

Design and Technology Progression of Skills and Knowledge - 2021 (Updated Jan 22)

	PD - Moving and Handling	Personal, social and emotional development	Understanding the World,	Expressive Arts and Design
3-4 year olds	Use large muscle movements to paint and make marks.	Select and use activities and resources with help if needed. This helps them to achieve a goal they have chosen or one suggested to them	Explore how things work.	<p>Make imaginative and complex 'small worlds' with blocks and construction kits, such as a city with different buildings and a park.</p> <p>Explore different materials freely, in order to develop their ideas about how to use them and what to make.</p> <p>Develop their own ideas and then decide which materials to use to express them.</p> <p>Create closed shapes with continuous lines, and begin to use these shapes to represent objects</p>
Reception	<p>Progress towards a more fluent style of moving, with developing control and grace.</p> <p>Develop their small motor skills so that they can use a range of tools competently, safely and confidently.</p> <p>Use their core muscle strength to achieve a good posture when sitting at a table or sitting on the floor.</p>			<p>Explore, use and refine a variety of artistic effects to express their ideas and feelings.</p> <p>Return to and build on their previous learning, refining ideas and developing their ability to represent them.</p> <p>Create collaboratively, sharing ideas, resources and skills.</p>

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	PD- Fine motor skills	PSED - Managing Self		EAD - Creating with Materials
ELG	Use a range of small tools, including scissors, paintbrushes and cutlery.	Understanding the importance of healthy food choices.		<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>

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	Food	Materials	Textiles	Electricals and electronics	Structures	Mechanics	Computing	To research design, make and evaluate	To take inspiration from design throughout history
Y e a r 1	<p>Cut ingredients safely and hygienically. Cutting, peeling and grating</p> <p>Assemble ingredients without the need for a heat source.</p> <p>Begin to recognise that all food comes from plants or animals.</p> <p>Explore the understanding that food has to be farmed or grown elsewhere.</p> <p>Start to develop understanding the concept of the Eat Well Plate.</p> <p>Begin to understand what constitutes a healthy diet.</p> <p>Harvest soup BNF Healthy cook a long</p>	<p>With help measure, mark out cut and shape materials safely using tools provided. Explore and select from a variety of tools i.e. scissors/hole punch.</p> <p>Demonstrate a range of cutting and shaping techniques (such as tearing, cutting, folding and curling).</p> <p>Assemble, join and combine materials.</p> <p>Ongoing in CP</p>	<p>Shape textiles using templates.</p> <p>Colour and decorate textiles</p> <p>Christmas stockings/decorations</p>	N/A	<p>Use materials to practise drilling, screwing, gluing and nailing materials to make and strengthen products.</p> <p>Woodwork in CP</p>	<p>Create products using sliders, levers or wheels.</p> <p>Mother's day cards</p>	N/A	<p>Compare and contrast existing products and explain what they like/dislike.</p> <p>Begin to recall their own experiences to help generate ideas.</p> <p>Design products that have a clear purpose and an intended user.</p> <p>Describe how their product is suitable for the user.</p> <p>Make a prototype.</p> <p>Start to evaluate their products based on the original purpose.</p> <p>Completed as part of textiles and mechanics units.</p>	N/A

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y e a r 2	<p>Cut ingredients safely and hygienically. Cutting, peeling and grating</p> <p>Assemble ingredients without the need for a heat source. Measure or weigh using measuring cups or electronic scales.</p> <p>Recognise that all food comes from plants and animals. Know that food has to be farmed or grown.</p> <p>Describe how to sort foods into the five groups in the Eat Well plate.</p> <p>Chocolate balls Bread making</p>	<p>Measure and mark out to the nearest cm.</p> <p>Demonstrate understanding a range of joining techniques (such as gluing, hinges or combining materials to strengthen). Learn to use hand tools safely and select the appropriate ones. Understand about the simple characteristics of materials and components.</p> <p>Jolly Postman trolleys</p> <p>Making a house Construction visitor in to discuss material use and how a house is built nowadays compared to 1666.</p>	<p>Join textiles using running stitch.</p> <p>Colour and decorate textiles using a number of techniques</p> <p>Compare and contrast these.</p> <p>Finger puppets</p>	N/A.		<p>Create products using winding mechanisms.</p> <p>Jolly Postman trolleys - wheels and axles</p>	N/A	<p>Look at existing products and explain what they like/dislike. Justify why they feel this way. What they are for, how they work and which materials have been used?</p> <p>Make products, refining the design as work progresses. Generate ideas by drawing on their own, and other people's experiences.</p> <p>Use drawings, observations and modelling to develop their design ideas.</p> <p>To identify a target group and the <i>purpose</i> for what they intend to make.</p> <p>Apply software to design. Evaluate against their design criteria.</p> <p>Evaluate during the process and make changes as necessary.</p> <p>Confidently describe their final product's strengths and weaknesses.</p> <p>Confidently describe how their product is suitable for the intended user.</p>	N/A

User

Purpose

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Design Decisions

Innovation

Authenticity

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y e a r 3	<p>Prepare ingredients hygienically. Assemble or cook ingredients predominantly savoury.</p> <p>Identify how to use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking.</p> <p>To understand what a healthy diet is made up of as depicted in the Eatwell Plate. That food and drink provides the body with energy.</p> <p>Food technology - Healthy smoothie</p>	<p>Measure, mark out and cut materials accurately and safely by selecting appropriate tools.</p> <p>Select appropriate joining techniques.</p> <p>Refer to their design criteria as they design and make.</p> <p>Identify when to change things if this helps them improve their work.</p>	<p>Demonstrate understanding of the need for a seam allowance.</p> <p>Join textiles with appropriate stitching.</p>	<p>Create simple electrical circuits.</p>	<p>Identify suitable techniques to construct products or to repair items.</p> <p>Levers and pulleys (linked to Roman catapults)</p>	<p>Recall scientific knowledge of the transference of forces to choose appropriate mechanisms for a product (such as levers, winding mechanisms, pulleys and gears).</p> <p>Levers and pulleys (linked to Roman catapults)</p>	<p>Control and monitor models using software designed for this purpose.</p> <p>Computing lessons</p>	<p>Gather information about the needs and wants of individuals or groups. Make judgements about how well a product has been made.</p> <p>With growing confidence, design with purpose by generating their own ideas. Start to sequence the main stages of making a product. Make products by working efficiently such as by carefully selecting materials and explaining these choices. Refine work and techniques as work progresses, evaluating the end product design against original design criteria. Consider the views of others.</p> <p>Completed as part of projects.</p>	<p>Evaluate the key designs of individuals in design and observe how technology has helped shape the world.</p>

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Year 4	<p>Prepare ingredients hygienically using appropriate utensils. Measure ingredients to the nearest gram. Assemble and cook ingredients (controlling the temperature of the oven or hob). Know that food is grown in the UK and wider world.</p> <p>Demonstrate understanding of the importance of a healthy diet and the principles of the Eat Well Plate. Understand that food is processed into ingredients</p>	<p>Measure and mark out to the nearest mm.</p> <p>Apply appropriate cutting and shaping techniques that include cuts within the perimeter of the material (such as slots or cut outs).</p> <p>Textiles- Viking purses Drawstring.</p>	<p>Select the most appropriate techniques to decorate textiles</p> <p>Textiles- Viking purses Drawstring.</p>	<p>Create simple electrical circuits.</p> <p>Electrical Circuits focus on circuits and switches</p>	<p>Demonstrate understanding of how to strengthen materials using suitable techniques.</p> <p>Strengthening structures Egyptian Shaduf lever mechanism</p>	<p>Use and apply scientific knowledge to choose appropriate mechanisms for a product.</p> <p>Completed in Year 3 and recapped in Egyptian Shaduf lever mechanism</p>	<p>Control and monitor models using software designed for this purpose.</p> <p>Computing lessons</p>	<p>When planning consider the views of others. Design with purpose by recognising the intended user. Sequence the main stages of making a product. Plan how to use materials, equipment and processes. Suggest what could be done if the first attempt does not go to plan.</p> <p>Make products by working efficiently and justifying choices of materials and components. Use software to design and represent product designs.</p> <p>Refine work and techniques as work progresses, continually evaluating the product design. Identify strengths and areas for development in their products. Use tests to evaluate their products.</p> <p>Completed as part of projects.</p>	<p>Learn about inventors, designers, engineers and manufacturers who have developed ground-breaking products.</p> <p>Disassemble and compare and contrast familiar products .</p>

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Year 5	<p>Demonstrate understanding of the importance of correct storage and handling of ingredients (knowledge of micro-organisms). Demonstrate understanding of a range of baking and cooking techniques. Understand that food is grown reared and caught in the UK, Europe and the wider world. Begin to understand that seasons may affect the food available. Understand how food is processed into ingredients Begin to understand that different food and drink contain different substances - nutrients, water and fibre - that are needed for health.</p>	<p>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). Make do and Mend WW2</p>	<p>Create objects (such as a cushion) that employ a seam allowance.</p> <p>Join textiles with a combination of stitching techniques (e.g. back stitch for seams and running stitch to attach decoration). Make do and Mend WW2</p>	<p>Create circuits using electronics kits that employ a number of components (such as LEDs, resistors, transistors and chips). See Yr 6 Torches</p>	<p>Develop and apply a range of practical skills to create products (e.g. cutting, drilling and screwing, nailing, gluing, filling and sanding). ? - Space - cams toy</p>	<p>Explain how to convert rotary motion to linear using cams. ?? - Space - cams toy</p>	<p>Write code to control and monitor models or products. Explain how this works. Computing lessons</p>	<p>Design with empathy for the user, motivated by the service a product will offer. Give reasoned explanations for choices. Use results of investigations, information sources including ICT when developing ideas to make informed conclusions. Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes and pattern pieces. Justifying their choices. Evaluate and critique their work both during and at the end of the project. Evaluate and critique against the original design specification and by carrying out tests as appropriate. Evaluate personally and by seeking approval from others. Completed as part of projects.</p>	<p>Combine elements of design from a range of inspirational designers throughout history.</p> <p>Evaluate the key designs of individuals in design technology that have helped shape the world and reach informed conclusions.</p> <p>Create innovative designs that improve and synthesise with existing products.</p>

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Year 6	<p>Confidently prepare and cook a variety of predominantly savoury dishes safely and hygienically including, where appropriate, the use of a heat source. Measure accurately and calculate ratios of ingredients to scale up or down from recipe. Create and refine recipes, including ingredients, methods, cooking times and temperatures. Understand that food is grown or reared. Describe how seasonality affects what is available.</p> <p>Food Technology - chocolate</p>	<p>Demonstrate understanding of the qualities of materials and justify choices appropriate tools to cut and shape (e.g. the nature of fabric may require sharper scissors than would be used to cut paper). Construction: Chocolate boxes</p>	<p>Apply 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). Done in Year 5</p>	<p>Create circuits using electronics kits that employ a number of components with increasing confidence.</p> <p>Electricals and electronics : Torches (make a handheld light design)</p>	<p>Demonstrate understanding of a range of practical skills to create products . Construction: Chocolate boxes</p>	<p>Apply innovative combinations of electronics (or computing) and mechanics in product designs Electricals and electronics : Torches (make a handheld light design)</p>	<p>Generate and write code to control and monitor models or products. Computing lessons</p>	<p>Use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose. Justify their reasons for choices.</p> <p>Use prototypes, cross-sectional diagrams and computer aided designs to represent designs.</p> <p>Evaluate and critique their products, identifying strengths and areas for development, and carrying out appropriate tests.</p> <p>Evaluate and critique their work both during and at the end of the assignment.</p> <p>Evaluate against their original criteria and hypothesise ways that their product could be improved.</p> <p>Record their evaluations using drawings with labels.</p> <p>Completed as part of projects.</p>	<p>Combine elements of design from a range of inspirational designers throughout history, giving reasons for choices.</p> <p>Evaluate and critique the design of products to suggest improvements to the users experience.</p>