



D+T Knowledge and Skills Progression						
Knowledge and Understanding						
Year 3		Structure	Textiles	Mechanisms	Electrical Systems	Cooking and Nutrition
<u>Skills</u>	Design		<ul style="list-style-type: none"> <li>• Writing design criteria for a product, articulating decisions made.</li> <li>• Designing a roman sandal</li> </ul>	<ul style="list-style-type: none"> <li>• Designing a toy which uses a pneumatic system.</li> <li>• Developing design criteria from a design brief.</li> <li>• Generating ideas using thumbnail sketches and exploded diagrams.</li> <li>• Learning that different types of drawings are used in design to explain ideas clearly.</li> </ul>	<ul style="list-style-type: none"> <li>• Carry out research based on a given topic (e.g. The Romans) to develop a range of initial ideas.</li> <li>• Generate a final design for the electric poster with consideration to the client's needs and design criteria.</li> <li>• Design an electric poster that fits the requirements of a given brief.</li> <li>• Plan the positioning of the bulb (circuit component) and its purpose.</li> </ul>	<ul style="list-style-type: none"> <li>• Designing a recipe for a savoury tart.</li> </ul>
	Make		<ul style="list-style-type: none"> <li>• Making and testing a paper template with accuracy and in keeping with the design criteria.</li> <li>• Measuring,</li> </ul>	<ul style="list-style-type: none"> <li>• Creating a pneumatic system to create a desired motion.</li> <li>• Building secure housing for a pneumatic system.</li> <li>• Using syringes and balloons to create</li> </ul>	<ul style="list-style-type: none"> <li>• Create a final design for the electric poster.</li> <li>• Mount the poster onto corrugated card to improve its strength and allow it</li> </ul>	<ul style="list-style-type: none"> <li>• Following the instructions within a recipe.</li> <li>• Tasting seasonal ingredients.</li> <li>• Selecting seasonal ingredients.</li> <li>• Peeling ingredients safely.</li> </ul>



			<p>marking and cutting fabric using a paper template.</p> <ul style="list-style-type: none"> <li>• Selecting a stitch style to join fabric.</li> <li>• Working neatly by sewing small, straight stitches.</li> <li>• Incorporating a fastening to a design.</li> </ul>	<p>different types of pneumatic systems to make a functional and appealing pneumatic toy.</p> <ul style="list-style-type: none"> <li>• Selecting materials due to their functional and aesthetic characteristics.</li> <li>• Manipulating materials to create different effects by cutting, creasing, folding and weaving.</li> </ul>	<p>to withstand the weight of the circuit on the rear.</p> <ul style="list-style-type: none"> <li>• Measure and mark materials out using a template or ruler.</li> <li>• Fit an electrical component (bulb).</li> <li>• Learn ways to give the final product a higher quality finish (e.g. framing to conceal a roughly cut edge).</li> </ul>	<ul style="list-style-type: none"> <li>• Cutting safely with a vegetable knife.</li> </ul>
	Evaluate		<ul style="list-style-type: none"> <li>• Testing and evaluating an end product against the original design criteria.</li> <li>• Deciding how many of the criteria should be met for the product to be considered successful.</li> <li>• Suggesting modifications for improvement.</li> <li>• Articulating the advantages and disadvantages of</li> </ul>	<ul style="list-style-type: none"> <li>• Using the views of others to improve designs.</li> <li>• Testing and modifying the outcome, suggesting improvements.</li> <li>• Understanding the purpose of exploded-diagrams through the eyes of a designer and their client.</li> </ul>	<ul style="list-style-type: none"> <li>• Learning to give and accept constructive criticism on own work and the work of others.</li> <li>• Testing the success of initial ideas against the design criteria and justifying opinions.</li> <li>• Revisiting the requirements of the client to review developing design ideas and check that they fulfil their needs.</li> </ul>	<ul style="list-style-type: none"> <li>• Establishing and using design criteria to help test and review dishes.</li> <li>• Describing the benefits of seasonal fruits and vegetables and the impact on the environment.</li> <li>• Suggesting points for improvement when making a seasonal tart.</li> </ul>



			different fastening types.			
<b><u>Knowledge</u></b>			<ul style="list-style-type: none"> <li>• To know that a fastening is something which holds two pieces of material together for example a zipper, toggle, button, press stud and velcro.</li> <li>• To know that different fastening types are useful for different purposes.</li> <li>• To know that creating a mock up (prototype) of their design is useful for checking ideas and proportions.</li> </ul>	<p><b><u>Technical</u></b></p> <ul style="list-style-type: none"> <li>• To understand how pneumatic systems work.</li> <li>• To understand that pneumatic systems can be used as part of a mechanism.</li> <li>• To know that pneumatic systems operate by drawing in, releasing and compressing air.</li> </ul> <p><b><u>Additional</u></b></p> <ul style="list-style-type: none"> <li>• To understand how sketches, drawings and diagrams can be used to communicate design ideas.</li> <li>• To know that exploded-diagrams are used to show how different parts of a product fit together.</li> <li>• To know that thumbnail sketches are small drawings to get ideas down on paper quickly.</li> </ul>	<p><b><u>Technical</u></b></p> <ul style="list-style-type: none"> <li>• To understand that an electrical system is a group of parts (components) that work together to transport electricity around a circuit.</li> <li>• To understand common features of an electric product (switch, battery or plug, dials, buttons etc.).</li> <li>• To list examples of common electric products (kettle, remote control etc.).</li> <li>• To understand that an electric product uses an electrical system to work (function).</li> <li>• To know the name and appearance of a bulb, battery, battery holder and crocodile wire to build simple circuits.</li> </ul> <p><b><u>Additional</u></b></p>	<ul style="list-style-type: none"> <li>• To know that not all fruits and vegetables can be grown in the UK.</li> <li>• To know that climate affects food growth.</li> <li>• To know that vegetables and fruit grow in certain seasons.</li> <li>• To know that cooking instructions are known as a 'recipe'.</li> <li>• To know that imported food is food which has been brought into the country.</li> <li>• To know that exported food is food which has been sent to another country.</li> <li>• To know that eating seasonal foods can have a positive impact on the environment.</li> <li>• To know that similar coloured fruits and vegetables often have similar nutritional benefits.</li> <li>• To know that the appearance of food is as important as taste.</li> </ul>

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					<ul style="list-style-type: none"> <li>• To understand the importance and purpose of information design.</li> <li>• To understand how material choices (such as mounting paper to corrugated card) can improve a product to serve its purpose (remain rigid without bending when the electrical circuit is attached).</li> </ul>	
Year 4		Structure	Textiles	Mechanisms	Electrical Systems	Cooking and Nutrition
<b>Skills</b>	Design	<ul style="list-style-type: none"> <li>• Designing a stable pavilion structure that is aesthetically pleasing and selecting materials to create a desired effect.</li> <li>• Building frame structures designed to support weight.</li> </ul>			<ul style="list-style-type: none"> <li>• Designing a torch, giving consideration to the target audience and creating both design and success criteria focusing on features of individual design ideas.</li> </ul>	<ul style="list-style-type: none"> <li>• Designing a biscuit within a given budget, drawing upon previous taste testing judgements.</li> <li>• Designing packaging for a biscuit that targets a specific group.</li> </ul>
	Make	<ul style="list-style-type: none"> <li>• Creating a range of different shaped frame structures.</li> </ul>			<ul style="list-style-type: none"> <li>• Making a torch with a working electrical circuit and switch.</li> </ul>	<ul style="list-style-type: none"> <li>• Following a baking recipe, including the preparation of ingredients.</li> </ul>

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		<ul style="list-style-type: none"> <li>• Making a variety of free standing frame structures of different shapes and sizes.</li> <li>• Selecting appropriate materials to build a strong structure and cladding.</li> <li>• Reinforcing corners to strengthen a structure.</li> <li>• Creating a design in accordance with a plan.</li> <li>• Learning to create different textural effects with materials.</li> </ul>			<ul style="list-style-type: none"> <li>• Using appropriate equipment to cut and attach materials.</li> <li>• Assembling a torch according to the design and success criteria.</li> </ul>	<ul style="list-style-type: none"> <li>• Cooking safely, following basic hygiene rules.</li> <li>• Adapting a recipe to meet the requirements of a target audience.</li> <li>• Using a cuboid net to create packaging.</li> </ul>
	Evaluate	<ul style="list-style-type: none"> <li>• Evaluating structures made by the class.</li> <li>• Describing what characteristics of a design and construction made it the most</li> </ul>			<ul style="list-style-type: none"> <li>• Evaluating electrical products.</li> <li>• Testing and evaluating the success of a final product.</li> </ul>	<ul style="list-style-type: none"> <li>• Evaluating a recipe, considering: taste, smell, texture and appearance.</li> <li>• Describing the impact of the budget on the selection of ingredients.</li> <li>• Evaluating and comparing a range of food products.</li> </ul>

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		<p>effective.</p> <ul style="list-style-type: none"> <li>• Considering effective and ineffective designs.</li> </ul>				<ul style="list-style-type: none"> <li>• Suggesting modifications to a recipe (e.g. This biscuit has too many raisins, and it is falling apart, so next time I will use less raisins).</li> </ul>
	<p><b><u>Knowledge</u></b></p>	<ul style="list-style-type: none"> <li>• To know that a pavilion is a decorative building or structure for leisure activities.</li> <li>• To know that cladding can be applied to structures for different effects.</li> <li>• To know that aesthetics are how a product looks.</li> <li>• To know that a product's function means its purpose.</li> <li>• To understand that the target audience means the person or group of people a product is designed for.</li> </ul>			<p><b><u>Technical</u></b></p> <ul style="list-style-type: none"> <li>• To understand that electrical conductors are materials which electricity can pass through.</li> <li>• To understand that electrical insulators are materials which electricity cannot pass through.</li> <li>• To know that a battery contains stored electricity that can be used to power products.</li> <li>• To know that an electrical circuit must be complete for electricity to flow.</li> <li>• To know that a switch can be used to complete and break an electrical circuit.</li> </ul>	<ul style="list-style-type: none"> <li>• To know that the amount of an ingredient in a recipe is known as the 'quantity.'</li> <li>• To know that safety and hygiene are important when cooking.</li> <li>• To know the following cooking techniques: sieving, measuring, stirring, cutting out and shaping.</li> <li>• To understand the importance of budgeting while planning ingredients for biscuits.</li> <li>• To know that products often have a target audience.</li> </ul>

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		<ul style="list-style-type: none"> <li>To know that architects consider light, shadow and patterns when designing.</li> </ul>			<p><b>Additional</b></p> <ul style="list-style-type: none"> <li>To know the features of a torch: case, contacts, batteries, switch, reflector, lamp, lens.</li> <li>To know facts from the history and invention of the electric light bulb(s) - by Sir Joseph Swan and Thomas Edison.</li> </ul>	
Year 5		Structure	Textiles	Mechanisms	Electrical Systems	Cooking and Nutrition
<b>Skills</b>	Design		<ul style="list-style-type: none"> <li>Designing a stuffed toy, considering the main component shapes required and creating an appropriate template.</li> <li>Considering the proportions of individual components.</li> </ul>		<ul style="list-style-type: none"> <li>Identifying factors that could be changed on existing products and explaining how these would alter the form and function of the product.</li> <li>Developing design criteria based on findings from investigating existing products.</li> <li>Developing design criteria that clarifies the target user.</li> </ul>	<ul style="list-style-type: none"> <li>Adapting a traditional recipe, understanding that the nutritional value of a recipe alters if you remove, substitute or add additional ingredients.</li> <li>Writing an amended method for a recipe to incorporate the relevant changes to ingredients.</li> <li>Designing appealing packaging to reflect a recipe.</li> <li>Researching existing recipes to inform ingredient choices.</li> </ul>
	Make		<ul style="list-style-type: none"> <li>Creating a 3D stuffed toy from a 2D design.</li> <li>Measuring,</li> </ul>		<ul style="list-style-type: none"> <li>Altering a product's form and function by tinkering with its</li> </ul>	<ul style="list-style-type: none"> <li>Cutting and preparing vegetables safely.</li> </ul>

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			<p>marking and cutting fabric accurately and independently.</p> <ul style="list-style-type: none"> <li>• Creating strong and secure blanket stitches when joining fabric.</li> <li>• Threading needles independently.</li> <li>• Using appliqué to attach pieces of fabric decoration.</li> <li>• Sewing blanket stitch to join fabric.</li> <li>• Applying blanket stitch so the spaces between the stitches are even and regular.</li> </ul>		<p>configuration.</p> <ul style="list-style-type: none"> <li>• Making a functional series circuit, incorporating a motor.</li> <li>• Constructing a product with consideration for the design criteria.</li> <li>• Breaking down the construction process into steps so that others can make the product.</li> </ul>	<ul style="list-style-type: none"> <li>• Using equipment safely, including knives, hot pans and hobs.</li> <li>• Knowing how to avoid cross-contamination.</li> <li>• Following a step-by-step method carefully to make a recipe.</li> </ul>
	Evaluate		<ul style="list-style-type: none"> <li>• Testing and evaluating an end product and giving point for further improvements.</li> </ul>		<ul style="list-style-type: none"> <li>• Carry out a product analysis to look at the purpose of a product along with its strengths and weaknesses.</li> <li>• Determining which parts of a product affect its function and which parts affect its form.</li> <li>• Analysing whether</li> </ul>	<ul style="list-style-type: none"> <li>• Identifying the nutritional differences between different products and recipes.</li> <li>• Identifying and describing healthy benefits of food groups.</li> </ul>



					<p>changes in configuration positively or negatively affect an existing product.</p> <ul style="list-style-type: none"> <li>• Peer evaluating a set of instructions to build a product.</li> </ul>	
	<b>Knowledge</b>		<ul style="list-style-type: none"> <li>• To know that blanket stitch is useful to reinforce the edges of a fabric material or join two pieces of fabric.</li> <li>• To understand that it is easier to finish simpler designs to a high standard.</li> <li>• To know that soft toys are often made by creating appendages separately and then attaching them to the main body.</li> <li>• To know that small, neat stitches which are pulled taut are important to ensure that the</li> </ul>		<p><b>Technical</b></p> <ul style="list-style-type: none"> <li>• To know that series circuits only have one direction for the electricity to flow.</li> <li>• To know when there is a break in a series circuit, all components turn off.</li> <li>• To know that an electric motor converts electrical energy into rotational movement, causing the motor's axle to spin.</li> <li>• To know a motorised product is one which uses a motor to function.</li> </ul> <p><b>Additional</b></p> <ul style="list-style-type: none"> <li>• To know that product analysis is</li> </ul>	<ul style="list-style-type: none"> <li>• To understand where meat comes from - learning that beef is from cattle and how beef is reared and processed.</li> <li>• To know that recipes can be adapted to suit nutritional needs and dietary requirements.</li> <li>• To know that I can use a nutritional calculator to see how healthy a food option is.</li> <li>• To understand that 'cross-contamination' means bacteria and germs have been passed onto ready-to-eat foods and it happens when these foods mix with raw meat or unclean objects.</li> <li>• To know that coloured chopping boards can prevent cross-contamination.</li> <li>• To know that nutritional information is found on food packaging.</li> </ul>

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		soft toy is strong and holds the stuffing securely.		critiquing the strengths and weaknesses of a product. • To know that 'configuration' means how the parts of a product are arranged.	• To know that food packaging serves many purposes.	
Year 6		Structure	Textiles	Mechanisms	Electrical Systems	Cooking and Nutrition
<u>Skills</u>	Design			<ul style="list-style-type: none"> <li>• Noticing wider-reaching problems or needs in the community.</li> <li>• Coming up with a broader range of ideas and deeper innovation, requiring pupils to think critically about their ideas' practicality and originality.</li> <li>• Beginning to use more complex annotated sketches, such as cross-sectional and exploded diagrams and pattern pieces in design.</li> </ul>	<ul style="list-style-type: none"> <li>• Designing a steady hand game - identifying and naming the components required.</li> <li>• Drawing a design from three different perspectives.</li> <li>• Generating ideas through sketching and discussion.</li> <li>• Modelling ideas through prototypes.</li> <li>• Understanding the purpose of products (toys), including what is meant by 'fit for purpose' and 'form over function'.</li> </ul>	<ul style="list-style-type: none"> <li>• Writing a recipe, explaining the key steps, method and ingredients.</li> <li>• Including facts and drawings from research undertaken.</li> </ul>
	Make			<ul style="list-style-type: none"> <li>• Producing lists of equipment, materials and tools that they need for a</li> </ul>	<ul style="list-style-type: none"> <li>• Constructing a stable base for a game.</li> </ul>	<ul style="list-style-type: none"> <li>• Following a recipe, including using the correct quantities of each ingredient.</li> </ul>



				<p>task.</p> <ul style="list-style-type: none"> <li>● Selecting materials, components or ingredients based on research or user needs.</li> <li>● Explaining their choices, referring to their research.</li> <li>● Considering which equipment will work well together.</li> <li>● Choosing from the known range of equipment available to them with little guidance.</li> <li>● Assessing risks associated with different tools and equipment.</li> <li>● Understanding and explaining the importance of each safety rule.</li> <li>● Consistently apply safety instructions.</li> <li>● Cutting jelutong or other harder wood with a coping saw or a tenon saw in small groups.</li> <li>● Cutting in a back-and-forth sawing motion where appropriate.</li> <li>● In supervised groups, using hot glue guns safely.</li> </ul>	<ul style="list-style-type: none"> <li>● Accurately cutting, folding and assembling a net.</li> <li>● Decorating the base of the game to a high-quality finish.</li> <li>● Making and testing a circuit.</li> <li>● Incorporating a circuit into a base.</li> </ul>	<ul style="list-style-type: none"> <li>● Adapting a recipe based on research.</li> <li>● Working to a given timescale.</li> <li>● Working safely and hygienically with independence.</li> </ul>
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				Recognising that hot glue is useful for joining materials that need a strong bond that sets quickly.		
	Evaluate			<ul style="list-style-type: none"> <li>Assessing their designs against a more complex set of design criteria that includes functionality, aesthetics, user experience, sustainability and cost.</li> <li>Providing feedback that is helpful, specific and encouraging.</li> <li>Incorporating feedback from peers or users to improve their product further, explaining the changes they made and the impact they had.</li> </ul>	<ul style="list-style-type: none"> <li>Testing own and others finished games, identifying what went well and making suggestions for improvement.</li> <li>Gathering images and information about existing children's toys.</li> <li>Analysing a selection of existing children's toys.</li> </ul>	<ul style="list-style-type: none"> <li>Evaluating a recipe, considering: taste, smell, texture and origin of the food group.</li> <li>Taste testing and scoring final products.</li> <li>Suggesting and writing up points of improvements when scoring others' dishes, and when evaluating their own throughout the planning, preparation and cooking process.</li> <li>Evaluating health and safety in production to minimise cross contamination.</li> </ul>
<b>Knowledge</b>				<p><b>Technical</b></p> <ul style="list-style-type: none"> <li>To know that the mechanism in an automata uses a system of cams, axles and followers.</li> <li>To know that different shaped cams produce different outputs.</li> <li>To know which mechanisms are working together to make a</li> </ul>	<p><b>Technical</b></p> <ul style="list-style-type: none"> <li>To know that batteries contain acid, which can be dangerous if they leak.</li> <li>To know the names of the components in a basic series circuit, including a buzzer.</li> </ul>	<ul style="list-style-type: none"> <li>To know that 'flavour' is how a food or drink tastes.</li> <li>To know that many countries have 'national dishes' which are recipes associated with that country.</li> <li>To know that 'processed food' means food that has been put through multiple changes in a factory.</li> <li>To understand that it is important to wash fruit and</li> </ul>



			<p>mechanical system.</p> <ul style="list-style-type: none"> <li>• To know that there are different directions of movement.</li> <li>• To know that mechanisms can change one type of movement to another.</li> </ul> <p><b>Additional</b></p> <ul style="list-style-type: none"> <li>• To know that an automata is a hand powered mechanical toy.</li> <li>• To know that a cross-sectional diagram shows the inner workings of a product.</li> </ul>	<p><b>Additional</b></p> <ul style="list-style-type: none"> <li>• To know that 'form' means the shape and appearance of an object.</li> <li>• To know the difference between 'form' and 'function'.</li> <li>• To understand that 'fit for purpose' means that a product works how it should and is easy to use.</li> <li>• To know that form over purpose means that a product looks good but does not work very well.</li> <li>• To know the importance of 'form follows function' when designing: the product must be designed primarily with the function in mind.</li> <li>• To understand the diagram perspectives 'top view', 'side view' and 'back'</li> </ul>	<p>vegetables before eating to remove any dirt and insecticides.</p> <ul style="list-style-type: none"> <li>• To understand what happens to a certain food before it appears on the supermarket shelf (Farm to Fork).</li> </ul>
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