

Design and Technology Progression

Year 1	Term 1: The Enchanted Woodland Build structures, exploring how they can be made stronger, stiffer and more stable. Select from and use a range of tools and equipment to perform practical tasks (for example, cutting, shaping, joining and finishing) Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics Use the basic principles of a healthy and varied diet to prepare dishes	Term 2: Splendid Skies Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics Evaluate their ideas and products against design criteria	Term 3: Dinosaur Planet Select from and use a range of tools and equipment to perform practical tasks (for example, cutting, shaping, joining and finishing) Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics	Term 4 Bright Lights, Big City Build structures, exploring how they can be made stronger, stiffer and more stable Evaluate their ideas and products against design criteria Explore and evaluate a range of existing products	Term 5: Paws, Claws and Whiskers Design purposeful, functional, appealing products for themselves and other users based on design criteria Generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology. Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics	Term 6: Moon Zoom Evaluate their ideas and products against design criteria Explore and use mechanisms (for example, levers, sliders, wheels and axles), in their products Explore and evaluate a range of existing products
Substantive Knowledge	<p>Nests and Dens</p> <p>Bird – Matched to a Nest Fox – Matched to a Den Badger – Matched to a Sett Rabbit – Matched to a Warren</p> <p>Endpoints</p> <ol style="list-style-type: none"> Recognising and identifying different woodland animal homes. Building nests and dens using natural materials. Exploring the concept of shelter and its importance to animals. <p>Woodland Crowns</p> <p>Materials: Understand the different materials needed for making a woodland crown, such as card for the band, paint, glue, and woodland treasures.</p> <p>Woodland Treasures: Learn about various items found in woodlands like twigs, acorns, berries, and leaves which can be used to decorate the crown.</p> <p>Shapes: Recognize and differentiate between flower, fruit, seed, and leaf templates to draw around for the crown decorations.</p> <p>Endpoints</p> <ol style="list-style-type: none"> Identify various woodland features like leaves, flowers, fruits, and seeds. Use templates to draw and cut out plant parts. Paint and decorate plant parts creatively. 	<p>Animal Puppets</p> <p>Animals: Discuss different animals and their characteristics. Materials: Identify different fabrics, threads, and sewing tools. Sewing: Learn basic sewing techniques such as running stitch and whip stitch. Design: Explore creating designs and patterns for animal puppets. Safety: Understand the importance of using tools safely.</p> <p>Endpoints</p> <ol style="list-style-type: none"> Identify different animals and their characteristics. Choose suitable fabrics and threads for puppet making. Demonstrate basic sewing techniques to create animal puppets. Design and create a unique animal puppet. Evaluate their finished puppet and suggest improvements. 	<p>Sockosaurus Rex</p> <p>Sockosaurus Rex: A fun and imaginative dinosaur-themed craft project involving the design and decoration of a sock to resemble a dinosaur. Materials: Brightly coloured sock, felt fabric, googly eyes, sewing materials, decorative embellishments such as sequins or pom poms. Decorative Techniques: Techniques like sticking or sewing felt, googly eyes, and other embellishments onto the sock. Creativity: Encouraging children to use their imagination and creativity to bring their Sockosaurus Rex to life. Safety: Ensuring that children use materials safely and under supervision.</p> <p>Endpoints:</p> <ol style="list-style-type: none"> Identify and explain the materials needed to decorate a sock to create a sock dinosaur. Demonstrate sticking or sewing skills when attaching felt, googly eyes, and other decorative materials to a sock. Create a Sockosaurus Rex following their design plan. Reflect on the success of their design and suggest improvements. 	<p>Constructing Landmarks</p> <p>Styles of Bridges:</p> <ul style="list-style-type: none"> Arch bridges Suspension bridges Beam bridges <p>Materials Used:</p> <ul style="list-style-type: none"> Steel Concrete Stone <p>Endpoints:</p> <ol style="list-style-type: none"> Identify at least 3 different bridges in London. Describe the style and materials used in each bridge. Create a simple design of a bridge using art supplies. Explain the importance of bridges in connecting places. <p>Best Designs</p> <p>Strongest Materials for Bridges</p> <p>Metal: Steel is a strong material commonly used in bridges as it can withstand heavy loads. Wood: Hardwood such as oak is often used for its strength and durability. Plastic: Some modern bridges use high-strength plastics for their lightweight and durable properties.</p> <p>Styles of Bridges and their Strengths</p> <p>Beam Bridge: Straight and simple design, strong for short distances. Arch Bridge: Curved shape provides strength to support weight. Suspension Bridge: Cables and towers give stability for long spans. Cable-Stayed Bridge: Cables attached to towers distribute weight effectively.</p>	<p>Animal Enclosures</p> <p>Animal Selection: Choose a zoo animal such as a tiger, elephant, or penguin. Animal Characteristics: Consider how the animal moves, its size, and its needs (e.g., space, food, shelter). Enclosure Design: Create a safe and suitable habitat for the chosen animal using various recycled materials.</p> <p>Endpoints</p> <ol style="list-style-type: none"> Design a model of an animal enclosure using recycled materials. Identify key features of the chosen animal's habitat in the design. <p>Present the finished enclosure, considering colours, textures, and special features.</p>	<p>Moon Buggies</p> <p>Understanding different types of moving vehicles (e.g. cars, trucks, bicycles, trains) Observing and describing how vehicles move using appropriate vocabulary Identifying and labelling parts of a vehicle (e.g. wheels, axle, chassis) Constructing a simple Moon buggy using corrugated cardboard or plastic Testing vehicles on different surfaces (grass, tarmac, sand, soil, carpet) Making improvements to the vehicles based on testing results</p> <p>Endpoints:</p> <ol style="list-style-type: none"> Recognise and name different moving vehicles Describe how vehicles move using appropriate language Label the parts of a vehicle on a sketch Construct a Moon buggy using provided materials Test and evaluate the performance of their vehicles Make improvements to their designs based on testing results

	<p>4. Assemble a woodland crown by sticking plant parts on a card band.</p> <p>Woodland Treats</p> <p>Ingredients: Bread, butter, lettuce, cucumber, cheese, strawberries, grapes</p> <p>Tools: Spreader, knife, cutting board, cocktail sticks</p> <p>Health and Safety: Wash hands before handling food, use supervision with sharp tools</p> <p>Endpoints:</p> <ol style="list-style-type: none"> 1. Identify and name the ingredients needed for making mini sandwiches and fruity skewers 2. Use tools safely and effectively in food preparation 3. Follow instructions to create mini sandwiches and fruity skewers 4. Demonstrate creativity in designing treats for a tea party 			<p>Endpoints</p> <ol style="list-style-type: none"> 1. Design and create a model bridge using selected materials 2. Test the strength of the bridge by adding weight gradually and observing any changes 3. Evaluate the results and make improvements to the design based on findings <p>Building Bridges</p> <p>Understanding shapes and structures:</p> <p>Identifying and using basic shapes like rectangles, triangles, and squares in bridge design. Exploring how different shapes provide strength and stability to a structure.</p> <p>Building techniques:</p> <p>Cutting Folding Sticking Balancing Joining</p> <p>Endpoints</p> <ol style="list-style-type: none"> 1. Identify different types of bridges and their characteristics. 2. Demonstrate an understanding of basic bridge construction principles. 3. Use materials to construct a model bridge that can hold weight. <p>Explain the design choices made in constructing their bridge.</p>		
<p>Disciplinary Knowledge</p>	<p>Design: Planning and sketching ideas for the nest or den.</p> <p>Making: Constructing the habitat using the collected materials.</p> <p>Evaluating: Reflecting on the construction process and making improvements.</p> <p>Playing: Engaging in imaginative play with the created nests and dens</p> <p>Drawing and Tracing</p> <p>Use templates to draw around flower, fruit, seed, and leaf shapes.</p> <p>Painting</p> <p>Experiment with different colours to paint the plant parts creatively.</p> <p>Cutting</p> <p>Develop fine motor skills by carefully cutting out the painted shapes.</p> <p>Sticking</p>	<p>Drawing and Designing:</p> <p>Draw and label their animal puppet design. Consider how their puppet will look and function.</p> <p>Selecting Materials:</p> <p>Choose appropriate materials for their puppet, considering texture and durability.</p> <p>Cutting and Assembling:</p> <p>Use scissors to cut out the puppet pieces. Assemble the parts together using glue or tape.</p> <p>Sewing:</p> <p>Learn basic sewing techniques with adult supervision. Attach fabric pieces together for a more complex puppet design.</p> <p>Evaluating and Improving:</p>	<p>Designing the Sockosaurus Rex</p> <p>Brainstorming ideas for the design. Selecting materials based on the design brief. Planning the layout of decorations on the sock.</p> <p>Decorating the Sock</p> <p>Cutting felt into desired shapes for decoration. Using fabric glue or sewing materials to attach decorations securely. Crafting a unique and colourful Sockosaurus Rex design.</p> <p>Evaluating the Design</p> <p>Assessing the appearance and functionality of the completed Sockosaurus Rex. Reflecting on the design process and suggesting improvements for future projects.</p>	<p>Observation: Encourage students to observe and identify the unique features of London bridges.</p> <p>Drawing: Practice drawing simple bridge designs to explore creativity and imagination.</p> <p>Discussion: Engage in group discussions about the purpose and design of bridges.</p> <p>Building: Create simple models using art materials to represent bridges.</p> <p>Designing: Drawing and planning the structure of a bridge</p> <p>Making: Constructing a model bridge using selected materials</p> <p>Evaluating: Testing the bridge's strength and identifying areas for improvement</p>	<p>Research and Analysis</p> <p>Research the chosen zoo animal's characteristics and habitat. Analyse the animal's needs in terms of space, movement, and shelter.</p> <p>Design Development</p> <p>Sketch initial ideas for the animal enclosure. Consider the use of recycled materials to build the enclosure.</p> <p>Construction</p> <p>Select appropriate materials to build the enclosure. Use tools safely and effectively to assemble the enclosure.</p> <p>Evaluation</p> <p>Reflect on the design process and consider improvements. Present the finished enclosure to peers for feedback.</p>	<p>Design: Planning and sketching ideas for the nest or den.</p> <p>Making: Constructing the habitat using the collected materials.</p> <p>Evaluating: Reflecting on the construction process and making improvements.</p> <p>Playing: Engaging in imaginative play with the created nests and dens</p> <p>Drawing and Tracing</p> <p>Use templates to draw around flower, fruit, seed, and leaf shapes.</p> <p>Painting</p> <p>Experiment with different colours to paint the plant parts creatively.</p> <p>Cutting</p> <p>Develop fine motor skills by carefully cutting out the painted shapes.</p> <p>Sticking</p>

	<p>Stick the painted plant parts onto a card band or crown neatly.</p> <p>Collecting and Decorating Gather woodland treasures like twigs, acorns, berries, and leaves to enhance the crown's design.</p> <p>Planning Brainstorming ideas for tiny tea party treats Creating a simple plan for preparing sandwiches and fruity skewers</p> <p>Food Preparation Washing hands before handling food Using child-friendly knives to cut soft fruits and bread Assembling mini sandwiches with fillings like cheese, cucumber, and ham Skewering small pieces of fruit on cocktail sticks</p> <p>Presentation Arranging treats on a miniature tea party table Decorating the table with leaves and flowers Using small plates and napkins for serving</p>	<p>Reflect on their puppet design and consider ways to make it better. Identify any weaknesses and suggest improvements.</p>	<p>Presenting their creation to peers and explaining the design choices made.</p>	<p>Problem-solving: Finding ways to strengthen the bridge design based on test results Collaborating: Working together in small groups to build and test the bridges</p> <p>Measuring and Cutting: Use rulers and scissors to measure and cut materials accurately. Folding and Joining: Fold and join materials together securely using techniques like folding, slotting, and gluing. Testing and Evaluating: Test the strength and durability of the model bridge and evaluate its effectiveness.</p>		<p>Stick the painted plant parts onto a card band or crown neatly.</p> <p>Collecting and Decorating Gather woodland treasures like twigs, acorns, berries, and leaves to enhance the crown's design.</p> <p>Planning Brainstorming ideas for tiny tea party treats Creating a simple plan for preparing sandwiches and fruity skewers</p> <p>Food Preparation Washing hands before handling food Using child-friendly knives to cut soft fruits and bread Assembling mini sandwiches with fillings like cheese, cucumber, and ham Skewering small pieces of fruit on cocktail sticks</p> <p>Presentation Arranging treats on a miniature tea party table Decorating the table with leaves and flowers Using small plates and napkins for serving</p>
<p>Useful Websites</p>	<ul style="list-style-type: none"> • Woodland Trust - Animal Homes • BBC Bitesize - Animal Habitats • Woodland Trust • Science Kids - Plants for Kids • BBC Good Food Kids Recipes • Food a Fact of Life - Healthy Eating Games 	<ul style="list-style-type: none"> • Sewing for Kids: Easy Sewing Projects for Kids • BBC Bitesize - Design and Technology KS1 	<ul style="list-style-type: none"> • BBC Bitesize - Design and Technology • Twinkl - Design and Technology Resources 	<ul style="list-style-type: none"> • Tower Bridge - History and Design • London Bridge - Facts and Information • Millennium Bridge - Architectural Features • BBC Bitesize - Design and Technology • STEM Learning - Bridges and Structures 	<ul style="list-style-type: none"> • Chester Zoo Kids • Wildlife Watch - RSPB • Twinkl Design and Technology Resources 	<ul style="list-style-type: none"> • Woodland Trust - Animal Homes • BBC Bitesize - Animal Habitats • Woodland Trust • Science Kids - Plants for Kids • BBC Good Food Kids Recipes • Food a Fact of Life - Healthy Eating Games

Year 2	<p>Term 1 & 2: Beachcombers</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>Term 3: Land Ahoy!</p> <p>Build structures, exploring how they can be made stronger, stiffer and more stable</p>	<p>Term 4 Wiggle and Crawl</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 their ideas and products against design criteria</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>Use the basic principles of a healthy and varied diet to prepare dishes</p>	<p>Term 5: Scented Garden</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>Understand where food comes from</p>
Substantive Knowledge	<p>Innovate – 3D Sea Creatures</p> <p>Different types of sea creatures such as fish, starfish, octopus, crab, and seahorse.</p> <p>Clay: for moulding and shaping detailed sea creatures with textures.</p> <p>Junk: for recycled materials to add unique elements to the models.</p> <p>Felt: for creating soft and colourful sea creatures.</p> <p>Modelling dough: for easy manipulation and building of various sea creatures with vibrant colours.</p> <p>Crafting tools: scissors, glue, paints, and embellishments to enhance the models.</p> <p>Endpoints</p> <ol style="list-style-type: none"> 1. Identify different sea creatures and their habitats 2. Design a 3-D model of their chosen sea creature 3. Use appropriate materials to create the model with attention to detail 4. Evaluate their finished creation and suggest improvements <p>Showcase their models to the class and explain their design choices</p>	<p>Build a Raft</p> <p>Materials:</p> <p>Identify and classify different reclaimed materials (e.g., plastic bottles, wooden planks, rope).</p> <p>Explain the properties of these materials and how they can be used in building the raft.</p> <p>Buoyancy:</p> <p>Understand the concept of buoyancy and how it affects the raft's ability to float.</p> <p>Investigate ways to enhance the raft's buoyancy using reclaimed materials.</p> <p>Design:</p> <p>Create simple designs and sketches of the raft.</p> <p>Consider factors such as size, shape, and weight distribution in the design process.</p> <p>Endpoints</p> <ol style="list-style-type: none"> 1. Identify suitable materials for building a rescue raft. 2. Design and construct a functional raft that can cross a pond. 3. Work collaboratively in a team to complete the project. 4. Reflect on the design process and make improvements. 	<p>Making a Minibeast</p> <p>Camouflage: Understanding how minibeasts use colours and patterns to blend into their surroundings for protection.</p> <p>Warning colours: Recognising bright colours used by minibeasts to warn predators of their toxicity or danger.</p> <p>Natural Materials: Identifying and collecting leaves, twigs, bark etc., from the environment as resources for crafting.</p> <p>Craft Materials: Exploring the use of googly eyes, pipe cleaners, and coloured pom-poms to enhance the creativity of the model.</p> <p>Endpoints</p> <ol style="list-style-type: none"> 1. Design and create a 3-D model of a minibeast using a combination of natural and craft materials. 2. Apply knowledge of camouflage and warning colours to design the minibeast's appearance effectively. 3. Photograph the model placed in its 'natural habitat' to showcase the understanding of environment-matching designs. <p>Exploring Honey</p> <p>Honey is a natural sweet substance produced by bees from the nectar of flowers.</p> <p>Bees collect nectar using their long, tube-shaped tongue called a proboscis.</p> <p>Honey is stored in honeycombs within beehives and is used as food for the bees.</p> <p>The colour and flavour of honey can vary depending on the types of flowers the bees have visited.</p> <p>Honey has been used by humans for thousands of years as a sweetener and for its medicinal properties.</p> <p>Endpoints</p> <ol style="list-style-type: none"> 1. Identify different types of honey based on taste, smell, and appearance. 2. Select and use appropriate tools for baking honey treats. 3. Follow a simple recipe to make honey flapjack, honey baked bananas, or honey buns 	<p>Scented Playdoh</p> <p>Ingredients: Flour, salt, cream of tartar, water, vegetable oil, scents (lavender, basil paste, rose oil, mint tea)</p> <p>Equipment: Mixing bowl, measuring cups, measuring spoons, pestle and mortar, rolling pin, cookie cutters</p> <p>Safety: Wash hands before and after activity, do not eat the play dough</p> <p>Endpoints</p> <ol style="list-style-type: none"> 1. Explain their choices of scents for the play dough. 2. Measure and mix ingredients accurately. 3. Demonstrate kneading and manipulating the dough. 4. Discuss the sensory experiences of the fragrant play dough. 5. Reflect on their design choices and experiences. <p>Make a Pizza</p> <p>Food Sources: Understanding where different ingredients come from such as wheat for flour, tomato for sauce, milk for cheese, and vegetables.</p> <p>Healthy Eating: Recognising the importance of a balanced diet and the key food groups.</p> <p>Food Preparation: Learning basic food preparation techniques like chopping, grating, and mixing.</p> <p>Endpoints</p> <ol style="list-style-type: none"> 1. Identify the origins of key pizza ingredients. 2. Understand the process of making a pizza from scratch. 3. Demonstrate basic food preparation skills. <p>Create their own pizza following a recipe.</p>

<p>Disciplinary Knowledge</p>	<p>Research and Planning: Research different sea creatures and their appearances. Draw initial sketches of 3-D sea creature designs. Plan which materials will be most suitable for each part of the creature.</p> <p>Making and Creating: Use modelling clay to sculpt sea creature bodies. Utilise junk materials to add details like fins or tentacles. Layer felt to create different textures for the sea creatures.</p> <p>Evaluating and Improving: Assess the 3-D sea creature creations against initial designs. Consider what went well and what could be improved in the making process. Identify areas for enhancement and make adjustments if necessary.</p>	<p>Designing Drawing a plan of the raft layout. Considering weight distribution and buoyancy in the design.</p> <p>Making Cutting and shaping materials to fit the design. Assembling the raft using adhesives and fasteners.</p> <p>Evaluating Testing the raft in a water container for buoyancy. Making improvements based on testing results.</p> <p>Technical Knowledge Understanding the properties of materials used. Using tools safely and effectively</p>	<p>Materials: Choosing suitable natural materials like leaves, twigs, and bark, as well as craft materials such as googly eyes, pipe cleaners, and coloured pom-poms for the project.</p> <p>Design: Planning and sketching ideas for the 3-D model, considering the features that help the minibeast blend in or stand out.</p> <p>Making: Constructing the model using chosen materials, carefully assembling and attaching the components together.</p> <p>Photography: Capturing images of the completed minibeast model outdoors in a natural setting.</p> <p>Taste Testing: Observation: Look at the colour and texture of each honey. Smelling: Inhale the aroma of the honey to identify different scents. Tasting: Use the sense of taste to recognise sweet, floral, or fruity notes in the honey.</p> <p>Baking Skills: Following Recipes: Read and interpret recipe instructions. Using Tools: Select and use suitable tools for baking, such as mixing bowls, spoons, measuring cups.</p>	<p>Selecting Scents: Encourage children to carefully choose scents based on personal preferences or to engage others in their play.</p> <p>Measuring Ingredients: Teach children how to use measuring spoons accurately to add the right amount of each ingredient.</p> <p>Mixing and Kneading: Demonstrate the importance of mixing and kneading dough to achieve the desired texture.</p> <p>Playing Creatively: Guide children in exploring various ways to interact with scented play dough, such as rolling, squeezing, and stretching.</p> <p>Planning: Students will plan their pizza by selecting ingredients and considering dietary requirements.</p> <p>Measuring: Using measuring tools to accurately portion ingredients and follow a recipe.</p> <p>Cooking: Students will learn basic cooking techniques, such as mixing, spreading, and baking.</p> <p>Presentation: Presenting their pizza in an appealing way, considering colour, texture, and taste.</p>
<p>Useful Websites</p>	<ul style="list-style-type: none"> • National Geographic Kids - Ocean Life • BBC Bitesize - Sea Creatures 	<ul style="list-style-type: none"> • BBC Bitesize - Design and Technology • STEM Learning - Design and Technology Resources 	<ul style="list-style-type: none"> • RSPB - Camouflage and Colour Adaptations in Nature • Woodland Trust - Minibeasts Identification Guide • BBC Good Food - Honey Recipes • The Honey Association 	<ul style="list-style-type: none"> • BBC Bitesize - How to Make Play Dough • The Spruce Eats - Homemade Play Dough Recipe • BBC Bitesize - Where Food Comes From • Food a Fact of Life - Growing and Farming

Year 3	Term 1: Road Trip USA Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work Prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques	Term 2: Playlist Investigate and analyse a range of existing products 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. Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work.	Term 3: Traders and Raiders Select from and use a wider range of tools and equipment to perform practical tasks (for example, cutting, shaping, joining and finishing), accurately. 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 Apply their understanding of how to strengthen, stiffen and reinforce more complex structures	Term 4: Gods and Mortals Use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups. Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design. 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
Substantive Knowledge	<p>Traditional Dish</p> <p>What is Macaroni Cheese?</p> <p>Macaroni cheese is a popular dish in the United States made with macaroni pasta and a creamy cheese sauce.</p> <p>Ingredients for Macaroni Cheese:</p> <p>Macaroni pasta Cheese (such as cheddar) Milk Butter Flour</p> <p>Optional: breadcrumbs for topping</p> <p>Kitchen Safety</p> <p>Always have adult supervision when using the oven or stove. Wash hands before handling food. Be careful when working with hot surfaces and equipment.</p> <p>Taste Testing</p> <p>Evaluate the taste, texture, and appearance of different versions of macaroni cheese. Record preferences and reasons for liking/disliking each dish.</p> <p>Endpoints:</p> <ol style="list-style-type: none"> 1. Identify and gather the necessary ingredients and equipment to make macaroni cheese. 2. Demonstrate the ability to follow a recipe and cooking instructions independently or in groups. 3. Compare different variations of macaroni cheese and evaluate their own cooking skills and preferences. 	<p>Musical Instruments</p> <p>Materials Used in Musical Instruments:</p> <p>Wood, metal, plastic, or a combination of these materials are commonly used in making musical instruments.</p> <p>Production of Sounds:</p> <p>Sounds are produced in instruments through vibration. This vibration can be created by plucking strings, blowing into tubes, striking membranes, or causing metal parts to collide.</p> <p>Joining of Instruments:</p> <p>Instruments can be joined using screws, glue, welding, or other techniques depending on the materials used.</p> <p>Solid or Hollow Instruments:</p> <p>Some instruments are solid, like a drum, while others are hollow, like a trumpet or a flute. The hollowness affects the tone and projection of sound.</p> <p>Tuned vs Untuned Instruments:</p> <p>Tuned instruments produce specific notes, while untuned instruments produce sounds without specific pitches.</p> <p>Creating Different Notes:</p> <p>Instruments with strings like guitars and violins create different notes by changing the length of the vibrating string or by pressing on the string at different points.</p> <p>Endpoints:</p> <ol style="list-style-type: none"> 1. Identify materials used in a variety of musical instruments. 2. Explain how sound is produced in different instruments. 3. Distinguish between solid and hollow instruments. 4. Understand the difference between tuned and untuned instruments. 5. Create simple sketches or diagrams of different instruments, annotating their unique features. <p>Making Instruments</p> <p>Materials:</p> <p>Wood, plastic, cardboard, rubber bands, metal screws, nails, glue, paint, markers.</p> <p>Tools:</p> <p>Scissors, glue gun, hammer, nails, screwdriver, paintbrushes.</p> <p>Playing Mechanism:</p>	<p>Saxon Weaponry</p> <p>Saxon weaponry included spears, daggers, and battle-axes These weapons were used for hunting, self-defence, and warfare Saxon weapons were expertly crafted and designed for maximum impact and efficiency Materials commonly used in Saxon weaponry construction included wood, metal, and leather Understanding the purpose and functionality of each type of weapon is crucial in designing and constructing them accurately</p> <p>Endpoints</p> <ol style="list-style-type: none"> 1. Identify different types of Saxon weaponry and their purposes. 2. Create detailed designs for a spear, dagger, or battle-axe. 3. Choose appropriate construction materials based on the design requirements. 4. Safely construct a model of their chosen Saxon weapon. <p>Charm Making</p> <p>Anglo-Saxon Charms: Charms were small decorative items worn for protection and good luck by the Anglo-Saxons. Materials: Air-drying or coloured clay, glass beads, wood beads, shell beads, bone beads. Tools: Rolling pins, clay cutting tools, string or cord for threading.</p> <p>Endpoints</p> <ol style="list-style-type: none"> 1. Explain who the Anglo-Saxons were and the role of charms in their culture. 2. Select and use appropriate tools to craft small clay charms. 3. Thread charms onto a cord to create a personalised necklace. 4. Demonstrate an understanding of design and technology skills in creating Anglo-Saxon charms. <p>Anglo-Saxon Homes</p> <p>The Anglo-Saxons lived in small village settlements. Their homes were typically made from timber, thatch, and wattle and daub. The houses had thatched roofs made from straw or reeds. Wattle and daub walls were made by weaving thin branches (wattle) and covering them with a mixture of mud, clay, and straw (daub).</p>	<p>Pandora's Box</p> <p>Size: Approximately 30cm x 20cm x 15cm would be a suitable size for a Pandora's box. Opening/Closing: The box could have a hinged lid that opens and closes smoothly. Lock: Consider adding a simple lock or latch for added mystery and security. Colours/Decorations: Choose colours and decorations that represent mystery and hope, such as deep blues, gold accents, and intricate patterns. Special Features: You could make the box special by incorporating hidden compartments, secret messages, or reflective surfaces.</p> <p>Endpoints</p> <ol style="list-style-type: none"> 1. Design a detailed plan for a Pandora's Box, showcasing creativity and thoughtfulness 2. Construct a prototype of the Pandora's Box using suitable materials 3. Reflect on the design process and make improvements based on feedback


		<p>Choose between blowing, plucking, or beating to create sound.</p> <p>Decorative Elements: Use paints, markers, stickers, and other materials to decorate the instrument.</p> <p>Carrying Method: Consider straps or handles for easy carrying during performances.</p> <p>Endpoints</p> <ol style="list-style-type: none"> 1. Identify different ways instruments produce sound 2. Choose appropriate materials and tools for constructing an instrument 3. Safely use tools to join materials together 4. Decorate their instrument creatively and effectively 5. Play their instrument in a celebration band setting <p>Musical Accompaniment</p> <p>Understand the purpose of evaluating homemade instruments.</p> <p>Recognise the criteria for evaluating homemade instruments such as functionality, durability, and sound quality.</p> <p>Appreciate the importance of peer feedback in improving homemade instruments.</p> <p>Endpoints</p> <ol style="list-style-type: none"> 1. Present their instruments confidently to their classmates. 2. Explain the creative process and inspiration behind their instrument designs. 3. Discuss any challenges faced during construction and how they were resolved. 	<p>The houses had small windows with no glass, often covered with animal hides.</p> <p>Endpoints:</p> <ol style="list-style-type: none"> 1. To create a model of an Anglo-Saxon home using appropriate materials. 2. To understand the construction techniques used by the Anglo-Saxons. 3. To collaboratively build an Anglo-Saxon village in the classroom. 	
<p>Disciplinary Knowledge</p>	<p>Design Process: Researching traditional US dishes Planning the cooking process Evaluating the taste test results</p> <p>Cooking Skills: Measuring ingredients accurately Following step-by-step instructions Working collaboratively in groups</p> <p>Evaluation: Tasting and comparing different versions of macaroni cheese Discussing personal preferences Reflecting on the success of their cooking</p>	<p>Observation: Students will carefully observe and analyse different musical instruments.</p> <p>Sketching and Annotating: Students will develop their sketching skills and annotate the unique features of each instrument.</p> <p>Critical Thinking: Encouraging students to think critically about how different materials and structures affect the sound produced.</p> <p>Problem Solving: Students will explore how to create different notes using instruments and experiment with sound production.</p> <p>Designing the Instrument Identify the type of instrument they want to make (e.g. drum, shaker, flute) Sketch a design of the instrument including dimensions and materials needed Consider how the instrument will be played and carried by the player</p> <p>Selecting Materials and Resources</p>	<p>Research: Use online resources and books to find information about Saxon weaponry. Look at photographs, artefacts, and film footage to understand the design and functionality of Saxon weapons.</p> <p>Design: Sketch detailed designs of a spear, dagger, or battle-axe, considering size, shape, and decorative elements. Label the key features of their designs, such as the blade, handle, and grip.</p> <p>Material Selection: Choose appropriate materials for constructing their weapon based on their design, considering factors like durability and safety.</p> <p>Construction: Safely use tools like scissors, glue, and cardboard cutters to construct their Saxon weapon model. Follow instructions carefully and seek help when needed to ensure safe construction practices.</p>	<p>Sketching and Planning: Create initial sketches of the Pandora's Box design. Consider the size, shape, and functionality of the box.</p> <p>Materials and Tools: Choose appropriate materials such as cardboard, wood, or plastic. Select the necessary tools like scissors, glue, and paint.</p> <p>Construction Techniques: Assemble the box using cutting, folding, and joining techniques. Attach hinges for the opening and closing mechanism.</p> <p>Decoration and Personalisation: Add colours and patterns to decorate the box. Personalise the box with meaningful symbols or designs</p>

		<p>Choose suitable materials for the construction (e.g. cardboard, plastic tubes, rubber bands)</p> <p>Select appropriate tools for cutting, shaping, and joining the materials</p> <p>Gather any additional decorations or embellishments for the instrument</p> <p>Constructing the Instrument</p> <p>Measure and cut materials according to the design specifications</p> <p>Use tools safely and accurately to assemble the instrument</p> <p>Decorate and personalize the instrument to make it visually appealing</p> <p>Testing and Improving</p> <p>Play-test the instrument to ensure it produces the desired sound</p> <p>Make adjustments as needed to improve playability or sound quality</p> <p>Evaluate the final instrument design and reflect on the creative process</p> <p>Evaluation</p> <p>Students will reflect on their finished instruments and evaluate their success.</p> <p>They will consider what worked well and what they might do differently next time.</p>	<p>Designing Charms:</p> <p>Sketching ideas for Anglo-Saxon charm designs.</p> <p>Selecting appropriate shapes and symbols.</p> <p>Planning the layout of the necklace.</p> <p>Working with Clay:</p> <p>Rolling and shaping clay into charm designs.</p> <p>Using tools safely for cutting and detailing.</p> <p>Assembling the Necklace:</p> <p>Threading charms onto a cord.</p> <p>Adding beads in a visually appealing way.</p> <p>Securing the necklace for wearing.</p> <p>Reflecting on Design Choices:</p> <p>Explaining the inspiration behind the charm designs.</p> <p>Describing the materials used and their significance.</p> <p>Evaluating the overall aesthetics of the necklace.</p> <p>Research and Planning:</p> <p>Researching the materials and techniques used by the Anglo-Saxons.</p> <p>Planning the design and layout of the model house.</p> <p>Construction Skills:</p> <p>Cutting and shaping materials such as cardboard, paper, and twigs.</p> <p>Using glue, tape, and other adhesives to build the model house.</p> <p>Creativity and Presentation:</p> <p>Decorating the model house with details such as thatched roofs and wattle and daub walls.</p> <p>Presenting the model house as part of an Anglo-Saxon village.</p>	
Useful Websites	<ul style="list-style-type: none"> • BBC Good Food - Macaroni Cheese Recipe • Cooking with Kids - Macaroni Cheese Recipe • Jamie Oliver - Mac 'n' Cheese Recipe 	<ul style="list-style-type: none"> • BBC Bitesize - Sound and Music • DK Find Out - Musical Instruments • The Science of Music - Exploratorium 	<ul style="list-style-type: none"> • BBC Bitesize - Saxon Weapons • National Geographic Kids - Ancient Saxons • The British Museum - Saxon Weapons Collection • BBC Bitesize - Anglo-Saxons • Twinkl - Anglo-Saxons Resources 	<ul style="list-style-type: none"> • BBC Bitesize - Greek Mythology • National Geographic Kids - Pandora's Box

Year 4	<p align="center">Term 1: Burps, Bottoms and Bile</p> <p align="center">Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work</p> <p align="center">Understand and apply the principles of a healthy and varied diet.</p>	<p align="center">Term 2: Mighty Metals</p> <p align="center">Use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups</p> <p align="center">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 align="center">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 align="center">Term 3: I am Warrior</p> <p align="center">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 align="center">Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work</p>
Substantive Knowledge	<p>Healthy Snacks</p> <p>What Makes a Healthy Snack?</p> <p>A healthy snack should be balanced, containing a mix of nutrients like carbohydrates, proteins, and fats.</p> <p>It should be low in sugar and unhealthy fats, and high in vitamins and minerals.</p> <p>Healthy snacks can include fruits, vegetables, whole grains, nuts, and dairy products.</p> <p>Fruit Kebabs</p> <p>Ingredients: Assorted fruits (e.g., strawberries, grapes, pineapple chunks)</p> <p>Method: Thread the fruits onto skewers in a colourful pattern</p> <p>Taste Test: Sweet and refreshing; students may enjoy the variety of flavours and textures</p> <p>Homemade Trail Mix</p> <p>Ingredients: Nuts (not used in school), seeds, dried fruits, whole grain cereals</p> <p>Method: Mix the ingredients together in a bowl</p> <p>Taste Test: Nutty and crunchy; some students may prefer the sweet bursts from the dried fruits</p> <p>Veggie Sticks with Hummus</p> <p>Ingredients: Carrot sticks, cucumber slices, cherry tomatoes, hummus</p> <p>Method: Arrange the veggie sticks on a plate with a dollop of hummus</p> <p>Taste Test: Crunchy and creamy; students may like the combination of flavours and the dipping aspect</p> <p>Cheese and Crackers</p> <p>Ingredients: Cheese cubes, whole grain crackers</p> <p>Method: Pair the cheese cubes with crackers on a plate</p> <p>Taste Test: Savoury and satisfying; some students may enjoy the contrast between the cheese and the crackers</p> <p>Endpoints</p> <ol style="list-style-type: none"> 1. Create a design for a healthy snack 2. Use a variety of ingredients to make the snack 3. Evaluate the taste and appearance of the snack 4. Understand the nutritional value of chosen ingredients 5. Present the snack in an appealing way 	<p>Spinners</p> <p>Understanding of materials used in making spinners (e.g., cardboard discs, cocktail sticks, pencils).</p> <p>Understanding the concept of friction and how different surfaces affect the spinning duration of a spinner.</p> <p>Knowledge of the properties of different materials and how they influence the spinning performance of a spinner.</p> <p>Recognising the importance of the shaft's end shape (sharp or blunt) on the spinning ability of the spinner.</p> <p>Endpoints</p> <ol style="list-style-type: none"> 1. Design and create a variety of spinners using cardboard discs. 2. Investigate which material produces the best spinning performance. 3. Evaluate how different surfaces affect the spinning duration. 4. Determine whether a sharp or blunt shaft end improves spinner performance. 	<p>Weaponry!</p> <p>Materials for Celtic Warrior Shield: Wood, leather, metal</p> <p>Shapes and Patterns for Celtic Warrior Shield: Circular, often adorned with intricate spirals and animal motifs. Central boss</p> <p>Design Features for Celtic Warrior Shield: Sturdy construction, decorative elements, symbolic designs</p> <p>Materials for Roman Soldier Scutum: Wood, leather, metal, brass</p> <p>Shapes and Patterns for Roman Soldier Scutum: Rectangular with a slight curve, often painted with symbolic eagles, lightning bolts. Central iron boss</p> <p>Design Features for Roman Soldier Scutum: Sturdy construction, decorative motifs, emblematic designs</p> <p>Endpoints</p> <ol style="list-style-type: none"> 1. Create a detailed design plan for either a Celtic shield or a Roman scutum 2. Construct the shield using appropriate materials and techniques 3. Evaluate the design's durability and aesthetics in a simulated battle scenario
Disciplinary Knowledge	<p>Research: Look up healthy snack ideas online or in cookbooks. Consider nutritional value, ease of preparation, and appeal to children.</p> <p>Planning: Create a simple recipe card outlining ingredients and steps. Consider food allergies or dietary restrictions of potential consumers.</p> <p>Creating: Follow the recipe carefully, practicing safe food handling and hygiene. Experiment with flavours and textures to create a unique snack.</p> <p>Evaluating:</p>	<p>Designing: Create a design plan for the spinner, considering materials and shapes.</p> <p>Constructing: Assemble the spinner using cardboard discs and a shaft (cocktail stick or pencil).</p> <p>Testing: Trial the spinner on various surfaces to observe differences in spinning duration.</p> <p>Evaluating:</p>	<p>Research and Investigation: Explore historical sources and images to gather inspiration for shield designs.</p> <p>Material Selection: Choose appropriate materials that balance durability and decoration.</p> <p>Measurement and Precision: Use accurate measurements and cutting techniques to ensure the shield's proper size and shape.</p> <p>Evaluation: Critically assess the shields' design and construction for suitability in a battle setting.</p>

	<p>Consider the taste, appearance, and texture of the snack. Ask peers to taste-test and provide feedback for improvement</p>	<p>Assess and compare the performance of different spinners to determine the best material and shaft type. Modifying: Make adjustments to the spinner design based on evaluation results to improve spinning performance.</p>	
Useful Websites	<ul style="list-style-type: none"> • Change4Life – Healthy Eating Tips • BBC Good Food – Healthy Snack Recipes • Food – a Fact of Life – Food Technology Resources 	<ul style="list-style-type: none"> • BBC Bitesize – Design and Technology • STEM Learning Resources – Design and Technology 	<ul style="list-style-type: none"> • BBC Bitesize – Celtic Warriors • The Roman Empire – Roman Army

Year 5	<p style="text-align: center;">A Child's War</p> <p style="text-align: center;">Understand and apply the principles of a healthy and varied diet</p> <p style="text-align: center;">Prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques</p> <p style="text-align: center;">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 style="text-align: center;">Apply their understanding of how to strengthen, stiffen and reinforce more complex structures.</p>
Substantive Knowledge	<p>Wartime Food</p> <p>Wartime Foods: During the war, people had to make do with limited ingredients and rationing. It was important to be creative with the food available to ensure everyone had enough to eat.</p> <p>Preservation Techniques: Methods such as canning, pickling, and making jams were used to preserve fruits and vegetables when fresh produce was scarce.</p> <p>Popular Wartime Recipes:</p> <p>Eggless Sponge Cake: A sponge cake recipe that does not require eggs, as they were in short supply during the war.</p> <p>Woolton Pie: A vegetable pie made with root vegetables and a pastry crust, named after Lord Woolton, the Minister of Food during WWII.</p> <p>Apple Crumble: A simple and delicious dessert made with stewed apples topped with a crumbly mixture of flour, sugar, and butter.</p> <p>Spam Fritters: A dish made from canned Spam, coated in batter and fried until crispy.</p> <p>Endpoints</p> <ol style="list-style-type: none"> 1. Understand the importance of being resourceful with food during times of scarcity. 2. Develop skills in food preservation and cooking. 3. Create and taste popular wartime recipes. 4. Appreciate the historical significance of wartime foods. <p>Anderson Shelters</p> <p>Materials: Corrugated iron sheets, steel bands, soil, sand, rubble</p> <p>Structural Design: Half-buried cylindrical shape with a curved roof to deflect bombs</p> <p>Loading Capacity Testing: Using sand or rubble to simulate weight and pressure on the shelter</p> <p>Endpoints</p> <ol style="list-style-type: none"> 1. Demonstrate an understanding of the materials and construction methods used in Anderson shelters. 2. Design and construct a miniature Anderson shelter using a variety of materials. 3. Test the loading capacity of their structures using rubble or sand. 4. Analyse and record their results on a spreadsheet. 5. Identify the most effective structural designs for supporting heavy loads.
Disciplinary Knowledge	<p>Food Preparation</p> <p>Following recipes accurately and safely.</p> <p>Using kitchen tools and equipment effectively.</p> <p>Food Presentation</p> <p>Arranging and serving dishes in an appealing manner.</p> <p>Exploring creative ways to present wartime foods.</p> <p>Food Preservation</p> <p>Understanding the principles of preserving food through jam-making and pickling.</p> <p>Applying appropriate techniques to extend the shelf life of fruits and vegetables.</p> <p>Recipe Adaptation</p> <p>Adapting recipes to accommodate food shortages or dietary</p> <p>Experimenting with ingredient substitutions and variations</p> <p>Design Skills:</p> <p>Planning a structure that mimics the design of an Anderson shelter.</p> <p>Considering materials and techniques for construction.</p> <p>Construction Skills:</p> <p>Assembling the shelter using prefabricated materials.</p> <p>Ensuring the structure is stable and secure.</p> <p>Testing Skills:</p> <p>Conducting loading tests to determine the strength of the shelter.</p> <p>Recording and analysing data to inform design improvements.</p>
Useful Websites	<ul style="list-style-type: none"> • Imperial War Museums – Rationing and Substitution

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- [BBC Bitesize - Wartime Recipes](#)
 - [National Archives - Food Rationing in Wartime Britain](#)
 - [Imperial War Museums - Anderson Shelter](#)
 - [BBC - WW2 People's War: Anderson Shelter Memories](#)

Year 6	<p>Term 1: Stargazers</p> <p>Use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for 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>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>Select from and use a wider range of tools and equipment to perform practical tasks (for example, cutting, shaping, joining and finishing), accurately</p> <p>Investigate and analyse a range of existing products</p> <p>Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work</p>	<p>Term 2: Hola Mexico</p> <p>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>	<p>Term 3: Alchemy Island</p> <p>Understand and use electrical systems in their products (for example, series circuits incorporating switches, bulbs, buzzers and motors)</p>	<p>Term 4&5: Scream Machine</p> <p>Understand and use mechanical systems in their products (for example, gears, pulleys, cams, levers and linkages)</p> <p>Use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for 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>Investigate and analyse a range of existing products</p>	<p>Term 6: Allotment</p> <p>Understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed</p>
Substantive Knowledge	<p>Rocket Launch</p> <p>Understanding the purpose of rockets in space exploration</p> <p>Knowledge of key parts of a rocket (e.g. nose cone, body, fins, engine)</p> <p>Recognising the importance of designing for aerodynamics and stability</p> <p>Exploring materials and their properties (e.g. strength, weight, durability)</p> <p>Knowing how to conduct fair tests and record results accurately</p> <p>Appreciating the significance of protecting the astronaut (egg) during launch and landing</p> <p>Endpoints</p> <ol style="list-style-type: none"> Design a model rocket blueprint with annotations of key features. Build a model rocket using specified materials and tools. Test the rocket's flight and ensure the protective casing for the astronaut (egg) functions effectively. Evaluate the rocket's performance and make improvements based on testing results. Present findings and showcase the completed rocket design to peers. 	<p>Mexican foods</p> <p>The ancient Maya civilisation, renowned for their advancements in agriculture and culinary arts, introduced a variety of delicious and nutritious foods to the world. Some of the popular foods enjoyed by the Maya included:</p> <p>Avocado: A versatile fruit rich in healthy fats and nutrients.</p> <p>Guacamole: A delicious dip made from mashed avocados, lime juice, and seasonings.</p> <p>Tortilla: A staple food made from maize flour, commonly used as a base for other dishes.</p> <p>Sweet Potato: A nutritious root vegetable packed with vitamins and minerals.</p> <p>Squash: A versatile vegetable that can be roasted, mashed, or used in soups.</p> <p>Papaya: A sweet and tropical fruit abundant in vitamins and antioxidants.</p> <p>Horchata Drink: A refreshing beverage made from a blend of milk, sugar, ground almonds, and vanilla.</p> <p>Salsa: A flavoursome sauce made from tomatoes, onions, chillies, and herbs.</p> <p>Endpoints</p> <ol style="list-style-type: none"> Identify and describe the key food items introduced by the ancient Maya. Explain the cultural significance of these foods in Maya society. Analyse the nutritional value of Maya foods and evaluate their place in a healthy diet. 	<p>Circuit Building</p> <p>Creating a Simple Circuit: A circuit is a closed loop that allows electricity to flow. Components needed: ribbons, LED bulb, 3V coin cell battery. LEDs light up when electricity passes through them in the correct direction.</p> <p>Making a Lamp or Torch: Design a structure for the circuit to create a lamp or torch. Securely connect the components to ensure the circuit works effectively.</p> <p>Increasing Battery Life: Create a gap in the circuit, bridged by coins or other materials acting as a switch. This switch can be used to turn the circuit on and off, preserving battery life.</p> <p>Conductive and Non-Conductive Materials: Conductive materials allow electricity to flow through them (e.g. metals). Non-conductive materials block the flow of electricity (e.g. plastics).</p> <p>Conductive Materials</p> <ul style="list-style-type: none"> ➤ Copper wire ➤ Aluminium foil ➤ Graphite pencil lead ➤ Steel paperclip ➤ Brass fastener <p>Non-Conductive Materials</p> <ul style="list-style-type: none"> ➤ Plastic straw ➤ Wooden stick ➤ Rubber eraser ➤ Glass marble ➤ Ceramic tile <p>Endpoints</p>	<p>Cam Mechanisms</p> <p>Cam Mechanism: A cam mechanism is a simple machine that is used to transform circular motion into linear motion. Cams have specially shaped surfaces that push against other parts to make them move.</p> <p>Gears: Gears are toothed wheels that interlock to transfer motion and power. They can change the speed and direction of movement.</p> <p>Fairground Rides: Fairground rides are amusement rides commonly found in theme parks or funfairs. They often involve complex systems of cams and gears to create different types of movements and experiences.</p> <p>Endpoints:</p> <ol style="list-style-type: none"> Be able to identify and explain the purpose of cam mechanisms and gears in various systems. Construct a simple circular cam mechanism using a technology kit following instructions. Experiment with different gear combinations to observe changes in speed and direction. Design and create a fairground ride prototype incorporating cams or gears. <p>Carriage Design</p> <p>Structural Design: Understanding the different elements that make up a roller coaster carriage, such as chassis, seats, restraints, and wheels.</p>	<p>Seasonal Planting</p> <p>What Can Be Planted in the Current Season: Fruits: Strawberries, Apples, Pears, Raspberries Vegetables: Carrots, Lettuce, Radishes, Peas</p> <p>Benefits of Companion Planting: Pest Control: Certain plants can repel pests and insects that may harm other plants. Nutrient Enhancement: Some plants can help improve soil nutrients for neighbouring plants. Pollination: Companion planting can attract pollinators, improving fruit and vegetable yields.</p> <p>Homemade Planters and Raised Beds: Materials Needed: Wooden planks, nails, hammer, soil, compost Steps: Measure and cut planks, assemble to create planters, fill with soil and compost Benefits: Provides better drainage, control over soil quality, and easier maintenance</p> <p>Endpoints</p> <ol style="list-style-type: none"> Being able to identify appropriate plants to grow in the current season Following instructions accurately for planting and caring for plants Demonstrating proficiency in using homemade planters and raised beds Understanding the benefits of companion planting for plant health and growth

		<p>4. Create their own Maya-inspired dishes using traditional ingredients.</p> <p>Savoury Mexican Dishes</p> <p>Salsa A popular Mexican condiment made with fresh ingredients such as tomatoes, onions, chillies, and coriander. Usually served as a topping for tacos, quesadillas, and other dishes.</p> <p>Quesadilla A Mexican dish made with tortillas filled with cheese and other ingredients such as chicken, peppers, or beans. Cooked on a griddle until the cheese melts and the tortilla is crispy.</p> <p>Guacamole A traditional Mexican dip made from mashed avocado, lime juice, onions, tomatoes, and seasonings. Often served with tortilla chips or as a topping for tacos and burritos.</p> <p>Endpoints</p> <ol style="list-style-type: none"> Name the main ingredients needed for salsa, quesadilla, and guacamole. Follow a recipe accurately under adult supervision. Prepare and present at least one of the three dishes to a satisfactory standard. 	<ol style="list-style-type: none"> Successful creation of a functioning lamp or torch using the provided materials. Ability to identify and categorise conductive and non-conductive materials based on their properties. Demonstrate a clear understanding of how to conserve battery life by implementing a switch in the circuit design. 	<p>Materials Used: Exploring the properties of materials suitable for construction, like steel, aluminium, and plastic.</p> <p>Safety Features: Identifying crucial safety features in roller coaster designs, including restraints, emergency brakes, and impact-absorbing materials.</p> <p>Endpoints</p> <ol style="list-style-type: none"> Explain the key components of a roller coaster carriage. Identify the materials commonly used in roller coaster carriage construction. Create detailed sketches and designs of roller coaster carriages, incorporating safety features. Utilize CAD software to develop final designs with colour and decoration. Present their final designs to peers, explaining their design choices and safety considerations. <p>Build a Ride</p> <p>Cams: A cam is a rotating or sliding piece in a mechanical linkage used to transform rotary motion into linear motion. Different types of cams include: egg-shaped cams, pear-shaped cams, and circular cams.</p> <p>Pulleys: A pulley is a simple machine that consists of a wheel on an axle or shaft used to lift heavy objects. Types of pulleys include fixed pulleys and movable pulleys.</p> <p>Endpoints</p> <ol style="list-style-type: none"> Design and create a model theme park ride incorporating cams and pulleys. Present the model ride to the class, explaining the function of cams and pulleys. Evaluate the design process and suggest improvements for future iterations. 	
<p>Disciplinary Knowledge</p>	<p>Designing: Sketching ideas for rocket design Understanding the function of each component</p> <p>Construction: Using materials safely Assembling components accurately</p> <p>Testing and Evaluating: Launching and observing the flight of the rocket Assessing the protection of the "astronaut" (egg)</p> <p>Problem-Solving: Modifying designs to improve performance Troubleshooting issues during construction</p>	<p>Research and Analysis: Investigate the history and culinary practices of the ancient Maya civilisation.</p> <p>Food Preparation: Experiment with making guacamole, tortillas, or salsa using authentic Maya ingredients.</p> <p>Healthy Eating: Compare the nutritional benefits of Maya foods with modern food choices.</p> <p>Presentation: Design an appealing display showcasing Maya-inspired dishes for a class tasting event.</p> <p>Reflection:</p>	<p>Planning and Prototyping: Sketch a design for the lamp or torch circuit. Create a prototype using the specified components.</p> <p>Problem-Solving: Identify suitable materials to bridge the circuit gap effectively. Test different materials to ensure the switch mechanism works efficiently.</p> <p>Practical Skills: Safely handle electronic components. Assemble the circuit following the design specifications</p>	<p>Creating a Circular Cam Mechanism: Use a technology kit to construct a simple circular cam mechanism following provided instructions. Describe the motion produced by the cam in detail.</p> <p>Experimenting with Gear Combinations: Explore different gear combinations to change speed and direction in a model system. Record observations on how different gears affect movement.</p> <p>Designing a Fairground Ride:</p>	<p>Planting Fruits and Vegetables in the Current Season Research suitable fruits and vegetables to plant in the current season using reliable sources like RHS and BBC Gardening Guides. Identify the plants that are suitable for planting in homemade planters and raised beds. Learn about the optimal conditions required for each plant to thrive in the current season. Read and understand the planting instructions provided for each fruit and vegetable chosen.</p> <p>Care Instructions</p>

		<p>Reflect on the flavours and textures of Maya foods and their place in the global food landscape.</p> <p>Preparation Washing and chopping ingredients safely. Organising ingredients and equipment. Understanding recipe instructions.</p> <p>Cooking Cooking techniques such as frying and chopping. Understanding heat levels and cooking times. Mixing and blending ingredients.</p> <p>Presentation Plating up dishes attractively. Serving dishes with appropriate accompaniments. Evaluating the taste and presentation of the final dishes.</p>		<p>Plan and sketch a fairground ride incorporating cams and gears to control movement. Consider safety, aesthetics, and functionality in the design process.</p> <p>Implementing Cam and Gears in the Fairground Ride: Build the fairground ride prototype using cams and gears to achieve the desired motion. Test the ride for smooth operation and adjust mechanisms if necessary</p> <p>Engineering Principles: Learning about forces, motion, friction, and gravity and how they influence roller coaster design.</p> <p>Design Thinking: Practising the design process, from ideation and sketching to prototyping and evaluation.</p> <p>Aesthetics and Functionality: Balancing the visual appeal of the carriage with its structural integrity and safety requirements</p> <p>Research and Investigation Research different types of cams and pulleys used in the industry. Investigate how cams and pulleys are incorporated into theme park rides.</p> <p>Designing and Planning: Create detailed blueprints and sketches of the model ride. Plan the construction process step by step.</p> <p>Construction and Prototyping: Build a prototype of the ride to test the functionality of cams and pulleys. Use appropriate tools and techniques to construct the model ride.</p> <p>Testing and Evaluation: Test the model ride to ensure cams and pulleys function correctly. Evaluate the design and make improvements based on feedback</p>	<p>Follow the care instructions diligently for watering, feeding, and protecting plants from pests and diseases. Monitor the growth of plants regularly and make necessary adjustments to ensure they are healthy and thriving. Seek guidance from gardening experts or online resources if facing any challenges in plant care.</p> <p>Homemade Planters and Raised Beds Design and create homemade planters and raised beds using materials like wood, plastic containers, or recycled items. Consider the size and depth requirements of plants when constructing the planters and raised beds. Ensure proper drainage and aeration in the homemade planters to prevent waterlogging and promote healthy plant growth.</p> <p>Companion Planting Explore the concept of companion planting and its benefits for plant health and growth. Understand which plants complement each other when planted together to enhance growth and deter pests. Implement companion planting strategies in the garden to create a harmonious and thriving ecosystem</p>
Useful Websites	<ul style="list-style-type: none"> NASA Kids' Club Science Museum - Rocket Science Royal Institution - Engineering at Home 	<ul style="list-style-type: none"> Maya Food and Agriculture Maya Food and Drink BBC Good Food - Mexican recipes Jamie Oliver - Mexican recipes 	<ul style="list-style-type: none"> BBC Bitesize - Electrical Circuits STEM Learning - Electricity Resources Science Museum - Circuits and Conductors 	<ul style="list-style-type: none"> BBC Bitesize - Mechanical Systems STEM Learning - Cam Mechanisms Design and Technology Association Roller Coaster Physics - Exploratorium Design and Technology Association - Roller Coaster Designs 	<ul style="list-style-type: none"> Royal Horticultural Society - Grow Your Own BBC Gardening Guides Garden Organic - Advice and Resources