

# Design and Technology Curriculum Map

	Year 1	Year 2	Year 3 & Year 4 2023-2024	Year 3 & Year 4 2022-2023	Year 5	Year 6
Food	Fruit & Vegetables	A balanced diet	Eating Seasonally		What could be healthier?	
Structures	Constructing a windmill	Baby Bear's Chair		Pavilions	Bridges	Playgrounds
Mechanisms / Mechanical Systems	Wheels & Axles	Making a moving dragon Fairground wheel	Slingshot Cars		Pop-Up Books	Automata Toys
Textiles	Puppets	Pouches	Cushions	Cross stitch & applique	Stuffed Toys	Waistcoats
Electrical Systems			Static Electricity	Torches	Electronic Greetings Cards	Steady Hand Game

		Year 1	Year 2	Year 5	Year 6
		<u>Constructing a windmill</u>	<u>Baby bear's chair</u>	<u>Bridges</u>	<u>Playgrounds</u>
<b>Skills</b>	<b>Design</b>	<ul style="list-style-type: none"> <li>Learning the importance of clear design criteria.</li> <li>Including individual preferences and requirements in a design.</li> </ul>	<ul style="list-style-type: none"> <li>Generating and communicating ideas using sketching and modelling.</li> <li>Learning about different types of structures, found in the natural world and in everyday objects.</li> </ul>	<ul style="list-style-type: none"> <li>Designing a stable structure that is able to support weight.</li> <li>Creating a frame structure with a focus on triangulation.</li> </ul>	<ul style="list-style-type: none"> <li>Designing a playground featuring a variety of different structures, giving careful consideration to how the structures will be used, considering effective and ineffective designs.</li> </ul>
	<b>Make</b>	<ul style="list-style-type: none"> <li>Making stable structures from card, tape and glue .</li> <li>Learning how to turn 2D nets into 3D structures.</li> <li>Following instructions to cut and assemble the supporting structure of a windmill.</li> <li>Making functioning turbines and axles which are assembled into a main supporting structure.</li> </ul>	<ul style="list-style-type: none"> <li>Making a structure according to design criteria.</li> <li>Creating joints and structures from paper/card and tape.</li> <li>Building a strong and stiff structure by folding paper.</li> </ul>	<ul style="list-style-type: none"> <li>Making a range of different shaped beam bridges.</li> <li>Using triangles to create truss bridges that span a given distance and support a load.</li> <li>Building a wooden bridge structure.</li> <li>Independently measuring and marking wood accurately.</li> <li>Selecting appropriate tools and equipment for particular tasks.</li> <li>Using the correct techniques to saws safely.</li> <li>Identifying where a structure needs reinforcement and using card corners for support.</li> <li>Explaining why selecting appropriating materials is an important part of the design process.</li> <li>Understanding basic wood functional properties.</li> </ul>	<ul style="list-style-type: none"> <li>Building a range of play apparatus structures drawing upon new and prior knowledge of structures.</li> <li>Measuring, marking and cutting wood to create a range of structures.</li> <li>Using a range of materials to reinforce and add decoration to structures.</li> </ul>
	<b>Evaluate</b>	<ul style="list-style-type: none"> <li>Evaluating a windmill according to the design criteria, testing whether the structure is strong and stable and altering it if it isn't.</li> <li>Suggest points for improvements.</li> </ul>	<ul style="list-style-type: none"> <li>Exploring the features of structures.</li> <li>Comparing the stability of different shapes.</li> <li>Testing the strength of own structures.</li> <li>Identifying the weakest part of a structure.</li> <li>Evaluating the strength, stiffness and stability of own structure.</li> </ul>	<ul style="list-style-type: none"> <li>Adapting and improving own bridge structure by identifying points of weakness and reinforcing them as necessary.</li> <li>Suggesting points for improvements for own bridges and those designed by others.</li> </ul>	<ul style="list-style-type: none"> <li>Improving a design plan based on peer evaluation.</li> <li>Testing and adapting a design to improve it as it is developed.</li> <li>Identifying what makes a successful structure.</li> </ul>
<b>Knowledge</b>	<b>Technical</b>	<ul style="list-style-type: none"> <li>To understand that the shape of materials can be changed to improve the strength and stiffness of structures.</li> <li>To understand that cylinders are a strong type of structure (e.g. the main shape used for windmills and lighthouses).</li> <li>To understand that axles are used in structures and mechanisms to make parts turn in a circle.</li> <li>To begin to understand that different structures are used for different purposes.</li> <li>To know that a structure is something that has been made and put together.</li> </ul>	<ul style="list-style-type: none"> <li>To know that shapes and structures with wide, flat bases or legs are the most stable.</li> <li>To understand that the shape of a structure affects its strength.</li> <li>To know that materials can be manipulated to improve strength and stiffness.</li> <li>To know that a structure is something which has been formed or made from parts.</li> <li>To know that a 'stable' structure is one which is firmly fixed and unlikely to change or move.</li> <li>To know that a 'strong' structure is one which does not break easily.</li> <li>To know that a 'stiff' structure or material is one which does not bend easily.</li> </ul>	<ul style="list-style-type: none"> <li>To understand some different ways to reinforce structures.</li> <li>To understand how triangles can be used to reinforce bridges.</li> <li>To know that properties are words that describe the form and function of materials.</li> <li>To understand why material selection is important based on properties.</li> <li>To understand the material (functional and aesthetic) properties of wood.</li> </ul>	<ul style="list-style-type: none"> <li>To know that structures can be strengthened by manipulating materials and shapes.</li> </ul>
	<b>Additional</b>	<ul style="list-style-type: none"> <li>To know that a client is the person I am designing for.</li> <li>To know that design criteria is a list of points to ensure the product meets the clients needs and wants.</li> <li>To know that a windmill harnesses the power of wind for a purpose like grinding grain, pumping water or generating electricity.</li> <li>To know that windmill turbines use wind to turn and make the machines inside work.</li> <li>To know that a windmill is a structure with sails that are moved by the wind. • To know the three main parts of a windmill are the turbine, axle and structure.</li> </ul>	<ul style="list-style-type: none"> <li>To know that natural structures are those found in nature.</li> <li>To know that man-made structures are those made by people.</li> </ul>	<ul style="list-style-type: none"> <li>To understand the difference between arch, beam, truss and suspension bridges.</li> <li>To understand how to carry and use a saw safely.</li> </ul>	<ul style="list-style-type: none"> <li>To understand what a 'footprint plan' is.</li> <li>To understand that in the real world, design , can impact users in positive and negative ways.</li> <li>To know that a prototype is a cheap model to test a design idea.</li> </ul>

**Progression of skills and knowledge**

**Mechanisms/ mechanical systems**

		Year 1	Year 2		Year 3 & Year 4		Year 5	Year 6
		<u>Wheels and axles</u>	<u>Fairground wheel</u>	<u>Making a moving monster</u>	<u>Pneumatic toys</u>	<u>Making a slingshot car</u>	<u>Pop up book</u>	<u>Automata toys</u>
<b>Skills</b>	<b>Design</b>	<ul style="list-style-type: none"> <li>Designing a vehicle that includes wheels, axles and axle holders, that when combined, will allow the wheels to move.</li> <li>Creating clearly labelled drawings that illustrate movement.</li> </ul>	<ul style="list-style-type: none"> <li>Selecting a suitable linkage system to produce the desired motion.</li> <li>Designing a wheel.</li> </ul>	<ul style="list-style-type: none"> <li>Creating a class design criteria for a moving monster.</li> <li>Designing a moving monster for a specific audience in accordance with a design criteria.</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>Designing a shape that reduces air resistance.</li> <li>Drawing a net to create a structure from.</li> <li>Choosing shapes that increase or decrease speed as a result of air resistance.</li> <li>Personalising a design.</li> </ul>	<ul style="list-style-type: none"> <li>Designing a pop-up book which uses a mixture of structures and mechanisms.</li> <li>Naming each mechanism, input and output accurately.</li> <li>Storyboarding ideas for a book.</li> </ul>	<ul style="list-style-type: none"> <li>Experimenting with a range of cams, creating a design for an automata toy based on a choice of cam to create a desired movement.</li> <li>Understanding how linkages change the direction of a force.</li> <li>Making things move at the same time.</li> <li>Understanding and drawing cross-sectional diagrams to show the inner-workings of my design.</li> </ul>
	<b>Make</b>	<ul style="list-style-type: none"> <li>Adapting mechanisms, when:               <ul style="list-style-type: none"> <li>they do not work as they should.</li> <li>to fit their vehicle design.</li> <li>to improve how they work after testing their vehicle.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Selecting materials according to their characteristics.</li> <li>Following a design brief.</li> </ul>	<ul style="list-style-type: none"> <li>Making linkages using card for levers and split pins for pivots.</li> <li>Experimenting with linkages adjusting the widths, lengths and thicknesses of card used.</li> <li>Cutting and assembling components neatly.</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 different types of pneumatic systems to make a functional and appealing pneumatic toy.</li> <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>	<ul style="list-style-type: none"> <li>Measuring, marking, cutting and assembling with increasing accuracy.</li> <li>Making a model based on a chosen design.</li> </ul>	<ul style="list-style-type: none"> <li>Following a design brief to make a pop up book, neatly and with focus on accuracy.</li> <li>Making mechanisms and/or structures using sliders, pivots and folds to produce movement.</li> <li>Using layers and spacers to hide the workings of mechanical parts for an aesthetically pleasing result.</li> </ul>	<ul style="list-style-type: none"> <li>Measuring, marking and checking the accuracy of the jelutong and dowel pieces required.</li> <li>Measuring, marking and cutting components accurately using a ruler and scissors.</li> <li>Assembling components accurately to make a stable frame.</li> <li>Understanding that for the frame to function effectively the components must be cut accurately and the joints of the frame secured at right angles.</li> <li>Selecting appropriate materials based on the materials being joined and the speed at which the glue needs to dry/set.</li> </ul>
	<b>Evaluate</b>	<ul style="list-style-type: none"> <li>Testing wheel and axle mechanisms, identifying what stops the wheels from turning, and recognising that a wheel needs an axle in order to move.</li> </ul>	<ul style="list-style-type: none"> <li>Evaluating different designs.</li> <li>Testing and adapting a design.</li> </ul>	<ul style="list-style-type: none"> <li>Evaluating own designs against design criteria.</li> <li>Using peer feedback to modify a final design.</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>Evaluating the speed of a final product based on: the effect of shape on speed and the accuracy of workmanship on performance.</li> </ul>	<ul style="list-style-type: none"> <li>Evaluating the work of others and receiving feedback on own work.</li> <li>Suggesting points for improvement.</li> </ul>	<ul style="list-style-type: none"> <li>Evaluating the work of others and receiving feedback on own work.</li> <li>Applying points of improvement to their toys.</li> <li>Describing changes they would make/do if they were to do the project again.</li> </ul>

**Progression of skills and knowledge**

**Mechanisms/ mechanical systems**

		Year 1	Year 2		Year 3 & Year 4		Year 5	Year 6
		<u>Wheels and axles</u>	<u>Fairground wheel</u>	<u>Making a moving monster</u>	<u>Pneumatic toys</u>	<u>Making a slingshot car</u>	<u>Pop up book</u>	<u>Automata toys</u>
<b>Knowledge</b>	<b>Technical</b>	<ul style="list-style-type: none"> <li>To know that wheels need to be round to rotate and move.</li> <li>To understand that for a wheel to move it must be attached to a rotating axle.</li> <li>To know that an axle moves within an axle holder which is fixed to the vehicle or toy. • To know that the frame of a vehicle (chassis) needs to be balanced.</li> </ul>	<ul style="list-style-type: none"> <li>To know that different materials have different properties and are therefore suitable for different uses.</li> </ul>	<ul style="list-style-type: none"> <li>To know that mechanisms are a collection of moving parts that work together as a machine to produce movement.</li> <li>To know that there is always an input and output in a mechanism.</li> <li>To know that an input is the energy that is used to start something working.</li> <li>To know that an output is the movement that happens as a result of the input.</li> <li>To know that a lever is something that turns on a pivot.</li> <li>To know that a linkage mechanism is made up of a series of levers.</li> </ul>	<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. • To know that pneumatic systems operate by drawing in, releasing and compressing air.</li> </ul>	<ul style="list-style-type: none"> <li>To understand that all moving things have kinetic energy.</li> <li>To understand that kinetic energy is the energy that something (object/person) has by being in motion.</li> <li>To know that air resistance is the level of drag on an object as it is forced through the air.</li> <li>To understand that the shape of a moving object will affect how it moves due to air resistance.</li> </ul>	<ul style="list-style-type: none"> <li>To know that mechanisms control movement.</li> <li>To understand that mechanisms can be used to change one kind of motion into another.</li> <li>To understand how to use sliders, pivots and folds to create paper-based mechanisms.</li> </ul>	<ul style="list-style-type: none"> <li>To understand that the mechanism in an automata uses a system of cams, axles and followers.</li> <li>To understand that different shaped cams produce different outputs.</li> </ul>
	<b>Additional</b>	<ul style="list-style-type: none"> <li>To know some real-life items that use wheels such as wheelbarrows, hamster wheels and vehicles.</li> </ul>	<ul style="list-style-type: none"> <li>To know the features of a ferris wheel include the wheel, frame, pods, a base an axle and an axle holder.</li> <li>To know that it is important to test my design as I go along so that I can solve any problems that may occur.</li> </ul>	<ul style="list-style-type: none"> <li>To know some real-life objects that contain mechanisms.</li> </ul>			<ul style="list-style-type: none"> <li>To know that a design brief is a description of what I am going to design and make.</li> <li>To know that designers often want to hide mechanisms to make a product more aesthetically pleasing.</li> </ul>	<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> <li>To understand how to use a bench hook and saw safely. To know that a set square can be used to help mark 90° angles.</li> </ul>

**Progression of skills and knowledge**

**Electrical Systems**

**Year 3 & Year 4**

**Year 5**

**Year 6**

Static electricity

Electronic greeting cards

Steady hand game

		Year 3 & Year 4	Year 5	Year 6
<b>Skills</b>	<b>Design</b>	<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>	<p><b>Design:</b></p> <ul style="list-style-type: none"> <li>Designing an electronic greetings card with a simple electrical control circuit</li> <li>Creating a labelled design showing positive and negative parts in relation to the LED and the battery</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>
	<b>Make</b>	<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 to withstand the weight of the circuit on the rear.</li> <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>	<p><b>Make:</b></p> <ul style="list-style-type: none"> <li>Making a working circuit</li> <li>Creating an electronics greeting card, referring to a design criteria</li> <li>Mapping out where different components of the circuit will go</li> </ul>	<ul style="list-style-type: none"> <li>Constructing a stable base for a game.</li> <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. Incorporating a circuit into a base.</li> </ul>
	<b>Evaluate</b>	<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>	<p><b>Evaluation:</b></p> <ul style="list-style-type: none"> <li>Evaluating a completed product against the original design sheet and looking at modifications that could be made to improve the reliability or aesthetics of it or to incorporate another type of electronic device, eg: buzzer</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. Analysing a selection of existing children's toys.</li> </ul>
<b>Knowledge</b>	<b>Technical</b>	<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>Technical Knowledge:</b></p> <ul style="list-style-type: none"> <li>Learning the key components used to create a functioning circuit</li> <li>Learning that graphite is a conductor and can be used as part of a circuit</li> <li>Learning the difference between series and parallel circuits</li> </ul>	<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>
	<b>Additional</b>	<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>	<ul style="list-style-type: none"> <li>Understanding that breaks in a circuit will stop it from working</li> </ul>	<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>


# Progression of skills and knowledge



## Progression of skills and knowledge

## Cooking and nutrition

		Year 1	Year 2	Year 3 & Year 4	Year 5
		<u>Fruit and Vegetable smoothies</u>	<u>Balanced diet</u>	<u>Eating seasonally</u>	<u>Developing/adapting a recipe</u>
Skills	Design	<ul style="list-style-type: none"> <li>Designing smoothie carton packaging by-hand.</li> </ul>	<ul style="list-style-type: none"> <li>Designing a recipe for a savoury tart.</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>	<ul style="list-style-type: none"> <li>Designing three wrap ideas based on a food combination which work well together.</li> </ul>
	Make	<ul style="list-style-type: none"> <li>Chopping fruit and vegetables safely to make a smoothie.</li> <li>Juicing fruits safely to make a smoothie.</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> <li>Cutting safely with a vegetable knife.</li> </ul>	<ul style="list-style-type: none"> <li>Cutting and preparing vegetables safely.</li> <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>	<ul style="list-style-type: none"> <li>Chopping foods safely to make a wrap.</li> <li>Constructing a wrap that meets a design brief.</li> <li>Grating foods to make a wrap.</li> <li>Snipping smaller foods instead of cutting.</li> </ul>
	Evaluate	<ul style="list-style-type: none"> <li>Tasting and evaluating different food combinations.</li> <li>Describing appearance, smell and taste.</li> <li>Suggesting information to be included on packaging.</li> <li>Comparing their own smoothie with someone else's.</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>	<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>	<ul style="list-style-type: none"> <li>Describing the taste, texture and smell of fruit and vegetables.</li> <li>Taste testing food combinations and final products.</li> <li>Describing the information that should be included on a label.</li> <li>Evaluating food by giving a score.</li> </ul>
Knowledge		<ul style="list-style-type: none"> <li>To know that a blender is a machine which mixes ingredients together into a smooth liquid.</li> <li>To know that a fruit has seeds.</li> <li>To know that fruits grow on trees or vines.</li> <li>To know that vegetables can grow either above or below ground.</li> <li>To know that vegetables is any edible part of a plant (e.g. roots: potatoes, leaves: lettuce, fruit: cucumber).</li> </ul>	<ul style="list-style-type: none"> <li>To know that 'diet' means the food and drink that a person or animal usually eats.</li> <li>To understand what makes a balanced diet.</li> <li>To know that the five main food groups are: Carbohydrates, fruits and vegetables, protein, dairy and foods high in fat and sugar.</li> <li>To understand that I should eat a range of different foods from each food group, and roughly how much of each food group.</li> <li>To know that 'ingredients' means the items in a mixture or recipe.</li> </ul>	<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>	<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> <li>To know that food packaging serves many purposes.</li> </ul>

		Progression of skills and knowledge			Cooking and nutrition	
		Year 1	Year 2	Year 3 & Year 4	Year 5	Year 6
		<u>Puppets</u>	<u>Pouches</u>	<u>Cross-stitch and appliqué Cushions or Egyptian collars</u>	<u>Stuffed toys</u>	<u>Waistcoats</u>
Skills	Design	<ul style="list-style-type: none"> <li>Using a template to create a design for a puppet.</li> </ul>	<ul style="list-style-type: none"> <li>Designing and making a template from an existing cushion and applying individual design criteria.</li> </ul>	<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>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>Designing a waistcoat in accordance to a specification linked to set of design criteria.</li> <li>Annotating designs, to explain their decisions.</li> </ul>
	Make	<ul style="list-style-type: none"> <li>Cutting fabric neatly with scissors.</li> <li>Using joining methods to decorate a puppet.</li> <li>Sequencing steps for construction.</li> </ul>	<ul style="list-style-type: none"> <li>Following design criteria to create a cushion or Egyptian collar.</li> <li>Selecting and cutting fabrics with ease using fabric scissors.</li> <li>Threading needles with greater independence.</li> <li>Tying knots with greater independence.</li> <li>Sewing cross stitch to join fabric.</li> <li>Decorating fabric using appliqué.</li> <li>Completing design ideas with stuffing and sewing the edges (Cushions) <i>or</i> embellishing the collars based on design ideas (Egyptian collars).</li> </ul>	<ul style="list-style-type: none"> <li>Creating a 3D stuffed toy from a 2D design.</li> <li>Measuring, marking and cutting fabric accurately and independently .</li> <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>	<ul style="list-style-type: none"> <li>Creating a 3D stuffed toy from a 2D design.</li> <li>Measuring, marking and cutting fabric accurately and independently .</li> <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>	<ul style="list-style-type: none"> <li>Using a template when cutting fabric to ensure they achieve the correct shape.</li> <li>Using pins effectively to secure a template to fabric without creases or bulges.</li> <li>Marking and cutting fabric accurately, in accordance with their design.</li> <li>Sewing a strong running stitch, making small, neat stitches and following the edge.</li> <li>Tying strong knots.</li> <li>Decorating a waistcoat, attaching features (such as appliqué) using thread.</li> <li>Finishing the waistcoat with a secure fastening (such as buttons).</li> <li>Learning different decorative stitches.</li> <li>Sewing accurately with evenly spaced, neat stitches.</li> </ul>
	Evaluate	<ul style="list-style-type: none"> <li>Reflecting on a finished product, explaining likes and dislikes.</li> </ul>	<ul style="list-style-type: none"> <li>Evaluating an end product and thinking of other ways in which to create similar items.</li> </ul>	<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>Testing and evaluating an end product and giving point for further improvements.</li> </ul>	<ul style="list-style-type: none"> <li>Reflecting on their work continually throughout the design, make and evaluate process.</li> </ul>
Knowledge		<ul style="list-style-type: none"> <li>To know that ‘joining technique’ means connecting two pieces of material together.</li> <li>To know that there are various temporary methods of joining fabric by using staples, glue or pins.</li> <li>To understand that different techniques for joining materials can be used for different purposes.</li> <li>To understand that a template (or fabric pattern) is used to cut out the same shape multiple times.</li> <li>To know that drawing a design idea is useful to see how an idea will look.</li> </ul>	<ul style="list-style-type: none"> <li>To know that sewing is a method of joining fabric.</li> <li>To know that different stitches can be used when sewing.</li> <li>To understand the importance of tying a knot after sewing the final stitch.</li> <li>To know that a thimble can be used to protect my fingers when sewing.</li> </ul>	<ul style="list-style-type: none"> <li>To know that applique is a way of mending or decorating a textile by applying smaller pieces of fabric to larger pieces.</li> <li>To know that when two edges of fabric have been joined together it is called a seam.</li> <li>To know that it is important to leave space on the fabric for the seam.</li> <li>To understand that some products are turned inside out after sewing so the stitching is hidden.</li> </ul>	<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 soft toy is strong and holds the stuffing securely.</li> </ul>	<ul style="list-style-type: none"> <li>To understand that it is important to design clothing with the client/ target customer in mind.</li> <li>To know that using a template (or clothing pattern) helps to accurately mark out a design on fabric.</li> <li>To understand the importance of consistently sized stitches.</li> </ul>





	Autumn	Spring	Summer
Nursery	<p>Use different material and media to express own ideas- Collage of things they love _</p> <p>- Use one-handed tools and equipment appropriately safely_ Making snips in paper _ Using scissors safely_ Mixing and pouring using bowl of varying sizes_ Using folding skills to wrap presents_</p> <p>- Develop skills to use simple tools and equipment appropriately, effectively and safely_ Woodwork – learning about using equipment safely. Using hammer and nails to develop their co-ordination skills_</p>	<p>Make plans and construct with a purpose in mind using a variety of resources _ design arctic animal using materials of their choice_</p> <p>- Explore different materials freely in order to develop their ideas about how to use them and what to make._ use different media to make models_ Hands on exploration of natural materials; flowers, leaves, grass, rocks, seeds, bark etc. _</p> <p>- Select appropriate resources for a product and adapt their work _ Build a habitat from box modelling_ Put straws in home corner to use as flowers _ Cold colour fabric collage _</p> <p>- Explore how things work_ Invite artists, musicians and crafts people into the setting, one per half term. _ Cold colour mixing_</p>	<p>Develop skills to use simple tools and equipment appropriately, effectively and safely_ Being careful with scissors and knives _</p> <p>- Create closed shapes and continuous lines, sand begin to use these shapes to represent objects._ Making lines and marks with a pencil _</p> <p>- Select appropriate resources for a product and adapt their work _ Explore different materials freely in order to develop their ideas about how to use them and what to make._ Explore collections of things with similar and different properties; shells, pebbles, rocks etc._ Make rockets with box models _ Make moons and stars _ Use child size boxes to make a rocket _</p>
Reception	<p><b>Focus on junk modelling and own creations - Structures</b> <b>Design:</b></p> <ul style="list-style-type: none"> <li>• Making verbal plans and material choices.</li> <li>• Developing a junk model.</li> </ul> <p><b>Make:</b></p> <ul style="list-style-type: none"> <li>• Improving fine motor/scissor skills with a variety of materials.</li> <li>• Joining materials in a variety of ways (temporary and permanent).</li> <li>• Joining different materials together.</li> <li>• Describing their junk model, and how they intend to put it together.</li> </ul> <p><b>Evaluate:</b></p> <ul style="list-style-type: none"> <li>• Giving a verbal evaluation of their own and others' junk models with adult support.</li> <li>• Checking to see if their model matches their plan.</li> <li>• Considering what they would do differently if they were to do it again.</li> <li>• Describing their favourite and least favourite part of their model.</li> </ul> <p><b>Knowledge:</b></p> <ul style="list-style-type: none"> <li>• To know there are a range to different materials that can be used to make a model and that they are all slightly different.</li> <li>• Making simple suggestions to fix their junk model</li> </ul> <p>Develop their small motor skills Use a range of smaller tools, including scissors, paintbrushes and cutlery</p>	<p><b>Focus Food</b> <b>Design:</b> Create a simple meal as a class</p> <p><b>Make:</b></p> <ul style="list-style-type: none"> <li>• Chopping plasticine safely.</li> <li>• Chopping vegetables with support.</li> </ul> <p><b>Evaluate:</b></p> <ul style="list-style-type: none"> <li>• Tasting the soup and giving opinions.</li> <li>• Describing some of the following when tasting food: look, feel, smell and taste.</li> <li>• Choosing their favourite packaging design and explaining why.</li> </ul> <p><b>Knowledge:</b></p> <ul style="list-style-type: none"> <li>• To know that soup is ingredients (usually vegetables and liquid) blended together.</li> <li>• To know that vegetables are grown.</li> <li>• To recognise and name some common vegetables.</li> <li>• To know that different vegetables taste different.</li> <li>• To know that eating vegetables is good for us.</li> <li>• To discuss why different packages might be used for different foods.</li> </ul> <p>Use a range of smaller tools, including scissors, paintbrushes and cutlery Learn the correct use of cutlery during food tasting Make a Chinese dragon Create models of emergency vehicles freely and creatively Make a Chinese lantern using cutting, sticking and glueing skills</p>	<p><b>Focus Textiles</b> <b>Design:</b></p> <ul style="list-style-type: none"> <li>• Designing a simple pattern with paper.</li> <li>• Designing a bookmark.</li> <li>• Choosing from available materials.</li> </ul> <p><b>Make:</b></p> <ul style="list-style-type: none"> <li>• Developing fine motor/cutting skills with scissors.</li> <li>• Exploring fine motor/threading and weaving (under, over technique) with a variety of materials.</li> <li>• Using a prepared needle and wool to practise threading.</li> </ul> <p><b>Evaluate:</b></p> <ul style="list-style-type: none"> <li>• Reflecting on a finished product and comparing to their design.</li> </ul> <p><b>Knowledge:</b></p> <ul style="list-style-type: none"> <li>• To know that a design is a way of planning our idea before we start.</li> <li>• To know that threading is putting one material through an object</li> </ul> <p>Share their creations, explaining the process they have used. Use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function</p> <p>Use a range of smaller tools, including scissors, paintbrushes and cutlery Design a gingerbread man Make the three bears cottage Explore and create houses out of box modelling materials</p>

## Design & Technology Long Term Planning 2023-2024

	<p>Cutting skills - continuous skill throughout the year Funky fingers</p> <p>Sharing resources, ideas and skills Food tasting – giving opinions Class discussions</p> <p>Explore printing Begin colour mixing with paint Make bread for Harvest Make and explore salt dough Mould, squish, stretch model using clay</p>	<p>Develop their fine motor skills Use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.</p> <p>Jungle collages Pet sketches Explore creating collages Selecting the appropriate material to make an art animal Decorate a biscuit like a farm animal using fine motor skills Transient art materials to represent different animal colours</p>	<p>STEM challenge - Pig house out of cocktail sticks and blue tac Clay troll heads using outside resources</p>
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	<b>Autumn</b>	<b>Spring</b>	<b>Summer</b>
<b>Year 1</b>	<p><b><u>Food: Fruit and Vegetables</u></b>  <b>Make:</b></p> <ul style="list-style-type: none"> <li>• Chopping fruit and vegetables safely to make a smoothie</li> <li>• Identifying if a food is a fruit or a vegetable</li> <li>• Learning where and how fruits and vegetables grow</li> </ul> <p><b>Evaluation:</b></p> <ul style="list-style-type: none"> <li>• Tasting and evaluating different food combinations</li> <li>• Describing appearance, smell and taste</li> <li>• Suggesting information to be included on packaging</li> </ul> <p><b>Technical Knowledge:</b></p> <ul style="list-style-type: none"> <li>• Understanding the difference between fruits and vegetables</li> <li>• Describing and grouping fruits by texture and taste</li> </ul> <p><b><u>Structures: Constructing a Windmill</u></b>  <b>Design:</b></p> <ul style="list-style-type: none"> <li>• Learning the importance of a clear design criteria</li> <li>• Including individual preferences and requirements in a design</li> </ul> <p><b>Make:</b></p> <ul style="list-style-type: none"> <li>• Making stable structures from card, tape and glue</li> <li>• Following instructions to cut and assemble the supporting structure of a windmill</li> <li>• Making functioning turbines and axles which are assembled into a main supporting structure</li> </ul> <p><b>Evaluation:</b></p> <ul style="list-style-type: none"> <li>• Evaluating a windmill according to the design criteria, testing whether the structure is strong and stable and altering it if it isn't</li> <li>• Suggest points for improvements</li> </ul> <p><b>Technical Knowledge:</b></p> <ul style="list-style-type: none"> <li>• Describing the purpose of structures, including windmills</li> <li>• Learning how to turn 2D nets into 3D structures</li> <li>• Learning that the shape of materials can be changed to improve the strength and stiffness of structures</li> <li>• Understanding that cylinders are a strong type of structure that are often used for windmills and lighthouses</li> <li>• Understanding that windmill turbines use wind to turn and make the machines inside work</li> <li>• Understanding that axles are used in structures and mechanisms to make parts turn in a circle</li> <li>• Developing awareness of different structures for different purposes</li> </ul>	<p><b><u>Mechanisms: Wheels and Axles</u></b>  <b>Design:</b></p> <ul style="list-style-type: none"> <li>• Designing a vehicle that includes wheels, axles and axle holders, which will allow the wheels to move</li> </ul> <p><b>Make:</b></p> <ul style="list-style-type: none"> <li>• Adapting mechanisms</li> </ul> <p><b>Evaluation:</b></p> <ul style="list-style-type: none"> <li>• Testing mechanisms, identifying what stops wheels from turning, knowing that a wheel needs an axle in order to move forwards</li> </ul> <p><b>Technical Knowledge:</b></p> <ul style="list-style-type: none"> <li>• Identifying what mechanism makes a toy or vehicle roll forwards</li> <li>• Learning that for a wheel to move it must be attached to an axle</li> </ul>	<p><b><u>Textiles: Puppets</u></b>  <b>Design:</b></p> <ul style="list-style-type: none"> <li>• Using a template to create a design for a puppet</li> </ul> <p><b>Make:</b></p> <ul style="list-style-type: none"> <li>• Cutting fabric neatly with scissors</li> <li>• Using joining methods to decorate a puppet</li> <li>• Sequencing steps for construction</li> </ul> <p><b>Evaluation:</b></p> <ul style="list-style-type: none"> <li>• Reflecting on a finished product, explaining likes and dislikes</li> </ul> <p><b>Technical Knowledge:</b></p> <ul style="list-style-type: none"> <li>• Learning different ways in which to join fabrics together: pinning, stapling, gluing</li> </ul>

	<b>Autumn</b>	<b>Spring</b>	<b>Summer</b>
<b>Year 2</b>	<p><b><u>Mechanisms: Making a Moving Monster (Dragon)</u></b></p> <p><b>Design:</b></p> <ul style="list-style-type: none"> <li>• Creating a class design criteria for a moving monster</li> <li>• Designing a moving monster for a specific audience in accordance with a design criteria</li> <li>• Selecting a suitable linkage system to produce the desired motions</li> </ul> <p><b>Make:</b></p> <ul style="list-style-type: none"> <li>• Making linkages using card for levers and split pins for pivots</li> <li>• Experimenting with linkages adjusting the widths, lengths and thicknesses of card used</li> <li>• Cutting and assembling components neatly</li> </ul> <p><b>Evaluation:</b></p> <ul style="list-style-type: none"> <li>• Evaluating own designs against design criteria</li> <li>• Using peer feedback to modify a final design</li> </ul> <p><b>Technical Knowledge:</b></p> <ul style="list-style-type: none"> <li>• Learning that mechanisms are a collection of moving parts that work together in a machine</li> <li>• Learning that there is an input and output in a mechanism</li> <li>• Identifying mechanisms in everyday objects</li> </ul>	<p><b><u>Food: A Balanced Diet</u></b></p> <p><b>Design:</b></p> <ul style="list-style-type: none"> <li>• Designing a healthy wrap based on a food combination which work well together</li> </ul> <p><b>Make:</b></p> <ul style="list-style-type: none"> <li>• Slicing food safely using the bridge or claw grip</li> <li>• Constructing a wrap that meets a design brief</li> </ul> <p><b>Evaluation:</b></p> <ul style="list-style-type: none"> <li>• Describing the taste, texture and smell of fruit and vegetables</li> <li>• Taste testing food combinations and final products</li> <li>• Describing the information that should be included on a label</li> <li>• Evaluating which grip was most effective</li> </ul> <p><b>Technical Knowledge:</b></p> <ul style="list-style-type: none"> <li>• Understanding what makes a balanced diet</li> <li>• Knowing where to find the nutritional information on packaging</li> <li>• Knowing the five food groups</li> </ul> <p><b><u>Structures: Baby Bear's Chair</u></b></p> <p><b>Design:</b></p> <ul style="list-style-type: none"> <li>• Generating and communicating ideas using sketching and modelling • Learning about different types of structures, found in the natural world and in everyday objects</li> </ul> <p><b>Make:</b></p> <ul style="list-style-type: none"> <li>• Making a structure according to design criteria</li> <li>• Creating joints and structures from paper/card and tape</li> </ul> <p><b>Evaluation:</b></p> <ul style="list-style-type: none"> <li>• Exploring the features of structures</li> <li>• Comparing the stability of different shapes</li> <li>• Testing the strength of own structures</li> <li>• Identifying the weakest part of a structure</li> <li>• Evaluating the strength, stiffness and stability of own structure</li> </ul> <p><b>Technical Knowledge:</b></p> <ul style="list-style-type: none"> <li>• Identifying natural and man-made structures</li> <li>• Identifying when a structure is more or less stable than another</li> <li>• Knowing that shapes and structures with wide, flat bases or legs are the most stable</li> <li>• Understanding that the shape of a structure affects its strength</li> <li>• Using the vocabulary: strength, stiffness and stability</li> <li>• Knowing that materials can be manipulated to improve strength and stiffness</li> <li>• Building a strong and stiff structure by folding paper</li> </ul>	<p><b><u>Textiles: Pouches</u></b></p> <p><b>Design:</b></p> <ul style="list-style-type: none"> <li>• Designing a pouch</li> </ul> <p><b>Make:</b></p> <ul style="list-style-type: none"> <li>• Selecting and cutting fabrics for sewing</li> <li>• Decorating a pouch using fabric glue or running stitch</li> </ul> <p><b>Evaluation:</b></p> <ul style="list-style-type: none"> <li>• Troubleshooting scenarios posed by teacher</li> <li>• Evaluating the quality of the stitching on others' work</li> <li>• Discussing as a class, the success of their stitching against the success criteria</li> <li>• Identifying aspects of their peers' work that they particularly like and why</li> </ul> <p><b>Technical Knowledge:</b></p> <ul style="list-style-type: none"> <li>• Joining items using fabric glue or stitching</li> <li>• Identifying benefits of these techniques</li> <li>• Threading a needle</li> <li>• Sewing running stitch, with evenly spaced, neat, even stitches to join fabric</li> <li>• Neatly pinning and cutting fabric using a template</li> </ul> <p><b><u>Mechanisms: Fairground Wheel</u></b></p> <p><b>Design:</b></p> <ul style="list-style-type: none"> <li>• Designing a wheel</li> <li>• Selecting appropriate materials based on their properties</li> </ul> <p><b>Make:</b></p> <ul style="list-style-type: none"> <li>• Selecting materials according to their characteristics</li> <li>• Following a design brief</li> </ul> <p><b>Evaluation:</b></p> <ul style="list-style-type: none"> <li>• Evaluating different designs</li> <li>• Testing and adapting a design</li> </ul> <p><b>Technical Knowledge:</b></p> <ul style="list-style-type: none"> <li>• Learning that a lever is something that turns on a pivot</li> <li>• Learning that a linkage is a system of levers that are connected by pivots</li> <li>• Exploring wheel mechanisms</li> <li>• Learning how axels help wheels to move</li> </ul>

<b>Year 3 &amp; Year 4</b>	<b>Autumn</b>	<b>Spring</b>	<b>Summer</b>
	<p><b><u>Food: Eating seasonally</u></b>  <b>Design:</b></p> <ul style="list-style-type: none"> <li>• Creating a healthy and nutritious recipe for a savoury tart using seasonal ingredients, considering the taste, texture, smell and appearance of the dish</li> </ul> <p><b>Make:</b></p> <ul style="list-style-type: none"> <li>• Knowing how to prepare themselves and a work space to cook safely in, learning the basic rules to avoid food contamination</li> <li>• Following the instructions within a recipe</li> </ul> <p><b>Evaluation:</b></p> <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> <p><b>Technical Knowledge:</b></p> <ul style="list-style-type: none"> <li>• Learning that climate affects food growth</li> <li>• Working with cooking equipment safely and hygienically</li> <li>• Learning that imported foods travel from far away and this can negatively impact the environment</li> <li>• Learning that vegetables and fruit grow in certain seasons</li> <li>• Learning that each fruit and vegetable gives us nutritional benefits</li> <li>• Learning to use, store and clean a knife safely</li> </ul>	<p><b><u>Textiles: Cushions</u></b>  <b>Design:</b></p> <ul style="list-style-type: none"> <li>• Designing and making a template from an existing cushion and applying individual design criteria</li> </ul> <p><b>Make</b></p> <ul style="list-style-type: none"> <li>• Following design criteria to create a cushion</li> <li>• Selecting and cutting fabrics with ease using fabric scissors</li> <li>• Sewing cross stitch to join fabric</li> <li>• Decorating fabric using appliqué</li> <li>• Completing design ideas with stuffing and sewing the edges</li> </ul> <p><b>Evaluation:</b></p> <ul style="list-style-type: none"> <li>• Evaluating an end product and thinking of other ways in which to create similar items</li> </ul> <p><b>Technical Knowledge:</b></p> <ul style="list-style-type: none"> <li>• Threading needles with greater independence</li> <li>• Tying knots with greater independence</li> <li>• Sewing cross stitch and appliqué</li> <li>• Understanding the need to count the thread on a piece of even weave fabric in each direction to create uniform size and appearance</li> <li>• Understanding that fabrics can be layered for affect</li> </ul>	<p><b><u>Mechanical Systems: Making a Slingshot Car</u></b>  <b>Design:</b></p> <ul style="list-style-type: none"> <li>• Designing a shape that reduces air resistance</li> <li>• Drawing a net to create a structure from</li> <li>• Choosing shapes that increase or decrease speed as a result of air resistance</li> <li>• Personalising a design</li> </ul> <p><b>Make:</b></p> <ul style="list-style-type: none"> <li>• Measuring, marking, cutting and assembling with increasing accuracy</li> <li>• Making a model based on a chosen design</li> </ul> <p><b>Evaluation:</b></p> <ul style="list-style-type: none"> <li>• Evaluating the speed of a final product based on: the affect of shape on speed and the accuracy of workmanship on performance</li> </ul> <p><b>Technical Knowledge:</b></p> <ul style="list-style-type: none"> <li>• Learning that products change and evolve over time</li> <li>• Learning that all moving things have kinetic energy</li> <li>• Understanding that kinetic energy is the energy that something (object person) has by being in motion</li> </ul> <p><b><u>Electrical Systems: Static Electricity</u></b>  <b>Design:</b></p> <ul style="list-style-type: none"> <li>• Designing a game that works using static electricity, including the instructions for playing the game</li> <li>• Identifying a design criteria and a target audience</li> </ul> <p><b>Make:</b></p> <ul style="list-style-type: none"> <li>• Making an electrostatic game, referring to the design criteria</li> <li>• Using a wider range of materials and equipment safely</li> <li>• Using electrostatic energy to move objects in isolation as well as in part of a system</li> </ul> <p><b>Evaluation:</b></p> <ul style="list-style-type: none"> <li>• Learning to give constructive criticism on own work and the work of others</li> <li>• Testing the success of a product against the original design criteria and justifying opinions</li> </ul> <p><b>Technical Knowledge:</b></p> <ul style="list-style-type: none"> <li>• Understanding what static electricity is and how it moves objects through attraction or repulsion</li> <li>• Generating static electricity independently</li> <li>• Using static electricity to make objects move in a desired way</li> </ul>

Year 5	Autumn	Spring	Summer
	<p><b>Food: What Could be Healthier?</b></p> <p><b>Design:</b></p> <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> </ul> <p><b>Make:</b></p> <ul style="list-style-type: none"> <li>Cutting and preparing vegetables safely</li> <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> <p><b>Evaluation:</b></p> <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><b>Technical Knowledge:</b></p> <ul style="list-style-type: none"> <li>Understanding where food comes from - learning that beef is from cattle and how beef is reared and processed</li> <li>Understanding what constitutes a balanced diet</li> <li>Learning to adapt a recipe to make it healthier</li> <li>Comparing two adapted recipes using a nutritional calculator and then identifying the healthier option</li> </ul> <p><b>Mechanical systems: Making a Pop-up Book</b></p> <p><b>Design:</b></p> <ul style="list-style-type: none"> <li>Designing a popup book which uses a mixture of structures and mechanisms</li> <li>Naming each mechanism, input and output accurately</li> <li>Storyboarding ideas for a book</li> </ul> <p><b>Make:</b></p> <ul style="list-style-type: none"> <li>Following a design brief to make a pop up book, neatly and with focus on accuracy</li> <li>Making mechanisms and/ or structures using sliders, pivots and folds to produce movement</li> <li>Using layers and spacers to hide the workings of mechanical parts for an aesthetically pleasing result</li> </ul> <p><b>Evaluation:</b></p> <ul style="list-style-type: none"> <li>Evaluating the work of others and receiving feedback on own work</li> <li>Suggesting points for improvement</li> </ul> <p><b>Technical Knowledge:</b></p> <ul style="list-style-type: none"> <li>Knowing that an input is the motion used to start a mechanism</li> <li>Knowing that output is the motion that happens as a result of starting the input</li> <li>Knowing that mechanisms control movement</li> <li>Describing mechanisms that can be used to change one kind of motion into another</li> </ul>	<p><b>Electrical Systems: Electronic Greetings Cards</b></p> <p><b>Design:</b></p> <ul style="list-style-type: none"> <li>Designing an electronic greetings card with a simple electrical control circuit</li> <li>Creating a labelled design showing positive and negative parts in relation to the LED and the battery</li> </ul> <p><b>Make:</b></p> <ul style="list-style-type: none"> <li>Making a working circuit</li> <li>Creating an electronics greeting card, referring to a design criteria</li> <li>Mapping out where different components of the circuit will go</li> </ul> <p><b>Evaluation:</b></p> <ul style="list-style-type: none"> <li>Evaluating a completed product against the original design sheet and looking at modifications that could be made to improve the reliability or aesthetics of it or to incorporate another type of electronic device, eg: buzzer</li> </ul> <p><b>Evaluation:</b></p> <ul style="list-style-type: none"> <li>Evaluating a completed product against the original design sheet and looking at modifications that could be made to improve the reliability or aesthetics of it or to incorporate another type of electronic device, eg: buzzer</li> </ul> <p><b>Technical Knowledge:</b></p> <ul style="list-style-type: none"> <li>Learning the key components used to create a functioning circuit</li> <li>Learning that graphite is a conductor and can be used as part of a circuit</li> <li>Learning the difference between series and parallel circuits</li> <li>Understanding that breaks in a circuit will stop it from working</li> </ul> <p><b>Structure: Bridges</b></p> <p><b>Design:</b></p> <ul style="list-style-type: none"> <li>Designing a stable structure that is able to support weight</li> <li>Creating frame structure with focus on triangulation</li> </ul> <p><b>Make:</b></p> <ul style="list-style-type: none"> <li>Making a range of different shaped beam bridges</li> <li>Using triangles to create truss bridges that span a given distance and supports a load</li> <li>Building a wooden bridge structure</li> <li>Independently measuring and marking wood accurately</li> <li>Selecting appropriate tools and equipment for particular tasks</li> <li>Using the correct techniques to saws safely</li> <li>Identifying where a structure needs reinforcement and using card corners for support</li> </ul> <p><b>Evaluation:</b></p> <ul style="list-style-type: none"> <li>Adapting and improving own bridge structure by identifying points of weakness and reinforcing them as necessary</li> <li>Suggesting points for improvements for own bridges and those designed by others</li> </ul> <p><b>Technical Knowledge:</b></p> <ul style="list-style-type: none"> <li>Exploring how to create a strong beam</li> <li>Identifying arch and beam bridges and understanding the terms: compression and tension</li> <li>Identifying stronger and weaker structures</li> <li>Finding different ways to reinforce structures</li> <li>Understanding how triangles can be used to reinforce bridges</li> <li>Articulating the difference between beam, arch, truss and suspension bridges</li> </ul>	<p><b>Textiles: Stuffed Toys</b></p> <p><b>Design:</b></p> <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 proportions of individual components</li> </ul> <p><b>Make:</b></p> <ul style="list-style-type: none"> <li>Creating a 3D stuffed toy from a 2D design</li> <li>Measuring, marking and cutting fabric accurately and independently</li> <li>Creating strong and secure blanket stitches when joining fabric</li> <li>Using applique to attach pieces of fabric decoration</li> </ul> <p><b>Evaluation:</b></p> <ul style="list-style-type: none"> <li>Testing and evaluating an end product and giving point for further improvements</li> </ul> <p><b>Technical Knowledge:</b></p> <ul style="list-style-type: none"> <li>Learning to sew blanket stitch to join fabric</li> <li>Applying blanket stitch so the space between the stitches are even and regular</li> <li>Threading needles independently</li> </ul>

	Autumn	Spring	Summer
Year 6	<p><b>Structure: Playgrounds</b></p> <p><b>Design:</b></p> <ul style="list-style-type: none"> <li>• Designing a playground featuring a variety of different structures, giving careful consideration to how the structures will be used, considering effective and ineffective designs</li> </ul> <p><b>Make:</b></p> <ul style="list-style-type: none"> <li>• Building a range of play apparatus structures drawing upon new and prior knowledge of structures</li> <li>• Measuring, marking and cutting wood to create a range of structures</li> <li>• Using a range of materials to reinforce and add decoration to structures</li> </ul> <p><b>Evaluation:</b></p> <ul style="list-style-type: none"> <li>• Improving a design plan based on peer evaluation</li> <li>• Testing and adapting a design to improve it as it is developed</li> <li>• Identifying what makes a successful structure</li> </ul> <p><b>Technical Knowledge:</b></p> <ul style="list-style-type: none"> <li>• Knowing that structures can be strengthened by manipulating materials and shapes</li> <li>• Identifying the shell structure in everyday life (cars, aeroplanes, tins, cans)</li> <li>• Understanding man made and natural structures</li> </ul>	<p><b>Electrical Systems: Steady Hand Game</b></p> <p><b>Design:</b></p> <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> </ul> <p><b>Make:</b></p> <ul style="list-style-type: none"> <li>• Making electromagnetic motors and tweaking the motor to improve its function</li> <li>• Constructing a stable base for an electromagnetic game</li> <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> <p><b>Evaluation:</b></p> <ul style="list-style-type: none"> <li>• Testing own and others finished games, identifying what went well and making suggestions for improvement</li> </ul> <p><b>Technical Knowledge:</b></p> <ul style="list-style-type: none"> <li>• Understanding how electromagnetic motors work</li> <li>• Learning that batteries contain acid, which can be dangerous if they leak</li> <li>• Learning that when electricity enters a magnetic field it can make a motor.</li> </ul>	<p><b>Mechanical systems: Automata Toys</b></p> <p><b>Design:</b></p> <ul style="list-style-type: none"> <li>• After experimenting with a range of cams, creating a design for an automata toy based on a choice of cam to create a desired movement</li> <li>• Understanding how linkages change the direction of a force</li> <li>• Making things move at the same time</li> </ul> <p><b>Make:</b></p> <ul style="list-style-type: none"> <li>• Measuring, marking and checking the accuracy of the jelutong and dowel pieces required</li> <li>• Measuring, marking and cutting components accurately using a ruler and scissors</li> <li>• Assembling components accurately to make a stable frame</li> <li>• Understanding that for the frame to function effectively the components must be cut accurately and the joints of the frame secured at right angles</li> <li>• Selecting appropriate materials based on the materials being joined and the speed at which the glue needs to dry/set</li> </ul> <p><b>Evaluation:</b></p> <ul style="list-style-type: none"> <li>• Evaluating the work of others and receiving feedback on own work</li> <li>• Applying points of improvements</li> <li>• Describing changes they would make/ do if they were to do the project again</li> </ul> <p><b>Technical Knowledge:</b></p> <ul style="list-style-type: none"> <li>• Using a bench hook to saw safely and effectively</li> <li>• Exploring cams, learning that different shaped cams produce different follower movements</li> <li>• Exploring types of motions and direction of a motion</li> </ul> <p><b>Textiles: Waistcoats</b></p> <p><b>Design:</b></p> <ul style="list-style-type: none"> <li>• Designing a waistcoat in accordance to specification linked to set of design criteria to fit a specific theme</li> <li>• Annotating designs</li> </ul> <p><b>Make:</b></p> <ul style="list-style-type: none"> <li>• Using template pinning panels onto fabric</li> <li>• Marking and cutting fabric accurately, in accordance with a design</li> <li>• Sewing a strong running stitch, making small, neat stitches and following the edge</li> <li>• Tying strong knots</li> <li>• Decorating a waistcoat - attaching objects using thread and adding a secure fastening</li> </ul> <p><b>Evaluation:</b></p> <ul style="list-style-type: none"> <li>• Evaluating work continually as it is created</li> </ul> <p><b>Technical Knowledge:</b></p> <ul style="list-style-type: none"> <li>• Learning different decorative stitches</li> <li>• Application and outcome of the individual technique</li> <li>• Sewing accurately with even regularity of stitches</li> </ul>