



Wool CE Primary School
Design and Technology Progression



Overview:
Children are given the opportunity to design and develop, make and evaluate by providing inspiring real-life scenarios and reasons to make purposeful products. Through exploration and guidance, we aim to develop pupils' skills and knowledge of how products are designed, built and improved for their intended purpose. We want pupils to draw on their cross-curricular skills in a variety of contexts and understand how design technology has influenced the world we live in today.

Aims for the National Curriculum design and technology curriculum:

- Develop the creative, technical and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world
- Build and apply a repertoire of knowledge, understanding and skills in order to design and make high-quality prototypes and products for a wide range of users
- Critique, evaluate and test their ideas and products and the work of others
- Understand and apply the principles of nutrition and learn how to cook

Pupils will be taught the following knowledge and skills:

	EYFS	Y1	Y2	Y3	Y4	Y5	Y6
Design	<p>To explore different materials freely in order to develop ideas about how to use them and what to make.</p> <p>To use the language of designing and making, e.g. join, build, shape)</p> <p>Select appropriate resources and say what they are going to make</p> <p>To draw a plan of what they want to make</p>	<p>To explain what I am making.</p> <p>To explain what my product is for and how it will work.</p> <p>To know that there is a reason behind why we design and make something.</p> <p>To explore materials and components from existing products.</p> <p>To begin to draw on my own experience to help generate ideas.</p> <p>To use talking and drawing to plan my design.</p> <p>To design a product for myself using a simple design criterion.</p>	<p>To explain what they want to design and how they will do it.</p> <p>To explain how the product is suitable for the user.</p> <p>To identify a target group for what I intend to design.</p> <p>To use knowledge of existing products to help come up with ideas.</p> <p>To label my designs.</p> <p>To design a product for myself and others using design criteria.</p> <p>To explore how products have been created.</p>	<p>To develop my own design criteria through discussion, including both function and appearance.</p> <p>To create a plan which shows the order of making, equipment and tools, fit for purpose.</p> <p>To describe the design using accurately labelled sketches.</p> <p>To consider the best way of fixing and joining, e.g. tabs.</p> <p>To make a prototype, with support.</p> <p>To know that more than one design should be created to decide which one best meets the design criteria.</p> <p>To understand that design criteria can be met in different ways.</p> <p>To explain how my design meets a range of requirements.</p> <p>To understand that prototypes can give an indication of how successful a design will be.</p>	<p>To develop a clear idea, planning how to use materials, equipment and processes.</p> <p>To make drawings from different views, labelling specific features.</p> <p>To design a template, given examples.</p> <p>To understand that alternative methods may be needed, if the first attempts fail.</p> <p>To explain choices in relation to required outcomes.</p> <p>To understand that the user of a product will affect the design choices.</p> <p>To explain design decisions, considering the availability of resources.</p> <p>To understand that the availability of resources, time available and skill level should be taken into account when designing.</p>	<p>To use internet research to develop design criteria.</p> <p>To take a user's view in to account when designing a product that is fit for purpose.</p> <p>To explain how a product will appeal to the user.</p> <p>To record designs using an annotated sketch.</p> <p>To create a step-by-step plan.</p> <p>To understand that some parts of a design criteria are higher priority than others.</p> <p>To explain design decisions, considering cost, sustainability, footprint (and seasonality/health in cooking).</p> <p>To create own templates or patterns (using computer drawing packages or by hand).</p> <p>To identify the strengths and areas of development in a design, using these to inform and refine future designs.</p> <p>To understand that the longevity of some materials/mechanisms can be increased through reinforcing, stiffening and strengthening techniques.</p>	<p>To incorporate market research into a design, e.g. through a questionnaire.</p> <p>To identify features of a design that will appeal to the intended user.</p> <p>To design innovative products that improve upon existing products.</p> <p>To use cross-sectional drawings and exploded diagrams to show specific parts of a design and how they are fit for purpose.</p> <p>To refine design ideas by independently making prototypes.</p> <p>To follow and refine a logical plan.</p> <p>To demonstrate an understanding of how developments in design and technology, or specific inventions, have had an impact on the wider world.</p> <p>To understand that some products have impact beyond their intended purpose.</p> <p>To understand that cross-sectional drawings and exploded diagrams are a way of demonstrating how part of a product will work.</p>



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	EYFS	Y1	Y2	Y3	Y4	Y5	Y6
Make	<p>Handle equipment and tools safely and effectively</p> <p>To select tools and techniques to shape, assemble and join.</p> <p>To use scissors to cut along a straight and curved lines.</p> <p>Know different ways that materials can be joined (e.g. using glue, cellotape, masking tape, split pins, staples, paper clips) and that some ways are better than others</p> <p>To cut, spread and mix (food)</p>	<p>To select tools/equipment to cut, shape and join, and explain choices.</p> <p>To understand that simple tools (e.g. scissors, knives, peelers, needles) need to be handled safely, and that there are safety rules associated with using each tool.</p> <p>To accurately cut around templates and shapes.</p> <p>To choose suitable materials and explain simple choices.</p> <p>To assemble, join and combine materials and components.</p> <p>To understand that, when joining, some methods create a more permanent joins than others (e.g. temporary: paperclips, tape; permanent: glue, staples, running stitch).</p> <p>To make simple moving mechanisms with support, e.g. sliders on a boat (rudder)</p>	<p>To join materials/components together in different ways.</p> <p>To measure and mark materials/components, in order to cut out.</p> <p>To choose suitable materials and explain choices depending on characteristics.</p> <p>To use simple finishing techniques to make products look good.</p> <p>To sieve, slice, squeeze, grate and peel.</p> <p>To understand that there are some techniques that can reinforce materials (how to make materials stronger, stiffer and more stable).</p> <p>To make simple moving mechanisms, e.g. wheels (moving vehicles)</p>	<p>To measure, mark out, cut and shape materials/components with accuracy.</p> <p>To measure and mark in cm and mm, using a ruler.</p> <p>To use a variety of tools to cut and shape, e.g. different scissors, knives and cooking implements - such as cutters.</p> <p>To understand that tools and equipment (e.g. cookers, pins and different material scissors) need to be handled safely, and that there are safety rules associated when using each of them.</p> <p>To explore how materials can be joined together in different ways, e.g. when allowing for tabs to assist with joins on the net of a 3D shape.</p> <p>To apply simple finishing techniques with some accuracy.</p>	<p>To understand that focus needles need to be handled safely, and that there are safety rules associated with the tool.</p> <p>To thread a needle.</p> <p>To use overstitch to start and end sewing.</p> <p>To use a variety of stitches, e.g. overstitch, running stitch, blanket stitch.</p> <p>To use one type of stitch to join two pieces of material.</p> <p>To choose the most appropriate stitch.</p> <p>To create seams on fabric edges.</p> <p>To measure ingredients using standard (e.g. weight and ml) and non-standard measurements (cups, spoons etc.).</p> <p>To develop different techniques for adding decorative details.</p>	<p>To produce a suitable lists of tools, equipment/materials needed.</p> <p>To follow a detailed step-by- step plan.</p> <p>To use the technique of scoring when folding thicker materials.</p> <p>To understand that there are some techniques that can reinforce materials, such as using reinforcing strips and triangles.</p> <p>To add reinforcements to joins to create a stronger structure, e.g. cardboard corner triangles for frames.</p> <p>To accurately apply a range of finishing techniques.</p>	<p>To select appropriate materials, fit for purpose, and explain choices, considering the function and aesthetics.</p> <p>To be resourceful with practical problems.</p> <p>To use a wider variety of tools to cut and shape different materials, e.g. adhesives, craft knives, with increasing accuracy.</p> <p>To understand that tools, such as, strong adhesives, fabric glue, craft knives / craft scissors, need to be handled safely, and that there are safety rules associated with using each tool.</p> <p>To understand that, for some materials, some adhesives are more effective than others.</p> <p>To join materials using different adhesives, e.g. wood / fabric glue.</p> <p>To make something move using cams, axles and / or electric circuits, e.g. using motors.</p>



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	EYFS	Y1	Y2	Y3	Y4	Y5	Y6
Evaluate	<p>Talk about their creation and how they made it, including what they like about it</p> <p>Talk about something that could be improved</p>	<p>To say what is good and what is weaker in a product.</p> <p>To describe work, linking it to what I was asked to do.</p> <p>To explain likes and dislikes about a product, and why.</p> <p>To explain what I would do next.</p> <p>To make a labelled drawing of my final product, to show my evaluation.</p> <p>To understand that plans can be adjusted if part of a product doesn't work.</p>	<p>To evaluate my product by saying how well it works in relation to the purpose.</p> <p>To discuss reasons for any changes to initial design, including why they were needed.</p> <p>To identify strengths and possible changes that could be made.</p> <p>To explain what I have learnt from the designing and making process.</p> <p>To understand that how effective a product is depends on how well it meets the brief.</p>	<p>To identify flaws in the design of existing products.</p> <p>To evaluate my product by saying how well it works in relation to the design criteria, and using this to identify strengths and suggest improvements.</p> <p>To evaluate a product, considering: how well it has been made, materials used, whether it works, the making process used, if it is fit for purpose.</p> <p>To understand that existing products have good and bad points (flaws), and that they meet some parts of the design brief better than others.</p>	<p>To consider different options when attempting to solve a problem in manufacture.</p> <p>To suggest improvements and identify which solution will work best and why.</p> <p>To suggest how to adapt a recipe with consideration to nutrition, taste and presentation.</p> <p>To identify the impact of any changes to the design on the finished product's functionality and appearance.</p> <p>To listen to the views of others and use this to suggest ways to improve my work.</p> <p>To identify whether products can be recycled or reused.</p>	<p>To evaluate the quality of the design whilst in the process of designing and making.</p> <p>To test and evaluate my final product.</p> <p>To consider the impact of my product, beyond the intended purpose.</p> <p>To evaluate the sustainability of materials used in product design.</p> <p>To collect and respond to the views of others.</p> <p>To evaluate the product against the design, as part of a planned evaluation (mid-project review) and use this to make adjustments to the manufacture, as required.</p> <p>To evaluate their products for overall appeal: functionality, appearance, cost, footprint, sustainability.</p>	<p>To explain what to improve and the effect that different resources chosen may have on the final product.</p> <p>To identify an impact that a product's designer can have.</p> <p>To evaluate the finish of a product.</p> <p>To evaluate how much products cost to make.</p> <p>To evaluate how innovative a product is.</p> <p>To engage in constant review of the design criteria during the manufacturing process.</p> <p>To be able to give balanced feedback to others about their product, including strengths in meeting the design criteria and the improvements that could be made.</p> <p>To evaluate their products for overall appeal: longevity, whether is addressed previously identified design flaws, impact.</p>



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	EYFS	Y1	Y2	Y3	Y4	Y5	Y6
<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Technical knowledge</p> <p style="writing-mode: vertical-rl; transform: rotate(180deg);">Mechanisms/Product design</p> <p style="writing-mode: vertical-rl; transform: rotate(180deg);">Textiles</p> <p style="writing-mode: vertical-rl; transform: rotate(180deg);">Cooking and nutrition</p>	<p>To know some steps and techniques involved in food preparation</p> <p>To use utensils to chop fruit</p> <p>To name different fruits and vegetables</p> <p>To talk about the taste and texture of fruits: sweet, sour, crunchy, juicy, chewy, sticky</p> <p>To use simple tools and techniques to cut, assemble and join materials for different purposes</p> <p>To know that there is a reason behind why they need to design and make something (e.g. to make something already existing better, more attractive, stronger)</p> <p>To know how to carry and hold scissors safely</p> <p>To know how to cut along an outline, turning the paper to cut round</p> <p>To know how to trim off the excess when cutting loosely</p> <p>To know how to pierce a hole safely with blue-tac and a sharp pencil</p> <p>To know how assembly two pieces of paper using a split pin</p>	<p>To understand that there are basic hygiene rules that should be followed when preparing food, e.g. hands washed, hair up, apron on, sleeves rolled up.</p> <p>To understand that ingredients have properties, e.g. sweet, sour, soft, hard, runny.</p> <p>To know that care must be taken when cutting ingredients.</p> <p>To know that freestanding structures can be made stronger, e.g. making thicker, propping up, gluing or using stronger material.</p> <p>To know that paper can be rolled to make tubes.</p> <p>To know that two pieces of material can be joined together, e.g. by using glue.</p>	<p>To understand that there are different types of food, e.g. carbohydrate, fruit/veg, protein (refer to Eat Well plate).</p> <p>To know the original sources of some common foods, e.g. milk from a cow, egg from a chicken, chips from potatoes, which come from the ground, ketchup from tomatoes, cheese from milk/cow, beef from a cow.</p> <p>To know that ingredients can be measured accurately using given tools, e.g. scales, spoons, cups.</p> <p>To understand that surfaces need to be prepared and kept clean when working with food.</p> <p>To understand that wheels are fixed to axles.</p> <p>To know that axles cannot be fixed to their holders.</p> <p>To understand that backstitch is stronger than running stitch.</p> <p>To understand that different materials have different properties.</p> <p>To understand that textiles can be shaped using templates.</p>	<p>To understand that food can be cooked in a variety of ways, but a heat source is always required, e.g. bake, boil, sauté, fry, steam.</p> <p>To know that healthy food and drink are important for active healthy bodies.</p> <p>To know the difference between a savoury and a sweet dish.</p> <p>To understand that some people have food allergies, e.g. nuts, gluten.</p> <p>To know that a pivot is the central point on which a mechanism turns.</p> <p>To know that both levers and sliders help us move things.</p> <p>To know that a lever is a handle or bar or strip that turns around a pivot.</p> <p>To know that a slider moves along a bar or strip.</p> <p>To understand that chain stitch is useful for embroidery because it is easy to see.</p> <p>To understand that there are different types of textiles fastenings and that these achieve different purposes.</p>	<p>To understand that ingredients now can be fresh, pre-cooked or processed.</p> <p>To understand that in the past food was usually fresh, as only some food could be stored, e.g. honey.</p> <p>To understand food preservation now, e.g. no more than 3 days in fridge for fresh or cooked food.</p> <p>To understand that raising agents, such as baking powder/yeast/self-raising flour, are used to help bread and cakes rise.</p> <p>To understand why and when different mechanisms work and should be used, e.g. hinges.</p> <p>To know that hinges are used to join two parts together while allowing them to rotate relative to each other.</p> <p>To know that there are different types of stitches, and that each technique has advantages and disadvantages that should be taken into account when choosing which to use, e.g. overstitch, running stitch, blanket stitch.</p> <p>To understand that a seam allowance is needed on a template to make sure material doesn't tear.</p>	<p>To understand that raw food sometimes has additional hygiene rules linked to food preparation, e.g. raw meat. (NB: raw meat does now have to be included in recipes to teach this).</p> <p>To understand the need for correct storage of different types of food.</p> <p>To know that most fruit and vegetables are at their best at the time of year it is harvested (seasonality of foods).</p> <p>To know that garnishes can make food more attractive.</p> <p>To understand that materials can be joined/combined using temporary, fixed or moving joints.</p> <p>To know that a CAM is a shape that turns and pushes a follower (like a rod) up and down.</p> <p>To know that different CAM shapes change the movement of the follower.</p> <p>To understand that fastenings have advantages and disadvantages, e.g. zip closes fully but can snag; buttons, hook and eye.</p> <p>To know that the qualities of materials should be used to create suitable visual and tactile elements in the decoration of textiles.</p>	<p>To know how to dice ingredients accurately.</p> <p>To know when to use different knife grips, e.g. hammer grip, pointed finger grip, pinch grip.</p> <p>To know that a recipe can be adapted to improve nutrition or appeal, and to change the appearance, texture or balance the taste, e.g. sweet, salty, bitter, and spicy.</p> <p>To use ratios to adjust quantities of recipes.</p> <p>To understand that different raising agents provide different textures.</p> <p>To know that gluten free foods contain wheat flour substitutions, e.g. maize or rice flour.</p> <p>To know that gears are wheels with teeth that slot together; they are used to increase the power of a turning force.</p> <p>To know that pushing a lever further from the pivot needs less force.</p> <p>To know that textiles can be joined with a range of stitching techniques.</p> <p>To know that different stitches can be used to add decoration.</p>
	<p>Please note the following NC statements are covered through the Y5&6 computing curriculum, but should also be considered here:</p> <p>To understand and use electrical systems in their products, e.g. series circuits incorporating switches, bulbs, buzzers and motors.</p> <p>To apply their understanding of computing to program, monitor and control their products.</p>						



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	EYFS	Y1	Y2	Y3	Y4	Y5	Y6
Vocabulary	<p>Mix, stir, cut, pour, shape, spread Change, idea Ideas, thoughts, uses, materials, design, technology, join, tools, split pin, paperclip, staple,</p> <p>Fruit Vegetable Hole punch Cloth Cardboard</p>	<p>sieve, slice, squeeze grate and peel improve purpose, function, brief, templates, mock up, raw, cooked, Vocab linked to skills taught e.g. V-fold, spring</p> <p>planning, investigating design, evaluate, make</p> <p>cut, fold, join, fix</p> <p>equipment, utensils</p> <p>sensory vocabulary e.g. soft, juicy, crunchy, sweet, sticky, smooth, sharp, crisp, sour, hard</p> <p>structure, framework, weak, strong, base, top</p>	<p>target audience, appealing, properties, criteria, Pulley, twine, mechanism</p> <p>user, purpose, ideas, design criteria, product, function</p> <p>slicing, peeling, cutting, squeezing, healthy diet, ingredients, flesh, skin, seed, pip, core Yoghurt, dough</p> <p>Lever, pivot, slider, axle</p> <p>Felt, running stitch, back stitch, needles, thread</p>	<p>rolling, measure, weigh, overstretch, running stitch, blanket stitch,</p> <p>Designer, flaws, suitability, annotate, design drawing, user, wider world,</p> <p>model, annotated Prototype</p> <p>shell structure, width, breadth, capacity, marking out, assemble</p> <p>texture, taste, sour, hot, spicy, appearance, smell, preference, greasy, moist, cook, fresh, savoury, hygienic, reared, caught, frozen</p> <p>names of fabrics, chain stitch, seam, drawstring, loop</p>	<p>Investigate, manufacture, extent user,</p> <p>design brief , prototype, sensory evaluations template</p> <p>edible, processed, seasonal, harvested, , tinned, healthy/varied diet</p> <p>seam allowance pins, wadding, right side, wrong side</p> <p>internal circuit</p>	<p>glue gun, craft knife, adhesive, dice, boiling, sauté, fry, steam, reinforcing, stiffening and strengthening techniques, sustainability, footprint, allergy, organic, fair trade, farmed, wild, reared caged/uncaged, organic, processed / unprocessed, fastenings</p> <p>design specification, research, reinforce, triangulation, stability, Pulley, gear, temporary, permanent</p> <p>vitamins, nutrients, nutrition, healthy, varied, seasonality source Vitamin C</p>	<p>market research, seasonal, consumption, resources, portion, cross section, exploded diagram</p> <p>reinforce, hem, pattern pieces, name of textiles and fastenings used, pinking shears</p> <p>yeast, dough, bran, flour, wholemeal, unleavened, baking soda, carbohydrate, gluten, dairy, allergy, intolerance, savoury</p> <p>Cam, follower, cells,</p>
Designers		Textile designer?	Ole Kirk Christiansen (Lego founder)	<p>Jamie Oliver: -Campaigned in 2005 for more healthy school dinners. At that time, it was provided very cheaply and was often just things like nuggets and chips. -Got politicians to promise extra money and had an impact on improving exam results!</p>	<p>Paul Hollywood: -Presents and judges The Great British Bake Off -Trained as a sculptor before becoming a baker -Experiments with changing recipes, especially bread and cakes -Created the 'most expensive bread in Britain' in 2008- almond and Roquefort sourdough.</p>	Textile designer?	<p>Brunel: -Born in Portsmouth in 1806 -Engineer who built railways, ships, tunnels and bridges -Clifton suspension bridge – used chains to support a longer span than was possible on pillars. -Designed propellor-driven steamships for transatlantic travel.</p>



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Unit overview - what and when:

	EYFS	YEAR 1 / 2		YEAR 3 / 4		YEAR 5 / 6	
		YEAR A	YEAR B	YEAR A	YEAR B	YEAR A	YEAR B
Autumn 1	Topic: Marvellous Me Design and make face pizzas	Topic: Wool and Cape Town	Topic: Schools through Time Mechanisms: Making vehicles (Lego)	Topic: Rainforests	Topic: Pharaohs and Pyramids	Topic: Poole and Newfoundland	Topic: Extreme Earth
Autumn 2	Topic: Amazing Animals Milk carton Elmers	Topic: Around the World Food and nutrition: Fruit salad	Topic: Fantastic Fairy Tales	Topic: Stone Age Rocks! Food and nutrition: Root vegetable stew	Topic: Gunpowder plot Textiles: Stuffed toy	Topic: The Home Front Food and nutrition: WW2 rationing recipe	Topic: Victorious Victorians Mechanisms: Gears and pulleys Kapow
Spring 1	Topic: People Who Help Us Junk modelling emergency vehicles	Topic: Explorers	Topic: Real Life Superheroes	Topic: Ruthless Romans	Topic: Mountains Mechanisms: Free standing photo frame	Topic: The Home Front Mechanisms: CAM and followers WW2 toy	Topic: Victorious Victorians Local History Study – Victorian Tourism and Leisure
Spring 2	Topic: Dinosaurs Split pin dinosaur skeletons	Topic: London's Burning Textiles: Peg dolls	Topic: Unique UK Food and nutrition: Bread making	Topic: Traders and Raiders Textiles: Pencil case	Topic: Volcanoes	Topic: Voyage of Discovery	Topic: Marvellous Mayas Food and nutrition: Making soup
Summer 1	Topic: Out in the Garden	Topic: Fantastic Jurassic	Topic: Ship Ahoy Textiles: Pirate pouches	Topic: Iceberg Ahead!	Topic: Raging Rivers	Topic: Torrid Tudors	Topic: Purbeck Coast
Summer 2	Topic: At the Seaside Design and make an ice lolly	Topic: Castles Mechanisms: Diorama	Topic: Brownsea Island	Topic: Wool and Wareham Mechanisms: Pop-up book for a younger child	Topic: Groovy Greeks Food and nutrition: Make honey cakes	Topic: Torrid Tudors Textiles: Waistcoat with a variety of fastenings	Topic: Purbeck Coast Textiles: Mobile phone case