



St Mary's Catholic Primary School and Nursery

Progression of Design and Technology Knowledge Skills and Concepts

	Nursery	Reception	Year 1	Year 2	End of Key Stage 1
Structures	<p>Discuss routes and locations, using words like 'in front of' and 'behind'.</p> <p>Make comparisons between objects relating to size, length, weight and capacity.</p> <p>Select shapes appropriately: flat surfaces for building, a triangular prism for a roof, etc. Combine shapes to make new ones – an arch, a bigger triangle, etc.</p> <p>Make imaginative and complex 'small worlds' with blocks and construction kits, such as a city with different buildings and a park.</p>	<p>Have daily opportunities to make their own creations using a wide range of different materials, fixings and tools which are freely available in continuous provision.</p> <p>Are encouraged to talk about what they would like to make, how they will do it and what they think about it when it is finished.</p> <p>Are encouraged to evaluate what they have made and make changes as appropriate.</p> <p>Select, rotate and manipulate shapes to develop spatial reasoning skills.</p> <p>Compose and decompose shapes so that children recognise a shape can have other shapes within it, just as numbers can.</p>	<p>Learning the importance of a clear design criteria.</p> <p>Including individual preferences and requirements in a design.</p> <p>Making stable structures from card, tape and glue.</p> <p>Learning how to turn 2D nets into 3D structures.</p> <p>Following instructions to cut and assemble the supporting structure of a windmill.</p> <p>Making functioning turbines and axles which are assembled into a main supporting structure.</p> <p>To understand that the shape of materials can be changed to improve the strength and stiffness of structures.</p> <p>To understand that cylinders</p>	<p>Generating and communicating ideas using sketching and modelling.</p> <p>Learning about different types of structures, found in the natural world and in everyday objects.</p> <p>Making a structure according to design criteria.</p> <p>Creating joints and structures from paper/card and tape.</p> <p>Building a strong and stiff structure by folding paper.</p> <p>Exploring the features of structures.</p> <p>Comparing the stability of different shapes.</p> <p>Testing the strength of</p>	<p>Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making.</p> <p>They should work in a range of relevant contexts [for example, the home and school, gardens and playgrounds, the local community, industry and the wider environment].</p> <p>When designing and making, pupils should be taught to:</p> <p>Design:</p> <p>design purposeful, functional, appealing products for themselves and other users based on design criteria;</p>



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			<p>are a strong type of structure (e.g. the main shape used for windmills and lighthouses).</p> <p>To understand that axles are used in structures and mechanisms to make parts turn in a circle.</p> <p>To begin to understand that different structures are used for different purposes.</p> <p>To know that a structure is something that has been made and put together.</p> <p>To know that a client is the person I am designing for.</p> <p>To know that design criteria is a list of points to ensure the product meets the clients needs and wants.</p> <p>To know that a windmill harnesses the power of wind for a purpose like grinding</p>	<p>own structures.</p>	<p>generate, develop, mode and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology.</p> <p>Make:</p> <p>select from and use a range of tools and 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> <p>Evaluate:</p>
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			<p>grain, pumping water or generating electricity.</p> <p>To know that windmill turbines use wind to turn and make the machines inside work.</p> <p>To know that a windmill is a structure with sails that are moved by the wind.</p> <p>To know the three main parts of a windmill are the turbine, axle and structure.</p>		<p>explore and evaluate a range of existing products; evaluate their ideas and products against design criteria Technical knowledge;</p> <p>build structures, exploring how they can be made stronger, stiffer and more stable;</p> <p>explore and use mechanisms [for example,</p>
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<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Mechanisms / Mechanical Systems</p>	<p>Choose the right resources to carry out their own plan. For example, choosing a spade to enlarge a small hole they dug with a trowel.</p> <p>Use one-handed tools and equipment, for example, making snips in paper with scissors.</p>	<p>Use a range of small tools, including scissors, paintbrushes and cutlery.</p> <p>Are taught how to use tools such as scissors, hole punch, string, sellotape, cutters etc.</p> <p>Have daily opportunities to make their own creations using a wide range of different materials, fixings and tools which are freely available in continuous provision.</p> <p>Use talk to help work out problems and organise thinking and activities, and to explain how things work and why they might happen.</p>	<p>Explaining how to adapt mechanisms, using bridges or guides to control the movement.</p> <p>Designing a moving story book for a given audience.</p> <p>Following a design to create moving models that use levers and sliders.</p> <p>Testing a finished product, seeing whether it moves as planned and if not, explaining why and how it can be fixed.</p> <p>Reviewing the success of a product by testing it with its intended audience.</p> <p>To know that a mechanism is the parts of an object that move together.</p> <p>To know that a slider mechanism moves an object from side to side.</p>	<p>Creating a class design criteria for a moving monster.</p> <p>Designing a moving monster for a specific audience in accordance with a design criteria.</p> <p>Making linkages using card for levers and split pins for pivots.</p> <p>Experimenting with linkages adjusting the widths, lengths and thicknesses of card used.</p> <p>Cutting and assembling components neatly.</p> <p>Evaluating own designs against design criteria.</p> <p>Using peer feedback to modify a final design.</p>	<p>levers, sliders, wheels and axles], in their products.</p>
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			<p>To know that a slider mechanism moves an object from side to side.</p> <p>To know that a slider mechanism has a slider, slots, guides and object.</p> <p>To know that bridges and guides are bits of card that purposefully restrict the movement of the slider.</p> <p>To know that in Design and technology we call a plan a 'design'.</p>	<p>To know that mechanisms are a collection of moving parts that work together as a machine to produce movement.</p> <p>To know that there is always an input and output in a mechanism.</p> <p>To know that an input is the energy that is used to start something working.</p> <p>To know that an output is the movement that happens as a result of the input.</p> <p>To know that a lever is something that turns on a pivot.</p> <p>To know that a linkage mechanism is made up of a series of levers.</p>	
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Cooking & Nutrition	<p>Are encouraged to talk about what they would like to make, how they will do it and what they think about it when it is finished.</p> <p>Are encouraged to evaluate what they have made and make changes as appropriate.</p> <p>Learn about being healthy, including eating a range of foods and taking part in exercise.</p>	<p>Designing a healthy wrap based on a food combination which work well together.</p> <p>Slicing food safely using the bridge or claw grip.</p> <p>Constructing a wrap that meets a design brief.</p> <p>Describing the taste, texture and smell of fruit and vegetables.</p> <p>Taste testing food combinations and final products.</p> <p>Describing the information that should be included on a label.</p> <p>Evaluating which grip was most effective.</p> <p>To know that 'diet' means the food and drink that a</p>	<p>As part of their work with food, pupils should be taught how to cook and apply the principles of nutrition and healthy eating.</p> <p>Instilling a love of cooking in pupils will also open a door to one of the great expressions of human creativity.</p> <p>Learning how to cook is a crucial life skill that enables pupils to feed themselves and others affordably and well, now and in later life.</p> <p>Pupils should be taught to:</p> <ul style="list-style-type: none">-use the basic principles of a healthy and varied diet to prepare dishes;-understand where food comes from.
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				<p>person or animal usually eats.</p> <p>To understand what makes a balanced diet.</p> <p>To know where to find the nutritional information on packaging.</p> <p>To know that the five main food groups are: Carbohydrates, fruits and vegetables, protein, dairy and foods high in fat and sugar.</p> <p>To understand that I should eat a range of different foods from each food group, and roughly how much of each food group.</p> <p>To know that nutrients are substances in food that all living things need to make energy, grow and develop.</p>	
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				<p>To know that 'ingredients' means the items in a mixture or recipe.</p> <p>To know that I should only have a maximum of five teaspoons of sugar a day to stay healthy.</p> <p>To know that many food and drinks we do not expect to contain sugar do; we call these 'hidden sugars'.</p>	
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Textiles	<p>Be increasingly independent as they get dressed and undressed, for example, putting coats on and doing up zips.</p> <p>Talk about and identify the patterns around them. For example: stripes on clothes, designs on rugs and wallpaper. Use informal language like 'pointy', 'spotty', 'blobs', etc.</p> <p>Explore different materials freely, to develop their ideas about how to use them and what to make.</p>	<p>Have daily access to a range of media and materials eg different types of paper, varying thickness/hardness of pencils, thick and thin brushes, paint, paint sticks, pastels etc. in continuous provision.</p> <p>Make use of props and materials when role playing characters in narratives and stories.</p> <p>Join different materials and explore different textures.</p>	<p>Using a template to create a design for a puppet.</p> <p>Cutting fabric neatly with scissors.</p> <p>Using joining methods to decorate a puppet.</p> <p>Sequencing steps for construction.</p> <p>Reflecting on a finished product, explaining likes and dislikes.</p> <p>To know that 'joining technique' means connecting two pieces of material together.</p> <p>To know that there are various temporary methods of joining fabric by using staples. glue or pins.</p> <p>To understand that different techniques for joining materials can be used for</p>		
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			<p>different purposes.</p> <p>To understand that a template (or fabric pattern) is used to cut out the same shape multiple times.</p> <p>To know that drawing a design idea is useful to see how an idea will look.</p>		
Key vocabulary	<p>In front of / Behind</p> <p>Size / Big / Small</p> <p>Long / Short</p> <p>Heavy / Light</p> <p>Shape / Circle</p> <p>Square / Triangle</p> <p>Arch / Blocks</p> <p>Scissors / Cut</p> <p>Safe / Join / Glue</p> <p>Names of common food, fruit, vegetable</p> <p>Healthy / Unhealthy</p> <p>Material / Soft</p> <p>Pointy / Spotty</p> <p>Blobs / Stripes</p> <p>Spots / Shiny</p>	<p>Make / Join / Stick</p> <p>Cut / Bend / Slot</p> <p>Smooth / Bendy / Bumpy</p> <p>Scissors / Blades / Handle</p> <p>Snip / Squeeze / Thumb</p> <p>Fingers / Elbow</p> <p>bubble wrap / Cooked pasta</p> <p>Tin foil / Playdough</p> <p>Straws / Lift</p> <p>Measure/ Bigger</p> <p>Shorter / Longer / Taller</p> <p>Thicker / Rough / Smooth</p> <p>Paper clip / Rubber band</p> <p>Bottle top</p> <p>Temporary / Permanent</p> <p>Materials</p> <p>Push / Pull / Break</p> <p>Separate / Fix</p> <p>Tools / Rotate</p>	<p>Axle / Bridge</p> <p>Design / Design criteria</p> <p>Model / Net / Packaging</p> <p>Structure / Template</p> <p>Unstable / Stable / Net</p> <p>Strong / Weak / Sliders</p> <p>Mechanisms / Adapt</p> <p>Input / Model /</p> <p>Sliders / Template</p> <p>Assemble / Test</p> <p>Design / Equipment</p> <p>Glue / Inspiration</p> <p>Method / Safety pin</p> <p>Technique / Template</p> <p>Fabric</p>	<p>Design criteria</p> <p>Man-made, / Natural</p> <p>Properties / Structure</p> <p>Stable / Shape / Model</p> <p>Test / Mechanisms</p> <p>Axle / Input / Linkage</p> <p>Mechanical / Output</p> <p>Pivot / Wheel</p> <p>Balanced diet/ Balance</p> <p>Carbohydrate</p> <p>Dairy / Fruit</p> <p>Ingredients / Oils</p> <p>Sugar / Protein</p> <p>Vegetable / Dairy / Diet</p>	



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	Year 3	Year 4	Year 5	Year 6	End of Key Stage 2
Structures		<p>Designing a stable pavilion structure that is aesthetically pleasing and selecting materials to create a desired effect.</p> <p>Building frame structures designed to support weight</p> <p>Creating a range of different shaped frame structures.</p> <p>Making a variety of free standing frame structures of different shapes and sizes.</p> <p>Selecting appropriate materials to build a strong structure and for the cladding.</p> <p>Reinforcing corners to strengthen a structure.</p> <p>Creating a design in accordance with a plan.</p> <p>Learning to create different</p>		<p>Designing a playground featuring a variety of different structures, giving careful consideration to how the structures will be used, considering effective and ineffective designs.</p> <p>Building a range of play apparatus structures drawing upon new and prior knowledge of structures.</p> <p>Measuring, marking and cutting wood to create a range of structures.</p> <p>Using a range of materials to reinforce and add decoration to structures.</p> <p>Improving a design plan based on peer evaluation.</p> <p>Testing and adapting a design to improve it as it is developed.</p>	<p>Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making.</p> <p>They should work in a range of relevant contexts [for example, the home, school, leisure, culture, enterprise, industry and the wider environment].</p> <p>When designing and making, pupils should be taught to:</p> <p>Design:</p> <p>use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for</p>



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		<p>textural effects with materials.</p> <p>Evaluating structures made by the class.</p> <p>Describing what characteristics of a design and construction made it the most effective.</p> <p>Considering effective and ineffective designs.</p> <p>To understand what a frame structure is.</p> <p>To know that a 'free-standing' structure is one which can stand on its own.</p>		<p>Identifying what makes a successful structure.</p> <p>To know that structures can be strengthened by manipulating materials and shapes.</p>	<p>purpose, aimed at particular individuals or groups;</p> <p>generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design</p> <p>Make:</p> <p>select from and use a wider range of tools and equipment to perform practical tasks [for</p>
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<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Mechannisms</p>	<p>Designing a toy which uses a pneumatic system.</p> <p>Developing design criteria from a design brief.</p> <p>Generating ideas using thumbnail sketches and exploded diagrams.</p> <p>Learning that different types of drawings are used in design to explain ideas clearly.</p> <p>Creating a pneumatic system to create a desired motion.</p> <p>Building secure housing for a pneumatic system.</p> <p>Using syringes and balloons to create different types of pneumatic systems to make a functional and appealing pneumatic toy.</p>		<p>Designing a pop-up book which uses a mixture of structures and mechanisms.</p> <p>Naming each mechanism, input and output accurately.</p> <p>Storyboarding ideas for a book.</p> <p>Follow a design brief to make a pop up book, neatly and with focus on accuracy.</p> <p>Making mechanisms and/or structures using sliders, pivots and folds to produce movement.</p> <p>Using layers and spacers to hide the workings of mechanical parts for an aesthetically pleasing result.</p> <p>Evaluating the work of others and receiving feedback on own work.</p>		<p>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> <p>Evaluate:</p> <p>investigate and analyse a range of existing products 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> <p>Technical knowledge:</p>
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<p>Selecting materials due to their functional and aesthetic characteristic.</p> <p>Manipulating materials to create different effects by cutting, creasing, folding, weaving.</p> <p>Using the views of others to improve designs.</p> <p>Testing and modifying the outcome, suggesting improvements.</p> <p>Understanding the purpose of exploded-diagrams through the eyes of a designer and their client.</p> <p>To understand how pneumatic systems work.</p> <p>To understand that pneumatic systems can be used as part of a mechanism.</p>		<p>Suggesting points for improvement.</p> <p>To know that mechanisms control movement.</p> <p>To understand that mechanisms that can be used to change one kind of motion into another.</p> <p>To understand how to use sliders, pivots and folds to create paper-based mechanisms.</p>		<p>apply their understanding of how to strengthen, stiffen and reinforce more complex structures;</p> <p>understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages];</p> <p>understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors];</p> <p>apply their understanding of computing to program, monitor and control their products.</p>
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	To know that pneumatic systems operate by drawing in, releasing and compressing air.				
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Cooking & Nutrition		<p>Designing a biscuit within a given budget, drawing upon previous taste testing.</p> <p>Following a baking recipe.</p> <p>Cooking safely, following basic hygiene rules.</p> <p>Adapting a recipe.</p> <p>Evaluating a recipe, considering: taste, smell, texture and appearance.</p> <p>Describing the impact of the budget on the selection of ingredients.</p> <p>Evaluating and comparing a range of products.</p> <p>Suggesting modifications.</p> <p>To know that the amount of an ingredient in a recipe is known as the 'quantity'.</p>		<p>Writing a recipe, explaining the key steps, method and ingredients.</p> <p>Including facts and drawings from research undertaken.</p> <p>Following a recipe, including using the correct quantities of each ingredient.</p> <p>Adapting a recipe based on research.</p> <p>Working to a given timescale.</p> <p>Working safely and hygienically with independence.</p> <p>Evaluating a recipe, considering: taste, smell, texture and origin of the food group.</p>	<p>As part of their work with food, pupils should be taught how to cook and apply the principles of nutrition and healthy eating.</p> <p>Instilling a love of cooking in pupils will also open a door to one of the great expressions of human creativity.</p> <p>Learning how to cook is a crucial life skill that enables pupils to feed themselves and others affordably and well, now and in later life.</p> <p>Pupils should be taught to: understand and apply the principles of a healthy and varied diet;</p> <p>prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques;</p>



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		<p>To know that it is important to use oven gloves when removing hot food from an oven.</p> <p>To know the following cooking techniques: sieving, creaming, rubbing method, cooling.</p> <p>To understand the importance of budgeting while planning ingredients for biscuits.</p>		<p>Taste testing and scoring final products.</p> <p>Suggesting and writing up points of improvements in productions.</p> <p>Evaluating health and safety in production to minimise cross contamination.</p> <p>To know that 'flavour' is how a food or drink tastes.</p> <p>To know that many countries have 'national dishes' which are recipes associated with that country.</p> <p>To know that 'processed food' means food that has been put through multiple changes in a factory.</p> <p>To understand that it is important to wash fruit and vegetables before eating</p>	<p>understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.</p>
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				<p>to remove any dirt and insecticides.</p> <p>To understand what happens to a certain food before it appears on the supermarket shelf (Farm to Fork).</p>	
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Textiles		<p>Writing design criteria for a product, articulating decisions made.</p> <p>Designing a personalised book sleeve.</p> <p>Making and testing a paper template with accuracy and in keeping with the design criteria.</p> <p>Measuring, marking and cutting fabric using a paper template.</p> <p>Selecting a stitch style to join fabric, working neatly sewing small neat stitches.</p> <p>Incorporating fastening to a design.</p> <p>Testing and evaluating an end product against the original design criteria.</p> <p>Deciding how many of the criteria should be met for the</p>		<p>Designing a waistcoat in accordance to specification linked to set of design criteria to fit a specific theme.</p> <p>Annotating designs.</p> <p>Using a template when pinning panels onto fabric.</p> <p>Marking and cutting fabric accurately, in accordance with a design.</p> <p>Sewing a strong running stitch, making small, neat stitches and following the edge.</p> <p>Tying strong knots.</p> <p>Decorating a waistcoat - attaching objects using thread and adding a secure fastening.</p> <p>Learning different decorative stitches.</p>	
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		<p>product to be considered successful.</p> <p>Suggesting modifications for improvement.</p> <p>Articulating the advantages and disadvantages of different fastening types.</p> <p>To know that a fastening is something which holds two pieces of material together for example a zipper, toggle, button, press stud and Velcro.</p> <p>To know that different fastening types are useful for different purposes.</p> <p>To know that creating a mock up (prototype) of their design is useful for checking ideas and proportions.</p>		<p>Sewing accurately with even regularity of stitches.</p> <p>Evaluating work continually as it is created.</p> <p>To understand that it is important to design clothing with the client/target customer in mind.</p> <p>To know that using a template (or clothing pattern) helps to accurately mark out a design on fabric.</p> <p>To understand the importance of consistently sized stitches.</p>	
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<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Digital World</p>	<p>Problem solving by suggesting potential features on a Micro: bit and justifying my ideas.</p> <p>Developing design ideas for a technology pouch.</p> <p>Drawing and manipulating 2D shapes, using computer-aided design, to produce a point of sale badge.</p> <p>Using a template when cutting and assembling the pouch.</p> <p>Following a list of design requirements.</p> <p>Selecting and using the appropriate tools and equipment for cutting, joining, shaping and decorating a foam pouch.</p> <p>Applying functional features such as using</p>		<p>Researching (books, internet) for a particular (user's) animal's needs.</p> <p>Developing design criteria based on research.</p> <p>Generating multiple housing ideas using building bricks.</p> <p>Understanding what a virtual model is and the pros and cons of traditional and CAD modelling.</p> <p>Placing and manoeuvring 3D objects, using CAD.</p> <p>Changing the properties of, or combine one or more 3D objects, using CAD.</p> <p>Understanding the functional and aesthetic properties of plastics.</p> <p>Programming to monitor the ambient temperature and coding an (audible or visual)</p>		
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<p>foam to create soft buttons.</p> <p>Analysing and evaluating an existing product.</p> <p>Identifying the key features of a pouch.</p> <p>To understand that in programming a 'loop' is code that repeats something again and again until stopped.</p> <p>To know that a Micro:bit is a pocket-sized, codeable computer.</p> <p>Writing a program to control (button press) and/or monitor (sense light) that will initiate a flashing LED algorithm.</p>		<p>alert when the temperature rises above or falls below a specified range.</p> <p>Stating an event or fact from the last 100 years of plastic history.</p> <p>Explaining how plastic is affecting planet Earth and suggesting ways to make more sustainable choices.</p> <p>Explaining key functions in my program (audible alert, visuals).</p> <p>Explaining how my product would be useful for an animal carer including programmed features.</p> <p>To know that a 'device' means equipment created for a certain purpose or job and that monitoring devices observe and record.</p>		
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			<p>To know that a sensor is a tool or device that is designed to monitor, detect and respond to changes for a purpose.</p> <p>To understand that conditional statements (and, or, if booleans) in programming are a set of rules which are followed if certain conditions are met.</p>		
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<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Electrical systems</p>	<p>Carry out research based on a given topic (e.g. The Romans) to develop a range of initial ideas.</p> <p>Generate a final design for the electric poster with consideration to the client's needs and design criteria.</p> <p>Design an electric poster that fits the requirements of a given brief.</p> <p>Plan the positioning of the bulb (circuit component) and its purpose.</p> <p>Create a final design for the electric poster.</p> <p>Mount the poster onto corrugated card to improve its strength and withstand the weight of the circuit on the rear.</p>		<p>Designing an electronic greetings card with a copper track circuit and components.</p> <p>Creating a labelled circuit diagram showing positive and negative parts in relation to the LED and the battery.</p> <p>Writing design criteria for an electronic greeting card.</p> <p>Compiling a moodboard relevant to my chosen theme, purpose and recipient.</p> <p>Making a functional series circuit.</p> <p>Creating an electronics greeting card, referring to a design criteria.</p> <p>Mapping out where different components of the circuit will go</p> <p>Evaluating a peer's product against design criteria and</p>		
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<p>Measure and mark materials out using a template or ruler.</p> <p>Fit an electrical component (bulb).</p> <p>Learn ways to give the final product a higher quality finish (e.g. framing to conceal a roughly cut edge).</p> <p>Learning to give and accept constructive criticism on own work and the work of others.</p> <p>Testing the success of initial ideas against the design criteria and justifying opinions.</p> <p>Revisiting the requirements of the client to review developing design ideas and check that they fulfil their needs.</p>		<p>suggesting modifications that could be made to improve the reliability or aesthetics of it or to incorporate another type of circuit component.</p> <p>Stating what Sir Rowland Hill invented and why it was important for greeting cards.</p> <p>Analysing and evaluating a range of existing greeting cards.</p> <p>To know the key components used to create a functioning circuit.</p> <p>To know that copper is a conductor and can be used as part of a circuit.</p> <p>To understand that breaks in a circuit will stop it from working.</p> <p>To understand that a series circuit only has one path for</p>		
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Progression of Design and Technology Knowledge Skills and Concepts

<p>To understand that an electrical system is a group of parts (components) that work together to transport electricity around a circuit.</p> <p>To understand common features of an electric product (switch, battery or plug, dials, buttons etc.).</p> <p>To list examples of common electric products (kettle, remote control etc.).</p> <p>To understand that an electric product uses an electrical system to work (function).</p> <p>To know the name and appearance of a bulb, battery, battery holder and crocodile wire to build simple circuits.</p>		<p>the electrical current to flow from positive to negative.</p> <p>To know that we use symbols to represent components in a circuit diagram.</p> <p>To know the names of the components in a basic series circuit: crocodile wires, LED (light-emitting diode), battery holder, battery, cell.</p>		
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Key vocabulary	Mechanism / Lever / Pivot	Aesthetic / Cladding	Aesthetic	Adapt / Apparatus	
	Input / Output	Design criteria / Evaluation	Computer-aided design	Bench / Hook / Cladding	
	Component	Frame structure / Function	(CAD) / Caption / Design	Coping saw / Design	
	Linkage system	Inspiration / Pavilion	Design brief / Design criteria	Dowel / Evaluation	
	Pneumatic system	Reinforce / Stable	Exploded-diagram / Function	Feedback / Idea	
	Thumbnail / Sketch	Structure / Target audience	Input / Linkage / Mechanism	Jelutong / Landscape	
	Research / Adapt	Target customer	Motion / Output / Pivot	Mark out / Measure	
	Properties / Reinforce	Texture / Theme	Prototype / Slider / Structure	Modify / Natural materials	
	Motion	Adapt / Budget	Template / Alert / Ambient	Plan view / Playground	
	Smart wearables	Cooling rack / Creaming	Boolean / Consumables	Prototype / Reinforce	
	Product design	Equipment / Evaluation	Decompose / Development	Sketch / Strong	
	Digital revolution	Flavour / Ingredients	Device / Duplicate	Structure / Tenon saw	
	Technology / Analogue	Method / Net / Packaging	Durable / Electronic	Texture / User	
	Digital / Feature	Prototype / Quantity	Inventor / Lightweight	Vice / Weak	
	Function / Digital world	Recipe / Rubbing	Man-made / Manipulate	Accompaniment	
	Micro: bit	Sieving / Target audience	Manoeuvre / Microplastics	Collaboration / Cookbook	
	Smart wearables	Unit of measurement	Model / Monitor / Monitoring	Cross-contamination	
	Electronic products	Utilities / Assemble	Device / Moulded	Equipment / Farm Flavour	
	Loops / Initiate	Book sleeve	Plastic / Plastic pollution	Illustration	
	Electronic / Simulator	Design criteria / Evaluation	Programming comment	Imperative-verb	
Control / Monitor	Fabric / Fastening	Programming loop	Ingredients / Method		
Sense / Template	Mock-up / Net	Reformed / Replica	Nationality / Preparation		
Develop / Fasten	Running-stitch / Stencil	Research / Sensor / Strong	Processed / Reared		
Test / User	Target audience	Sustainability / Synthetic	Recipe / Research		
Key features	Target customer /Template	Thermometer	Storyboard		
CAD (computer-aided design)		Thermoscope / Value	Target audience		
Point of sale / Display		Variable / Versatile	Top tips		
Badge / Stand / Net		Water-resistant / Workplane	Unit of measurement		
			Accurate / Adapt		



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Product Design requirements Layers Attract / Component Constructive-criticism Design criteria Electrostatic / Evaluation Feedback / Motion Repel Target audience Test		Battery / Buzzer / Circuit Coin cell battery Component / Conductor Copper / Design Design criteria / Function Innovative / Insulator LED / Modify / Series circuit Switch / Target audience Test / Wire	Annotate / Design Design criteria / Detail Fabric / Fastening Knot / Properties Running-stitch / Seam Sew / Shape Target audience Target customer Template / Thread Unique / Waistcoat Waterproof	
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