

Design and Technology Intent Statement

Our curriculum intends to inspire creativity, imagination, risk taking, innovation and a critical understanding of the impact of design technology on daily life and the wider world. Children design and make products that solve real and relevant problems considering their own and others' needs, wants and values whilst enabling them to use and apply skills from other curriculum subjects including mathematics, science, engineering, computing and art.



Concepts and Themes

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2	COOKING
Reception	Return to and build on their previous learning, refining ideas and developing their ability to represent them. Create collaboratively sharing ideas, resources and skills.						
Year 1					<p style="text-align: center;">Structures Constructing windmills</p> <p>Identify some features that would appeal to the client (a mouse) and create a suitable design. Explain how their design appeals to the mouse. Make stable structures, which will eventually support the turbine, out of card, tape and glue. Make functioning turbines and axles that are assembled into the main supporting structure. Say what is good about their windmill and what they could do better.</p>		<p style="text-align: center;"><u>Fruit & Vegetables</u></p> <p>Describe fruits and vegetables and explain why they are a fruit or a vegetable. Name a range of places that fruits and vegetables grow. Describe basic characteristics of fruit and vegetables. Prepare fruits and vegetables to make a smoothie.</p>
Year 2				<p style="text-align: center;">Structures Baby bear's chair</p> <p>Identify man-made and natural structures. Identify stable and unstable structural shapes. Contribute to discussions. Identify features that make a chair stable. Work independently to make a stable structure, following a demonstration. Explain how their ideas would be suitable for Baby Bear. Produce a model that supports a teddy, using the appropriate materials and construction techniques. Explain how they made their model strong, stiff and stable.</p>		<p style="text-align: center;">Mechanisms Making a moving monster</p> <p>Identify the correct terms for levers, linkages and pivots. Analyse popular toys with the correct terminology. Create functional linkages that produce the desired input and output motions. Design monsters suitable for children, which satisfy most of the design criteria. Evaluate their two designs against the design criteria, using this information and the feedback of their peers to choose their best design. Select and assemble materials to create their planned monster features. Assemble the monster to their linkages without affecting their functionality.</p>	<p style="text-align: center;"><u>A Balanced Diet</u></p> <p>Name the main food groups and identify foods that belong to each group. Describe the taste, texture and smell of a given food. Think of four different wrap ideas, considering flavour combinations. Construct a wrap that meets the design brief and their plan.</p>
Year 3	<p style="text-align: center;">Mechanical Systems Pneumatic Toys</p> <p>Draw accurate diagrams with correct labels, arrows and explanations. Correctly identify definitions for key terms. Identify five appropriate design criteria. Communicate two ideas using thumbnail sketches. Communicate and develop one idea using an exploded diagram. Select appropriate equipment and materials to build a working pneumatic system. Assemble their pneumatic system within the housing to create the desired motion. Create a finished pneumatic toy that fulfills the design brief.</p>		<p style="text-align: center;">Digital world Electronic charm</p> <p>Give a brief explanation of the digital revolution and/or remember key examples. Suggest a feature from the Micro:bit that is suitable for an eCharm. Write a program that initiates a flashing LED panel, or another pattern, on the Micro:bit when a button is pressed. Identify errors, if testing is unsuccessful, by comparing their code to a correct example. Explain the basic functionality of their finished program. Suggest key features for a pouch, with some consideration for the overall theme and the user. Use a template when cutting and assembling a pouch, with some support. Describe what is meant by 'point of sale display' with an example. Follow basic design requirements using computer-aided design, drawing at least one shape with a text box and bright colours, following a demonstration. Evaluate their design</p>		<p style="text-align: center;">Structures Constructing a castle</p> <p>Draw and label a simple castle that includes the most common features. Recognise that a castle is made up of multiple 3D shapes. Design a castle with key features which satisfy a given purpose. Score or cut along lines on the net of a 2D shape. Use glue to securely assemble geometric shapes. Utilise skills to build a complex structure from simple geometric shapes. Evaluate their work by answering simple questions.</p>		<p style="text-align: center;"><u>Eating Seasonally</u></p> <p>Explain that fruits and vegetables grow in different countries based on their climates. Understand that 'seasonal' fruits and vegetables are those that grow in a given season and taste best then. Know that eating seasonal fruit and vegetables has a positive effect on the environment. Design their own tart recipe using seasonal ingredients. Understand the basic rules of food hygiene and safety. Follow the instructions within a recipe.</p>

Year 4		<p>Structure Pavilions</p> <p>Produce a range of free-standing frame structures of different shapes and sizes. Design a pavilion that is strong, stable and aesthetically pleasing.</p> <p>Select appropriate materials and construction techniques to create a stable, free-standing frame structure. Select appropriate materials and techniques to add cladding to their pavilion.</p>		<p>Mechanical systems Making a slingshot car</p> <p>Work independently to produce an accurate, functioning car chassis. Design a shape that is suitable for the project. Attempt to reduce air resistance through the design of the shape.</p> <p>Produce panels that will fit the chassis and can be assembled effectively using the tabs they have designed. Construct car bodies effectively. Conduct a trial accurately and draw conclusions and improvements from the results.</p>		<p>Electrical systems Torches</p> <p>Identify electrical products and explain why they are useful. Help to make a working switch. Identify the features of a torch and how it works. Describe what makes a torch successful. Create suitable designs that fit the success criteria and their own design criteria. Create a functioning torch with a switch according to their design criteria.</p>	<p>Adapting a Recipe</p> <p>Follow a recipe, with some support. Describe some of the features of a biscuit based on taste, smell, texture and appearance. Adapt a recipe by adding extra ingredients to it. Plan a biscuit recipe within a budget</p>
Year 5	<p>Electrical systems Doodlers</p> <p>Explore series circuits further and introduce motors. 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>"Mechanical systems Making a pop-up book</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>Structures Bridges</p> <p>Identify stronger and weaker shapes. Recognise that supporting shapes can help increase the strength of a bridge, allowing it to hold more weight. Identify beam, arch and truss bridges and describe their differences. Use triangles to create simple truss bridges that support a load (weight). Cut beams to the correct size, using a cutting mat. Smooth down any rough cut edges with sandpaper. Follow each stage of the truss bridge creation as instructed by their teacher. Complete a bridge, with varying ranges of accuracy and finish, supported by the teacher. Identify some areas for improvement, reinforcing their bridges as necessary</p>		<p>What could be healthier?</p> <p>Understand how beef gets from the farm to our plates. Present a subject as a poster with clear information in an easy to read format. Contribute ideas as to what a 'healthy meal' means. Notice the nutritional differences between different products and recipes. Recognise nutritional differences between two similar recipes and give some justification as to why this is. Work as a team to amend a bolognese recipe with healthy adaptations. Follow a recipe to produce a healthy bolognese sauce. Design packaging that promotes the ingredients of the bolognese.</p>
Year 6	<p>Textiles: Waistcoats</p> <p>Consider a range of factors in their design criteria and use this to create a waistcoat design. Use a template to mark and cut out a design. Use a running stitch to join fabric to make a functional waistcoat. Attach a secure fastening, as well as decorative objects. Evaluate their final product</p>				<p>Digital world: Navigating the world</p> <p>Incorporate key information from a client's design request such as 'multifunctional' and 'compact' in their design brief. Write a program that displays an arrow to indicate cardinal compass directions with an 'On start' loading screen. Identify errors (bugs) in the code and suggest ways to fix (debug) them. Self and peer evaluate a product concept against a list of design criteria with basic statements. Identify key industries that use 3D CAD modelling and why. Recall and describe the name and use of key tools used in Tinkercad (CAD) software. Combine more than one object to develop a finished 3D CAD model in Tinkercad. Complete a product pitch plan that includes key information</p>		<p>Come Dine with Me</p> <p>Find a suitable recipe for their course. Record the relevant ingredients and equipment needed. Follow a recipe, including using the correct quantities of each ingredient. Write a recipe, explaining the process taken. Explain where certain key foods come from before they appear on the supermarket shelf.</p>