattern) is used to cut out the same shape multiple times. To know that drawing a design idea is useful to see how an idea will look. 		<ul style="list-style-type: none"> To know that applique is a way of mending or decorating a textile by applying smaller pieces of fabric to larger pieces. To know that when two edges of fabric have been joined together it is called a seam. To know that it is important to leave space on the fabric for the seam. To understand that some products are turned inside out after sewing so the stitching is hidden. To know that creating a mock up (prototype) of their design is useful for checking ideas and proportions. 	<ul style="list-style-type: none"> To understand that it is important to design a pencil case with the client/target customer in mind. To know that using a template helps to accurately mark out a design on fabric. To understand the importance of consistently sized stitches. To know how to use a sewing machine. 	

Technical knowledge:Mechanisms.

EYFS	KS1	End of KS1 expectations	LKS2	UKS2	End of KS2 expectations
<ul style="list-style-type: none"> Recognise that parts can move. Understand what makes parts move. 	<ul style="list-style-type: none"> Use levers or slides. Begin to understand how to use wheels and axles 	Explore and use mechanisms [for example, levers, sliders, wheels and axles], in	<ul style="list-style-type: none"> Select appropriate tools / techniques. Explain alterations to a product after to make it better. Begin to try new/different ideas. Use simple levers and linkages to 	<ul style="list-style-type: none"> Refine product after testing, considering aesthetics, functionality and purpose Grow in confidence about trying new / different ideas. 	Understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers



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		their products.	<ul style="list-style-type: none"> create movement. Use pneumatics to create movement Grow in confidence about trying new / different ideas. 	<ul style="list-style-type: none"> Begin to use cams, pulleys or gears to create movement. Incorporate hydraulics and pneumatics. 	and linkages].
Technical knowledge:Structures.					
EYFS	KS1	End of KS1 expectations	LKS2	UKS2	End of KS2 expectations
	<ul style="list-style-type: none"> Begin to measure and join materials, with some support. Describe some different characteristics of materials. Join materials in different ways. Use joining, rolling or folding to make it stronger. Use own ideas to try to make the product stronger. 	Build structures, exploring how they can be made stronger, stiffer and more stable.	<ul style="list-style-type: none"> Use appropriate materials. Measure carefully to avoid mistakes and work accurately to make cuts and holes. Join materials. Attempt to make the product strong. Continue working on the product even if the original didn't work. Make a strong, stiff structure. 	<ul style="list-style-type: none"> Select materials carefully, considering intended use of the product, the aesthetics and functionality. Explain how the product meets design criteria. Measure accurately enough to ensure precision. Ensure the product is strong and fit for purpose. Begin to reinforce and strengthen a 3D frame. 	*Apply their understanding of how to strengthen, stiffen and reinforce more complex structures
Technical knowledge:Electrical systems.					
			LKS2	UKS2	End of KS2 expectations
			<ul style="list-style-type: none"> Understand and use electrical systems in their products linked to science coverage. Apply their understanding of computing to program and control their products. Know and use technical vocabulary relevant to the project. 	<ul style="list-style-type: none"> Incorporate a switch into a product. Confidently use a number of components in the circuit. Think of ways in which adding a circuit would improve the product. Begin to be able to program a computer to monitor changes in the environment and control products. 	Understand and use electrical systems in their products [for example, series circuits.



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Components: Sewing and Textiles			
EYFS	KS1	LKS2	UKS2
<p>Children learn how to weave with a range of different fabrics. Materials can be joined in different ways: tying knots, weaving, sewing.</p>	<p>Children learn how to sew and join fabrics using a running stitch. Children learn how to decorate the surface by glueing on beads or buttons Children learn how to cut out shapes which have been created by drawing round a template onto the fabric. Children begin to sew using running stitch stitch.</p>	<p>Children are able to join fabrics using running stitch and cross stitch with increasing independence. They learn how to use the technique applique. They learn how to add further decoration to their work using buttons, beads, sequins Children are able to use a pattern and are introduced to making a prototype of a product.</p>	<p>Children can create products using pattern pieces and demonstrate an awareness of seam allowance. They can be decorated by sewing on beads, buttons and sequins. Children can pin and tack fabric pieces together. They can join fabrics by a range of stitches such as, back stitch or blanket stitch and are introduced to machine sewing. Children are able to make quality products with increasing accuracy and independence.</p>
<p>Vocabulary</p>	<p>Vocabulary joining and finishing techniques, tools, fabrics and components, template, pattern pieces, mark out, join, decorate, finish.</p>	<p>Vocabulary fabric, names of fabrics, fastening, compartment, zip, button, structure, finishing technique, strength, weakness, stiffening, templates, stitch, seam, seam allowance</p>	<p>Vocabulary seam, seam allowance, wadding, reinforce, right side, wrong side, hem, template, pattern pieces,</p>
Components: Food and nutrition			
EYFS	KS1	LKS2	UKS2



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<p>Different healthy and unhealthy foods. Use ready made ingredients to mix and handle hygienically. Adults to model, leading to independence, preparation of food by peeling oranges, bananas etc, pulling apart orange segments.</p> <p>Skills: How to use tools safely to: 1. Scoop 2. Weigh 3. Crack 4. Beat / Whisk 5. Pour 6. Divide</p>	<p>Identify healthy and varied snacks including how fruit and vegetables are part of The eatwell plate. Design and make your own fruit/vegetable skewer and Fruit smoothie. . Know that fruit and vegetables come from different places. Assemble ingredients to prepare food, using simple tools to cut, peel or grate safely and hygienically. How to hold a knife and how to make a single cut: bridge hold and fork secure.</p> <p>Prepare food safely and hygienically, measuring and weighing ingredients using measuring cups and digital scales.</p> <p>SKILLS: Cutting using a small knife. Peel e.g. oranges Group familiar food products e.g. fruit and vegetables. Work safely and hygienically Cutting with scissors – snip herbs. Grating Measure and weigh food items – non statutory measures e.g. spoons, cups Develop a food vocabulary using taste, smell, texture and touch, describe the ingredients used</p>	<p>Know the principles of a healthy and varied diet and apply these to design and make a biscuit mixture and a salad.</p> <p>Know that food comes from different places and how it gets to our table. Follow a recipe, using appropriate utensils and measuring skills to prepare a sweet food.</p> <p>How to hold a knife safely and cut foods in different ways:</p> <ul style="list-style-type: none"> Recap bridge hold and fork secure. claw grip <p>Follow a recipe, using appropriate utensils and measuring ingredients to the nearest gram accurately in order to prepare food.</p> <p>Skills: Follow a simple recipe. Rubbing together butter and flour. Slice, grate, mix and bake. Weigh out ingredients using scales. Make healthy eating choices from an understanding of a balanced diet. Know when food is ready for harvesting Know which food is healthy and which is not.</p>	<p>Know that seasonality affects the food we eat and create a healthy and balanced meal based on seasonality - Soup, crepes and croissants.</p> <p>Know how food is reared, caught and processed.</p> <p>As designers, scale up or down a recipe, having accurately calculated ratios of carefully measured ingredients.</p> <p>How to use different knives for different purposes</p> <p>As designers, create and refine recipes that demonstrate a range of baking and cooking techniques, applying previously learned skills.</p> <p>Skills: Knead. Work within a budget. Make healthy eating choices from an understanding of a balanced diet. Follow a recipe with several elements. Using heat on the hob. Understanding the difference between sweet/savoury.</p>
<p>Vocabulary</p>	<p>Vocabulary</p>	<p>Vocabulary</p>	<p>Vocabulary</p>
<p>Component: Mechanisms and Structures</p>			
<p>EYFS</p>	<p>KS1</p>	<p>LKS2</p>	<p>UKS2</p>
<p>With support, begin to incorporate moving parts into models. For example, use split pins to make body parts move.</p>	<ul style="list-style-type: none"> With some support, begin to explore and use simple mechanisms. For example, use sliders in moving pictures, hinges into models etc. Explore and use sliders and levers. Understand that different mechanisms produce different types of movement. 	<ul style="list-style-type: none"> Begin to develop an understanding that mechanical systems such as levers and linkages can create movement. Begin to incorporate levers and linkages into their products. 	<ul style="list-style-type: none"> Develop a greater understanding of how pulleys or gears create movement. Create and use prototypes. Design and make products with greater independence. Understand that mechanical and electrical systems have an input, process and an output.



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	<ul style="list-style-type: none"> • With some independence, explore and use winding mechanisms. Begin to incorporate wheels and axles into their products. • Explore and use wheels, axles and axle holders. Distinguish between fixed and freely moving axles. Know and use technical vocabulary relevant to the project. 	<ul style="list-style-type: none"> • With increasing independence produce models that incorporate mechanical systems such as levers and linkages to create movement. • Understand and use lever and linkage mechanisms. • Distinguish between fixed and loose pivots. • Know and use technical vocabulary relevant to the project. 	<ul style="list-style-type: none"> • Understand how gears and pulleys can be used to speed up, slow down or change the direction of movement. • Know and use technical vocabulary relevant to the project.
	<p>Vocabulary Structure Stable Rigid.cut, fold, join, fix structure, wall, tower, framework, weak, strong, base, top, underneath, side, edge, surface, thinner, thicker, corner, point, straight, curved, metal, wood, plastic circle, triangle, square, rectangle, cuboid, cube, cylinder.</p>	<p>Vocabulary mechanism, lever, linkage, pivot, slot, bridge, guide system, input, process, output linear, rotary, oscillating, reciprocating</p>	<p>Vocabulary pulley, drive belt, gear, rotation, spindle, driver, follower, ratio, transmit, axle, motor, circuit, switch, circuit diagram, annotated drawings, exploded diagrams, mechanical system, electrical system, input, process, output</p>



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