



Design and Technology Long Term Plan

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2	Additional Lessons
EYFS		<p>Structures: Junk modelling (6 lessons) <i>Omit lesson 3 and 6 if needed</i></p> <p>Exploring and learning about various types of permanent and temporary join. Pupils are encouraged to tinker using a combination of materials and joining techniques in the junk modelling area.</p> <ol style="list-style-type: none"> To explore and investigate the tools and materials in the junk modelling area To investigate cutting different materials To learn how to plan and select the correct resources needed to make a model To verbally plan and create a junk model To share a finished model and talk about the processes in its creation To explore different ways to temporarily join materials together 		<p>Textiles: Bookmarks (6 lessons) <i>Omit lessons 3 and 6 if needed</i></p> <p>Developing and practising threading and weaving techniques using various materials and objects. Pupils look at the history of the bookmark from Victorian times versus modern-day styles. The pupils apply their knowledge and skills to design and sew their own bookmarks.</p> <ol style="list-style-type: none"> To develop threading and weaving skills To practise and apply weaving skills to a specific material e.g. paper To practise and apply threading skills with specific materials e.g. hessian and wool To use threading or sewing to design a product (bookmark) To create a textiles product (bookmark) following their own design To reflect with children on how they have achieved their aims 		<p>Structures: Boats (6 lessons) <i>Omit lessons 3 and 4 if needed</i></p> <p>Exploring what is meant by 'waterproof', 'floating' and 'sinking', pupils experiment and make predictions with various materials to carry out a series of tests. They learn about the different features of boats and ships before investigating their shape and structures to build their own.</p> <ol style="list-style-type: none"> To understand what waterproof means and to test whether materials are waterproof To test and make predictions for which materials float or sink To compare the use of boats To investigate how the shape and structure of boats affects the way they move To design a boat To create a boat based upon their own design 	Seasonal projects
Year 1		<p>Structures: Constructing a windmill (4 lessons)</p> <p>Designing, decorating and building a windmill for their mouse client to live in, developing an understanding of different types of wind mill, how they work and their key features.</p> <ol style="list-style-type: none"> To include individual preferences and requirements in my design 		<p>Textiles: Puppets (4 lessons)</p> <p>Exploring different ways of joining fabrics before creating their own hand puppets based upon characters from a well-known fairy tale. Children work to develop their technical skills of cutting, gluing, stapling and pinning.</p> <ol style="list-style-type: none"> To join fabrics together using different methods 		<p>Cooking and Nutrition: Fruit and vegetables (4 lessons)</p> <p>Handling and exploring fruits and vegetables and learning how to identify which category they fall into, before undertaking taste testing to establish their chosen ingredients for the smoothie they will make a design packaging for.</p>	Mechanisms: Making a moving story book (Lesson 1)

		<ol style="list-style-type: none"> To make a stable structure To assembly the components of my structure To evaluate my project and adapt my design 		<ol style="list-style-type: none"> To use a template to create my design To join two fabrics together accurately To embellish my design using joining methods 		<ol style="list-style-type: none"> To identify if a food is a fruit or a vegetable To identify where plants grow and which parts we eat To taste and compare fruit and vegetables To make a fruit and vegetable smoothie 	
Year 2		<p>Structures: Baby bear's chair (4 lessons)</p> <p>Using the tale of Goldilocks and the Three Bears as inspiration, children help Baby Bear by making him a brand-new chair. When designing the chair, they consider his needs and what he likes and explore ways of building it so that it is strong.</p> <ol style="list-style-type: none"> To explore the concept and features of structures and the stability of different shapes To understand that the shape of the structure affects its strength To make a structure according to design criteria To produce a finished structure and evaluate its strength, stiffness and stability 		<p>Mechanisms: Fairground wheel (4 lessons)</p> <p>Designing and creating their own Ferris wheels, considering how the different components fit together so that the wheels rotate and the structures stand freely. Pupils select appropriate materials and develop their cutting and joining skills</p> <ol style="list-style-type: none"> To explore wheel mechanisms and design a Ferris wheel To select appropriate materials To build and test a moving wheel To make and evaluate a structure with a rotating wheel 		<p>Mechanisms: Making a moving monster (4 lessons)</p> <p>After learning the terms; pivot, lever and linkage, children design a monster which will move using a linkage mechanism. Children practise making linkages of different types and varying the materials they use to bring their monsters to life.</p> <ol style="list-style-type: none"> To look at objects and understand how they move To look at objects and understand how they move To explore different design options To make a moving monster 	Food: A balanced diet (Lesson 1)
Year 3		<p>Structures: Constructing a castle (4 lessons)</p> <p>Learning about the features of a castle, children design and make one of their own. Using configurations of handmade nets and recycled materials to make towers and turrets and constructing a base to secure them.</p> <ol style="list-style-type: none"> To recognise how multiple shapes (2D and 3D) are combined to form a string and stable structure To design a castle To construct 3D nets 		<p>Digital world: Electronic charm (4 lessons)</p> <p>Designing, coding, making and promoting a Micro bit electronic charm to use in low-light conditions. Children develop their understanding of programming to monitor and control their products.</p> <ol style="list-style-type: none"> To understand the impact of the digital revolution in the world of (D&T) product design To write a program to initiate a flashing LED panel after button press and/or automatically 		<p>Cooking and nutrition: Eating seasonally (4 lessons)</p> <p>Discovering when and where fruits and vegetables are grown. Learning about seasonality in the UK and the relationship between the colour of fruits and vegetables and their health benefits by making three dishes.</p> <ol style="list-style-type: none"> To know that climate affects food growth To understand the advantages of eating seasonal foods grown in the UK 	Textiles: Cross stitch and applique (Lesson 1) Mechanical systems: Pneumatic toys (Lesson 1 and/or 2)

		4. To construct and evaluate my final product		<p>initiate using the micro-bit light sensing, as part of an eCharm</p> <p>3. To create and decorate a foam pouch for the eCharm, using a template</p> <p>4. To design a display badge and/or stand using CAD (computer-aided design) software for an eCharm product</p>		<p>3. To create a recipe that is healthy and nutritious using seasonal vegetables</p> <p>4. To safely follow a recipe when cooking</p>	
Year 4		<p>Structures: Pavilions (4 lesson)</p> <p>Exploring pavilion structures, children learn about what they are used for and investigate how to create strong and stable structures before designing and creating their own pavilions, complete with cladding.</p> <p>1. To create a range of different shaped frame structures</p> <p>2. To design a structure</p> <p>3. To build a frame structure</p> <p>4. To add cladding to a frame structure</p>		<p>Mechanical systems: Making a slingshot car (4 lessons)</p> <p>Transforming lollipop sticks, wheels, dowels and straws into a moving car. Using a glue gun to, making a launch mechanism, designing and making the body of the vehicle using nets and assembling these to the chassis.</p> <p>1. To build a car chassis</p> <p>2. To design a shape that reduces air resistance</p> <p>3. To make a model based on a chosen design</p> <p>4. To assemble and test my completed product</p>		<p>Electrical system: Torches (4 lessons)</p> <p>Applying their scientific understanding of electrical circuits, children create a torch, designing and evaluating their product against set design criteria.</p> <p>1. To learn about electrical items and how they work</p> <p>2. To analyse and evaluate electrical products</p> <p>3. To design a product to fit a set of specific user needs</p> <p>4. To make and evaluate a torch</p>	<p>Food: Adapting a recipe (Lesson 1)</p> <p>Textiles: fastenings (Lesson 1)</p>
Year 5		<p>Electrical systems: Doodlers (4 lessons)</p> <p>Explore series circuits further and introduce motors. Explore how the design cycle can be approached at a different starting point, by investigating an existing product, which uses a motor, to encourage pupils to problem-solve and work out how the product has been constructed, ready to develop their own.</p> <p>1. To understand how motors are used in electrical products</p> <p>2. To investigate an existing product to determine the factors that affect the product's form and function</p>		<p>Mechanical systems: Making a pop-up book (4 lessons)</p> <p>Creating a four-page pop-up storybook design incorporating a range of mechanisms and decorative features, including: structures, levers, sliders, layers and spacers.</p> <p>1. To design a pop-up book</p> <p>2. To follow my design brief to make my pop-up book</p> <p>3. To use layers and spacers to cover the working of mechanisms</p> <p>4. To create a high-quality product suitable for a target user</p>		<p>Cooking and nutrition: What could be healthier? (4 lessons)</p> <p>Researching and modifying a traditional bolognese sauce recipe to make it healthier. Children cook their healthier versions, making appropriate packaging and learn about farming cattle.</p> <p>1. To understand where food comes from</p> <p>2. To understand the term 'healthy'</p> <p>3. To adapt a traditional recipe</p> <p>4. To complete a food product</p>	

		<p>3. To put findings from research into practice to develop an improved product</p> <p>4. To develop a DIY kit for another individual to assemble their product</p>					
Year 6		<p>Structures: Playgrounds (4 lessons)</p> <p>Designing and creating a model of a new playground featuring five apparatus, made from three different structures. Creating a footprint as the base, pupils visualise objects in plain view and get creative with their use of natural features.</p> <ol style="list-style-type: none"> 1. To design a playground with a variety of structures 2. To build a range of structures 3. To improve and add detail to structures 4. To create the surrounding landscape 		<p>Textiles: Waistcoats (4 lessons)</p> <p>Selecting suitable fabrics, using templates, pinning, decorating and stitching to create a waistcoat for a person or purpose of their choice.</p> <ol style="list-style-type: none"> 1. To design a waistcoat 2. To mark and cut fabric according to a design 3. To assemble a waistcoat 4. To decorate your waistcoat 		<p>Digital world: Navigating the world (5 lessons)</p> <p>Programming a navigation tool to produce a multifunctional device for trekkers. Combining 3D objects to form a complete product in CAD 3D modelling software and presenting a pitch to 'sell' their product.</p> <ol style="list-style-type: none"> 1. To write a design brief and criteria based on a client request 2. To write a program to include multiple functions as part of a navigation device 3. To develop a sustainable product concept 4. To develop 3D CAD skills to produce a virtual model 5. To present a pitch to 'sell' the product to a specified client 	