



# SHOBNALL PRIMARY & NURSERY SCHOOL

## DESIGN TECHNOLOGY PROGRAMME OF STUDY





## THRESHOLD CONCEPTS FOR DESIGN TECHNOLOGY

*A plan for helping pupils form a schema in their long-term memories and achieve the objectives outlined in the National Curriculum*

<b>Threshold Concepts</b> <i>(the big ideas that form the basis of the schema)</i>	<b>MASTER PRACTICAL SKILLS</b>	<b>DESIGN, MAKE, EVALUATE &amp; IMPROVE</b>	<b>TAKE INSPIRATION FROM DESIGN THROUGHOUT HISTORY</b>
<b>Knowledge Categories</b> <i>(the facets of each threshold concept that help strengthen the schema)</i>	<b>Food</b>	<b>Materials</b>	<b>Techniques</b>
	<b>Textiles</b>	<b>Electricals and Electronics</b>	
	<b>Computing</b>	<b>Construction</b>	
	<b>Mechanics</b>		
<b>Milestones</b> <i>(the goals that pupils should reach at the end of each year)</i>	<b>Nursery</b>	<p><b>Goal</b>  <span style="color: yellow;">Make a model using natural resources: Using an extensive range of natural materials, children decide on the model they want to make. They choose the materials they want to use, shape materials with tools and join materials together.</span></p> <p><b>EYFS Development Matters</b>  <b>Physical Development</b></p> <ul style="list-style-type: none"> <li>Choose the right resources to carry out their own plan.</li> <li>Use one-handed tools and equipment, for example, making snips in paper with scissors.</li> </ul> <p><b>Understanding the World</b></p> <ul style="list-style-type: none"> <li>Explore how things work.</li> </ul> <p><b>Expressive Arts and Design</b></p> <ul style="list-style-type: none"> <li>Make imaginative and complex 'small worlds' with blocks and construction kits, such as a city with different buildings and a park.</li> <li>Explore different materials freely, in order to develop their ideas about how to use them and what to make.</li> <li>Develop their own ideas and then decide which materials to use to express them.</li> <li>Create closed shapes with continuous lines, and begin to use these shapes to represent objects.</li> </ul>	

Reception	<p><b>Goal</b> Use natural materials to make a home for a small animal: Using the knowledge they have acquired about the natural world, children are able to select and collect a range of natural materials to construct with purposefully. They can think about and discuss what they want to make, potential problems and how they might be solved and reflect on how they have achieved their aims.</p> <p><b>Goal</b> Follow a recipe to bake a cake: Under adult supervision, children follow the steps of a recipe independently. They measure ingredients, mix them and create their own cake by placing the mixture into a container ready to be baked.</p> <p><b><u>EYFS Development Matters</u></b> <b>Physical Development</b></p> <ul style="list-style-type: none"> <li>Develop their small motor skills so that they can use a range of tools competently, safely and confidently.</li> </ul> <p><b>Expressive Arts and Design</b></p> <ul style="list-style-type: none"> <li>Return to and build on their previous learning, refining ideas and developing their ability to represent them.</li> <li>Create collaboratively, sharing ideas, resources and skills.</li> </ul> <p><b><u>Early Learning Goals</u></b> <b>Physical Development: Fine Motor Skills</b></p> <ul style="list-style-type: none"> <li>Use a range of small tools, including scissors, paintbrushes and cutlery</li> </ul> <p><b>Expressive Arts and Design: Creating with Materials</b></p> <ul style="list-style-type: none"> <li>Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function</li> <li>Share their creations, explaining the process they have used</li> </ul>		
Year 1	<p><b><u>Food:</u></b> Cut, peel or grate ingredients safely and hygienically. Measure or weigh using measuring cups</p> <p><b><u>Materials:</u></b> Cut materials safely using tools provided. Measure and mark out to the nearest centimetre. Demonstrate a range of cutting and shaping techniques (such as tearing, cutting, folding and curling).</p> <p><b><u>Textiles:</u></b> Shape textiles using templates. Colour and decorate textiles using a number of techniques (such as dyeing, adding sequins or printing).</p> <p><b><u>Computing:</u></b> Model designs using software.</p>	Design products that have a clear purpose and an intended user.	Explore objects and designs to identify likes and dislikes of the designs. Suggest improvements to existing designs.

	<p><b>Year 2</b></p>	<p><u>Food:</u> Measure or weigh using electronic scales. Assemble or cook ingredients.</p> <p><u>Materials:</u> Demonstrate a range of joining techniques (such as gluing, hinges or combining materials to strengthen).</p> <p><u>Textiles:</u> Join textiles using running stitch.</p> <p><u>Electricals and electronics:</u> Diagnose faults in battery operated devices (such as low battery, water damage or battery terminal damage).</p> <p><u>Construction:</u> Use materials to practise drilling, screwing, gluing and nailing materials to make and strengthen products.</p> <p><u>Mechanics:</u> Create products using levers, wheels and winding mechanisms.</p>	<p>Make products, refining the design as work progresses. Use software to design</p>	<p>Explore how products have been created</p>
	<p><b>Year 3</b></p>	<p><u>Food:</u> Prepare ingredients hygienically using appropriate utensils. Measure ingredients to the nearest gram accurately.</p> <p><u>Materials:</u> Cut materials accurately and safely by selecting appropriate tools. Measure and mark out to the nearest millimetre.</p> <p><u>Mechanics:</u> Use scientific knowledge of the transference of forces to choose appropriate mechanisms for a product (such as levers, winding mechanisms, pulleys and gears).</p> <p><u>Construction:</u> Choose suitable techniques to construct products or to repair items.</p>	<p>Design with purpose by identifying opportunities to design. Make products by working efficiently (such as by carefully selecting materials).</p>	<p>Identify some of the great designers in all of the areas of study (including pioneers in horticultural techniques) to generate ideas for designs. Improve upon existing designs, giving reasons for choices.</p>

Year 4	<p><u>Food:</u> Follow a recipe. Assemble or cook ingredients (controlling the temperature of the oven or hob, if cooking). <u>Materials:</u> Apply appropriate cutting and shaping techniques that include cuts within the perimeter of the material (such as slots or cut outs). Select appropriate joining techniques. <u>Textiles:</u> Understand the need for a seam allowance. Join textiles with appropriate stitching. Select the most appropriate techniques to decorate textiles. <u>Computing:</u> Control and monitor models using software designed for this purpose. <u>Construction:</u> Strengthen materials using suitable techniques. <u>Electricals:</u> Create series and parallel circuits</p>	<p>Refine work and techniques as work progresses, continually evaluating the product design. Use software to design and represent product designs.</p>	<p>Disassemble products to understand how they work.</p>
Year 5	<p><u>Food:</u> Understand the importance of correct storage and handling of ingredients (using knowledge of micro-organisms). Measure accurately Create and refine recipes, including ingredients, methods, cooking times and temperatures. <u>Materials:</u> Cut materials with precision and refine the finish with appropriate tools (such as sanding wood after cutting or a more precise scissor cut after roughly cutting out a shape). <u>Mechanics:</u> Convert rotary motion to linear using cams. Use innovative combinations of electronics (or computing) and mechanics in product designs. <u>Computing:</u> Write code to control and monitor models or products <u>Textiles:</u> Create objects (such as a cushion) that employ a seam allowance. Join textiles with a combination of stitching techniques (such as back stitch for seams and running stitch to attach decoration).</p>	<p>Design with the user in mind, motivated by the service a product will offer (rather than simply for profit). Make products through stages of prototypes, making continual refinements.</p>	<p>Combine elements of design from a range of inspirational designers throughout history, giving reasons for choices. Create innovative designs that improve upon existing products.</p>

	<p><b>Year 6</b></p>	<p><u>Food:</u>  Measure accurately and calculate ratios of ingredients to scale up or down from a recipe. Demonstrate a range of baking and cooking techniques.</p> <p><u>Materials:</u>  Show an understanding of the qualities of materials to choose appropriate tools to cut and shape (such as the nature of fabric may require sharper scissors than would be used to cut paper).</p> <p><u>Textiles:</u>  Use the qualities of materials to create suitable visual and tactile effects in the decoration of textiles (such as a soft decoration for comfort on a cushion).</p> <p><u>Construction:</u>  Develop a range of practical skills to create products (such as cutting, drilling and screwing, nailing, gluing, filing and sanding).</p> <p><u>Electricals and electronics:</u>  Create circuits using electronics kits that employ a number of components (such as LEDs, resistors, transistors and chips).</p>	<p>Ensure products have a high quality finish, using art skills where appropriate.  Use prototypes, cross-sectional diagrams and computer aided designs to represent designs.</p>	<p>Evaluate the design of products so as to suggest improvements to the user experience.</p>
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## LONG TERM OVERVIEW FOR DESIGN TECHNOLOGY

**KEY: MASTER PRACTICAL SKILLS DESIGN, MAKE, EVALUATE AND IMPROVE TAKE INSPIRATION FROM DESIGN THROUGHOUT HISTORY**

Nursery	Autumn Term	Spring Term	Summer Term
<b>Milestones</b>	<p>Explore a range of materials to build simple structures.</p> <p>Use scissors to cut straight edges.</p> <p>Use adhesives to join material.</p> <p>To explore the properties and purpose of materials they experiment with.</p>	<p>Name the tools needed to work the materials e.g. scissors for paper.</p> <p>Explore ideas by rearranging materials.</p> <p>Create designs using basic techniques.</p> <p>Begin to use technical vocabulary when appropriate.</p> <p>To use hole punches to punch holes and use other basic tools such as a saw or hammer with support.</p> <p>Develop food vocabulary using taste, smell, texture and feel.</p> <p>Explore familiar food products e.g. fruit and vegetables.</p> <p>Stir, spread and shape a range of food and ingredients.</p> <p>Work safely and hygienically.</p> <p>To make models using a variety of resources both indoors and outdoors.</p>	<p>To choose materials for a purpose.</p> <p>Discuss their work, saying what they like and do not like about items.</p> <p>To choose and join materials with increasing confidence.</p> <p>To use tools such as hammers, peelers and scissors with greater levels of confidence.</p> <p>Explore different materials freely, to develop their ideas about how to use them and what to make.</p> <p>Join different materials and explore different textures.</p>
<b>Vocabulary</b>	<p><b>Materials:</b> scissors, spreader, glue, hammer, saw, fabric, felt, button, paper clip, clay</p> <p><b>Skills:</b> build, make, snip, join, saw, design, create, stick, peel, fold, scrunch, tear, link, bend, stack</p> <p><b>Food:</b> equipment, ingredient, recipe, taste, smell, feel, stir, mix, chop, spread, pour, fill, empty, wash, healthy, unhealthy</p> <p><b>Texture:</b> sharp, sticky, rough, smooth, soft, fluffy, hard, cold, spikey, wet, dry, bang, loud, tap, loose, strong, weak, explore</p>		
<b>Health and safety</b>	<p>Consider the materials, tools and equipment being used. Scissor safety rules should always be followed and extra care and adult supervision will be required when using sharp objects. Take care with the storage of sharp objects.</p> <p>Ensure you have permission for food tasting. Consider food allergies or intolerances. Ensure that there is adequate adult supervision and guidance when children are using kitchen equipment. Food preparation should be done hygienically, surfaces need to be wiped down and hands washed.</p>		
<b>Suggested Trips / Enrichment</b>	Specialist visitor	Visit from our own school chef Forest school	Use products to create a performance

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Reception	Autumn Term	Spring Term	Summer Term
<b>Milestones</b>	<p>Select materials from a range that will meet a simple design criteria.</p> <p>Build structures joining components together in a variety of ways.</p> <p>Use technical vocabulary when appropriate.</p> <p>Use a range of adhesives to join material.</p> <p>To explore junk modelling using a range of materials collected from the outdoors</p> <p>To understand the difference between natural and man-made materials.</p>	<p>Use a range of techniques for joining materials.</p> <p>Explain what they are making and which materials they are using and why.</p> <p>Create detailed designs.</p> <p>Explore simple hinges, wheels and axles.</p> <p>Use food vocabulary confidently using taste, smell, texture and feel.</p> <p>To use the correct tools to stir, spread, knead and shape a range of food and ingredients.</p> <p>Build on knowledge of familiar food products e.g. fruit and vegetables and discuss in some detail the need for a variety of foods in a healthy diet.</p> <p>To explain the importance of working safely and hygienically.</p> <p>To use measures and counting to mix and combine the ingredients.</p>	<p>To describe simple models or drawings of ideas and intentions.</p> <p>Discuss their work as it progresses, saying what they like and do not like about items they have made and explain why.</p> <p>Use technical vocabulary when appropriate giving further examples to support explanations.</p> <p>Discuss how closely their finished products meet their design criteria</p> <p>Measure and weigh food items using non statutory measures e.g. spoons, cups</p> <p>Use a range of tools and materials with increasing independence, care and precision.</p> <p>Measure and mix ingredients.</p>
<b>Vocabulary</b>	<p><b>Materials:</b> textile, scissors, spreader, glue, hammer, saw, fabric, felt, button, paper clip, clay</p> <p><b>Skills:</b> build, make, snip, join, saw, design, stick, fold, create, peel, tear, scrunch, link, fringe, insert, slot, construct</p> <p><b>Food:</b> equipment, ingredient, recipe, taste, smell, feel, stir, mix, chop, spread, pour, fill, empty, wash, healthy, unhealthy</p> <p><b>Texture:</b> sharp, sticky, rough, smooth, soft, fluffy, hard, cold, spikey, wet, dry, bang, loud, tap, loose, strong, weak, explore, investigate, evaluate, structure, mechanism, function, develop, practical</p>		
<b>Health and safety</b>	<p>Consider the materials, tools and equipment being used. Scissor safety rules should always be followed and extra care and adult supervision will be required when using sharp objects. Take care with the storage of sharp objects.</p> <p>Ensure you have permission for food tasting. Consider food allergies or intolerances. Ensure that there is adequate adult supervision and guidance when children are using kitchen equipment. Food preparation should be done hygienically, surfaces need to be wiped down and hands washed.</p>		
<b>Suggested Trips / Enrichment</b>	Specialist visitor	Visit from our own school chef	Use products to create a performance Forest School



## LONG TERM OVERVIEW FOR DESIGN TECHNOLOGY

**KEY: MASTER PRACTICAL SKILLS DESIGN, MAKE, EVALUATE AND IMPROVE TAKE INSPIRATION FROM DESIGN THROUGHOUT HISTORY**

Year 1	Autumn Term	Spring Term	Summer Term
Topic	LAND OF HOPE AND GLORY	TO INFINITY AND BEYOND!	WHERE THE WILD THINGS ARE
Milestones	<p><u>Colour and decorate textiles using a technique</u>  <u>Cut materials safely using tools provided.</u>  <u>Shape textiles using templates.</u>  <u>Model designs using software.</u>  <u>Design products that have a clear purpose</u>  <u>Explore objects and designs</u></p>	<p><u>Measure and mark out to the nearest centimetre.</u>  <u>Demonstrate cutting and shaping techniques</u>  <u>Demonstrate a range of cutting and shaping techniques</u>  <u>Design products that have a clear purpose an intended user.</u>  <u>Explore objects and designs to identify likes and dislikes of the designs.</u></p>	<p><u>Cut, peel or grate ingredients safely and hygienically.</u>  <u>Measure or weigh using measuring cups.</u>  <u>Design products that have a clear purpose and an intended user.</u>  <u>Suggest improvements to existing designs.</u></p>
Knowledge Webs & POP Tasks	<p style="text-align: center;"><b><u>Bunting</u></b> <b><u>(Textiles/Computing)</u></b></p> <p>Select from and use a range of tools and equipment to perform practical tasks (for example, cutting, shaping and finishing) in the context of cutting a template and using it to shape a piece of fabric.            Use a paper template to help cut out a fabric shape.            Generate, develop, model and communicate ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology in the context of using a basic graphics program to design a bunting flag.            Design, make and evaluate a bunting flag.            Explore and evaluate a range of existing products in the context of evaluating bunting designs.</p>	<p style="text-align: center;"><b><u>Starry-Eyed Stan</u></b> <b><u>(Musical Instruments/ Materials/Construction)</u></b></p> <p>Safely perform practical tasks such as cutting and joining.            Select from and use a range of tools and equipment to perform practical tasks.            Demonstrate a range of cutting and shaping techniques            Design, make and evaluate a musical instrument.            Use materials to make a musical instruments.            Decorate a product to provide an appropriate finish.            Measure and mark out to the nearest centimetre.            Explore, name and evaluate a range of existing musical instruments.</p>	<p style="text-align: center;"><b><u>Sensational Salads</u></b> <b><u>(Food)</u></b></p> <p>Select from and use a range of tools and equipment to perform practical tasks.            Follow a simple recipe.            Prepare a tasty salad.            Prepare and make a healthy salad made from root vegetables.            Use the basic principles of a healthy and varied diet to design and prepare dishes.            Understand where food comes from in the context of looking at different fruits and vegetables.            Explain where some food grows.            Explore and evaluate existing products.            Explain why I need to eat fruit and vegetables.            Name different fruits and vegetables.            Handle, taste, talk and learn about different foods            Explore and evaluate a range of existing products in the context of tasting salads made mainly from root vegetables.</p>
Vocabulary	Computers, graphics/paint program, Maths equipment, scissors, chalk, coloured felt, cut, decorate, cut, bunting	Musical instruments, cutting, joining, decorate, materials, measure, centimetre,	Safe knives, forks, spoons, chopping boards, mixing bowls, kitchen scissors, kitchen scales,

			peelers, graters, food scissors, teaspoons, tablespoons above ground, below ground
<b>Health and safety</b>	Consider the materials, tools and equipment being used. Scissor safety rules should always be followed and extra care and adult supervision will be required when using sharp objects. Take care with the storage of sharp objects.	Consider the materials, tools and equipment being used. Scissor safety rules should always be followed and extra care and adult supervision will be required when using sharp objects. Take care with the storage of sharp objects.	Ensure you have permission for food tasting. Consider food allergies or intolerances. Ensure that there is adequate adult supervision and guidance when children are using kitchen equipment. Food preparation should be done hygienically, surfaces need to be wiped down and hands washed.
<b>Suggested Trips / Enrichment</b>	Specialist visitor	Use products to create a performance	Visit from our own school chef Forest School

## LONG TERM OVERVIEW FOR DESIGN TECHNOLOGY

**KEY: MASTER PRACTICAL SKILLS DESIGN, MAKE, EVALUATE AND IMPROVE TAKE INSPIRATION FROM DESIGN THROUGHOUT HISTORY**

Year 2	Autumn Term	Spring Term	Summer Term
<b>Topic</b>	<b>FIRE, FIRE!</b>	<b>I HAVE A DREAM</b>	<b>GADGETS AND GIZMOS</b>
<b>Milestones</b>	<p><a href="#">Measure or weigh using electronic scales.</a>  <a href="#">Assemble or cook ingredients.</a>  <a href="#">Make and design products</a>  <a href="#">Explore products that have been created</a></p>	<p>Demonstrate a range of joining techniques            Join textiles using running stitch.            Make products, <a href="#">refining the design as work progresses.</a>            Explore <a href="#">how products have been created</a></p>	<p><a href="#">Create products using levers and wheels and winding mechanisms.</a>            Make products, refining the design as work progresses.  <a href="#">Use software to design</a>            Explore how products have been created</p>
<b>Knowledge Webs &amp; POP Tasks</b>	<p style="text-align: center;"><b><u>Dips and Dippers</u></b> <b>(Food)</b></p> <p>Select and use a range of tools and equipment to perform practical tasks.            Measure or weigh using electronic scales.            Make products following a design or plan.            Design purposeful, functional, appealing products for themselves and other users based on design criteria.            Generate, develop, model and communicate ideas through talking and drawings.            Evaluate their ideas and products against design criteria.            Design an appealing dip and dipper and clearly show ideas.            Explore and evaluate a range of existing products            Evaluate and compare different dips thinking about healthy ingredients.            Start to think about where different foods come from.            Describe different dippers.</p>	<p style="text-align: center;"><b><u>Our Fabric Faces</u></b> <b>(Textiles)</b></p> <p>Select a material and shape it.            Join textiles using running stitch.            Select from and use a range of tools and equipment to perform practical tasks such as joining, using templates and cutting.            Join fabrics together and attach different materials.            Cut on a line.            Select appropriate fabric materials for a product from a range.            Design purposeful, functional, appealing products.            Create and follow a design criteria.            Generate, develop, model and communicate ideas through talking, drawing and templates.            Follow a design carefully.            Explore and evaluate a range of existing products fabrics, hair on fabric dolls and fabric dolls/characters.</p>	<p style="text-align: center;"><b><u>Moving Pictures</u></b> <b>(Mechanics)</b></p> <p>Explore and use mechanisms such as sliders, wheels, axels and levers in a product.            Design purposeful, functional and appealing products based on design criteria            Design a working product thinking about who it is for and what it needs.            Generate, develop, model and communicate their ideas through talking, drawing, templates and mock-ups.            Make decisions about a product design and use an annotated sketch to show them.            Evaluate ideas against design criteria            Explore and evaluate a range of existing products.</p>
<b>Vocabulary</b>	<p>Equipment, <a href="#">prepare</a>, chopping boards, bowls, graters, safe knives, food scissors, teaspoons and tablespoons, dips, dippers</p>	<p>Wool, threads, <a href="#">needle</a>, ribbon, fabrics, felt fabric, beads, sequins, buttons, embroidery threads, plastic, large metal darning needles, scissors, small staplers, PVA glue.</p>	<p>Card, disc with holes in the centre, split pins, moving part, lever, wheel, axel, slider</p>

<b>Health and safety</b>	<p>Ensure you have permission for food tasting. Consider food allergies or intolerances. Ensure that there is adequate adult supervision and guidance when children are using kitchen equipment. Food preparation should be done hygienically, surfaces need to be wiped down and hands washed.</p>	<p>Scissor safety rules should always be followed and extra care and adult supervision will be required when using sharp objects. Take care with the storage of sharp objects. In addition take care with the storage of sharp objects e.g. needles. Felt pads with lines drawn on are useful for storing and checking needles. Ongoing work with needles attached should be stored in resealable bags. It is advisable that children wear aprons when using PVA glue and wash hands after use.</p>	<p>Consider the materials, tools and equipment being used. Scissor safety rules should always be followed. Adult supervision will be required when using sharp objects. Take care with the storage of sharp objects. In addition take care with the storage of sharp objects</p>
<b>Suggested Trips / Enrichment</b>	<p>Visit from our own school chef Forest school</p>	<p>Specialist visitor</p>	<p>Showcase the products made</p>

## LONG TERM OVERVIEW FOR DESIGN TECHNOLOGY

**KEY: MASTER PRACTICAL SKILLS DESIGN, MAKE, EVALUATE AND IMPROVE TAKE INSPIRATION FROM DESIGN THROUGHOUT HISTORY**

Year 3	Autumn Term	Spring Term	Summer Term
Topic	MEET THE FLINTSTONES	BY THE RIVERS OF BABYLON	IRON MAN
Milestones	<p><u>Cut materials accurately.</u>  <u>Measure to the nearest millimetre.</u>  <u>Choose suitable techniques to construct products or repair items.</u>  <u>Strengthen materials using suitable techniques.</u>  <u>Design products</u>  <u>Make products</u>  <u>Identify designers</u>  <u>Improve upon existing designs.</u></p>	<p>Prepare ingredients hygienically <u>using appropriate utensils.</u>            Measure ingredients to the nearest <u>gram accurately.</u>  <u>Design products with purpose</u>  <u>Make products by working efficiently</u>  <u>Improve upon existing designs, giving reasons for choices.</u></p>	<p>Cut materials accurately and <u>safely by selecting appropriate tools.</u>  <u>Measure and mark out to the nearest millimetre.</u>  <u>Use scientific knowledge of the transference of forces to choose appropriate mechanisms for a product.</u>  <u>Design with purpose by identifying opportunities to design.</u>  <u>Make products by working efficiently</u>  <u>Disassemble products to understand how they work.</u>  <u>Identify some of the great designers in all of the areas of study</u>  <u>Improve upon existing designs, giving reasons for choices.</u></p>
Knowledge Webs & POP Tasks	<p style="text-align: center;"><b><u>Let's Go Fly a Kite</u></b>  <b><u>(Materials/Construction)</u></b></p> <p>Measure and cut the body of the kite            Join the kite to a structure.            Strengthen a frame structure to support the kite.            Use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose.            Develop a design criteria for a kite            Generate, develop, model and communicate ideas through annotated sketches.            Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work.            How have kites helped shape the world?            Explore and evaluate a range of existing products            Identify key events and individuals in design and technology.</p>	<p style="text-align: center;"><b><u>Edible Garden</u></b>  <b><u>(Food)</u></b></p> <p>Select from and use a wider range of tools and equipment to perform practical tasks accurately            Measure ingredients to the nearest <u>gram accurately.</u>            Design, make and evaluate a product.            Prepare and create a strawberry smoothie.            Prepare and cook a healthy and tasty meal using tomatoes as my main ingredient (tomato ciabatta)            Explore and evaluate a range of existing products            Understand and apply the principles of a healthy and varied diet in your product.            Understand seasonality and know where and how a variety of ingredients are grown such as strawberries and tomatoes.</p>	<p style="text-align: center;"><b><u>Mechanical Posters</u></b>  <b><u>(Mechanics)</u></b></p> <p>Select tools and equipment to perform practical tasks.            Understand and use mechanical systems in products.            Make a mechanism which uses levers and linkages.            Use research and develop design criteria.            Develop design criteria and design ideas for a moving poster to promote recycling.            Use sketches to develop and communicate ideas.            Use the moving poster design to create a prototype.            Use prototypes to develop my ideas.            Evaluate ideas and products against their own design criteria.            Consider the views of others to improve their work.            Name the parts and functions of a lever and</p>

	Investigate and analyse a range of existing kite shapes and parts and their functions		linkage mechanical system. Investigate and analyse a range of existing lever and linkage mechanisms and mechanical systems.
<b>Vocabulary</b>	Measure, wooden skewer, kite, Junior hacksaws, bench hooks, sand paper, scissors, string, elastic bands, masking tape, plastic tubing, dowels	Magnifying glasses, strawberry plants, safe knives, grow bags or pots, trowels, gardening gloves, kitchen tools, potato masher, small glass, safe knife, chopping board, bowl, whisk, ripe, varieties of tomatoes, compost, tomato seeds, bruschetta	Mechanisms, lever, linkage, mechanical system, prototype, analyse, sketch, moving picture
<b>Health and safety</b>	Consider flying safety rules and implications when flying kites. Consider the materials, tools and equipment being used. Scissor safety rules should always be followed. Adult supervision will be required when using sharp objects. Take care with the storage of sharp objects.	Ensure you have permission for food tasting. Consider food allergies or intolerances. Ensure that there is adequate adult supervision and guidance when children are using kitchen equipment. Food preparation should be done hygienically, surfaces need to be wiped down and hands washed.	Consider the materials, tools and equipment being used. Scissor safety rules should always be followed. Adult supervision will be required when using sharp objects. Take care with the storage of sharp objects.
<b>Suggested Trips / Enrichment</b>	Forest school	Visit from our own school chef Forest school	Showcase the products made STEMgineers workshop

## LONG TERM OVERVIEW FOR DESIGN TECHNOLOGY

**KEY: MASTER PRACTICAL SKILLS DESIGN, MAKE, EVALUATE AND IMPROVE TAKE INSPIRATION FROM DESIGN THROUGHOUT HISTORY**

Year 4	Autumn Term	Spring Term	Summer Term
Topic	THE EMPIRE STRIKES BACK!	GAME OF THRONES	ANY DREAM WILL DO
<b>Milestones</b>	<p><u>Create series circuits</u>  <u>Create series and parallel circuits</u>  <u>Refine work as work progresses</u>  <u>Use software to design product designs.</u></p>	<p><u>Follow a recipe.</u>  <u>Assemble or cook ingredients controlling the temperature of the oven or hob, if cooking</u>            Refine work and techniques as work progresses.  <u>Use software to design and represent product designs.</u>            Improve upon existing designs, giving reasons for choices.</p>	<p><u>Apply appropriate cutting and shaping techniques that include cuts within the perimeter of the material</u>  <u>Understand the need for a seam allowance.</u>  <u>Join textiles with appropriate stitching.</u>  <u>Select the most appropriate techniques to decorate textiles</u>            Refine work and techniques as work progresses, continually evaluating the product design.  <u>Explore and evaluate a range of existing products</u></p>
<b>Knowledge Webs &amp; POP Tasks</b>	<p style="text-align: center;"><b><u>Battery Operated Lights (Electricity)</u></b></p> <p>Use electrical systems in a product such as, series, circuits, incorporating switches, and bulbs.            Make and use switches.            I can develop design criteria and a design.            Develop annotated designs and sketches for a light.            Select materials and components to make my light.            I can create a well finished product.            Evaluate a product and use other people's views to help evaluate and improve a product.            Understand how key events and individuals in design and technology have helped shape the world by looking at technological developments in the way we light our homes.            Understand how a series and parallel circuit can be used to light a bulb.</p>	<p style="text-align: center;"><b><u>Great Bread Bake Off (Food)</u></b></p> <p>Use a wider range of tools and equipment to perform practical tasks such as shaping dough accurately.            Prepare and cook a new bread product.            Use a wide range of equipment to perform practical tasks accurately.            Follow a bread making recipe.            Use kneading and baking techniques.            Use research to develop design criteria for a new type of bread.            Create a product intended for a purpose and user.            Show initial design ideas of a new bread, through discussion and annotated sketches.            Develop designs based on design criteria and clearly communicate one final design.            Evaluate ideas and products against own design criteria.            Understand how key events and individuals in design and technology have helped shape the world.</p>	<p style="text-align: center;"><b><u>Juggling Balls (Textiles/Materials)</u></b></p> <p>Perform skills of cutting, shaping and hemming a juggling ball.            Cut around a template and use a running stitch to create a hem.            Use a functional technique to carefully decorate my fabric.            Perform tie-dye as a technique for decorating my fabric.            Use graphs to analyse existing juggling balls.            Design, using annotations, a circus themed juggling ball.            Follow design criteria to create a product.            Evaluate a product and use other people's views to help evaluate and improve a product.            Research and trial different fillings for a juggling ball and decide upon the most functional one.            To investigate and evaluate existing juggling balls.</p>

		Understand the history behind Warburtons Investigate and analyse a range of existing Warburtons bread products.	
<b>Vocabulary</b>	Bulbs, bulb holders, thin insulated wire, crocodile clips, short springs or stiff bare wire for making springs, foil, clear film, tools, wire cutters, strippers, small screwdrivers	Knead, salt dough, weighing scales, measure, cooling rack, annotate, design	Needles, threads. Fillings, dye, Paper funnels, fabric, decorate
<b>Health and safety</b>	Consider the materials, tools and equipment being used. Explain to children that they should not experiment with mains electricity. Rechargeable batteries shouldn't be used for home-made circuits. In the event of a short circuit they could get very hot and may cause injury. Care should be taken when using wire strippers and cutters as they have sharp edges.	Ensure you have permission for food tasting. Consider food allergies or intolerances. Ensure that there is adequate adult supervision and guidance when children are using kitchen equipment. Food preparation should be done hygienically, surfaces need to be wiped down and hands washed.	Adult supervision will be required when using sharp objects. Take care with the storage of sharp objects. Felt pads with lines drawn on are useful for storing and checking needles. Ongoing work with needles attached should be stored in resealable bags. Parental permission should be sought before using dyes or rubber gloves in order to identify any allergies for consideration. It is advisable that children wear aprons and plastic gloves when using dyes and wash hands after use.
<b>Suggested Trips / Enrichment</b>	Showcase the products made STEMgineers workshop	Visit from our own school chef Forest school	Specialist visitor



## LONG TERM OVERVIEW FOR DESIGN TECHNOLOGY

**KEY: MASTER PRACTICAL SKILLS DESIGN, MAKE, EVALUATE AND IMPROVE TAKE INSPIRATION FROM DESIGN THROUGHOUT HISTORY**

Year 5	Autumn Term	Spring Term	Summer Term
Topic	OFF WITH THEIR HEADS!	EXPELLIARMUS!	THE HOUSE OF WISDOM
<b>Milestones</b>	<p><u>Cut and join materials with precision and refine the finish with appropriate tools</u></p> <p><u>Design with the user in mind.</u></p> <p><u>Make products</u></p> <p><u>Combine elements of design from of inspirational designers throughout history</u></p> <p><u>Create innovative designs</u></p>	<p><u>Understand the importance of correct storage and handling of ingredients using knowledge of micro-organisms</u></p> <p><u>Measure accurately</u></p> <p><u>Create and refine recipes, including ingredients, methods, cooking times and temperatures.</u></p> <p><u>Design with the user in mind, motivated by the service a product will offer.</u></p> <p><u>Make products through stages of prototypes</u></p> <p><u>Combine elements of design from a range of inspirational designers throughout history.</u></p> <p><u>Create innovative designs that improve upon existing products.</u></p>	<p><u>Use innovative combinations of computing and mechanics in product designs.</u></p> <p><u>Convert rotary motion to linear using cams.</u></p> <p><u>Develop a range of practical skills to create products such as cutting, drilling and screwing, nailing, gluing, filing and sanding.</u></p> <p><u>Design with the user in mind, motivated by the service a product will offer rather than simply for profit</u></p> <p><u>Make products through stages of prototypes, making continual refinements.</u></p> <p><u>Combine elements of design from a range of inspirational designers throughout history, giving reasons for choices.</u></p> <p><u>Create innovative designs that improve upon existing products.</u></p>
<b>Knowledge Webs &amp; POP Tasks</b>	<p style="text-align: center;"><b><u>Marbulous Structures (Materials)</u></b></p> <p>Apply an understanding of structures, by strengthening, reinforcing and stabilising a cardboard tube.</p> <p>Select from and use materials and components to make a marble run</p> <p>Develop practical skills to help make bends in marble runs.</p> <p>Accurately join cardboard tubes together.</p> <p>Create a design criteria</p> <p>Evaluate their own marble run product against the design criteria and using other people's opinions.</p> <p>Evaluate and improve my design and technology work.</p> <p>Investigate existing commercially bought marble runs.</p> <p>Investigate and analyse existing free standing structures.</p>	<p style="text-align: center;"><b><u>Super Seasonal Cooking (Food)</u></b></p> <p>Work as a group to generate, evaluate and refine recipe ideas.</p> <p>Prepare and cook a healthy seasonal meal.</p> <p>Taste and evaluate seasonal foods and recognise that sometimes we need to try a new food a few times to find out if we like it.</p> <p>Explain the importance of protein as a proportion of a healthy varied diet.</p> <p>Take feedback and improve my designs.</p> <p>Explain how to correctly store and handle meat and fish.</p> <p>Evaluate their products against their own design criteria.</p> <p>Explain what seasonality means and know when different fruit and vegetables are in season in the United Kingdom.</p> <p>Explain where, when and how a variety of ingredients are reared, caught and processed.</p>	<p style="text-align: center;"><b><u>Automata Animals (Mechanics)</u></b></p> <p>Use a mechanism systems (cam mechanism) in a product</p> <p>Select and use tools to perform practical tasks (cutting, shaping, joining and finishing) to make a wood frame.</p> <p>Develop design criteria fit for purpose</p> <p>Explain how simple cam mechanisms can be used</p> <p>Select appropriate materials to create a mechanical system.</p> <p>Use research and design criteria to inform a design</p> <p>Evaluate own products based on design criteria and opinions of others.</p> <p>Research information about existing animals to inform a design.</p>

<b>Vocabulary</b>	Cardboard tubes, marbles, stopwatches, joining materials, scissors, craft knives, cutting boards	Hygiene, safety storage, seasonal, equipment, ingredients, design, colour coded	Dowel, hacksaws, benching, drill, plastic tubing, wooden cams,
<b>Health and safety</b>	Consider the materials, tools and equipment being used. Scissor and craft knife safety rules should always be followed. Craft knives should only be used when closely supervised. Take extra care when using marbles with children as these can be a choking hazard.	Ensure you have permission for food tasting. Consider food allergies or intolerances. Ensure that there is adequate adult supervision and guidance when children are using kitchen equipment. Food preparation should be done hygienically, surfaces need to be wiped down and hands washed. Take care when considering meats or fish.	Adult supervision will be required when using sharp objects. Take care with the storage of sharp objects. Hacksaws, drills and hammers should be used under strict supervision.
<b>Suggested Trips / Enrichment</b>	Showcase products made	Visit from our own school chef Forest School	Showcase the products made STEMgineers workshop

## LONG TERM OVERVIEW FOR DESIGN TECHNOLOGY

**KEY: MASTER PRACTICAL SKILLS DESIGN, MAKE, EVALUATE AND IMPROVE TAKE INSPIRATION FROM DESIGN THROUGHOUT HISTORY**

Year 6	Autumn Term	Spring Term	Summer Term
Topic	<b>VICTORY IS OURS!</b>	<b>GREAT EXPECTATIONS</b>	<b>TROY STORY</b>
Milestones	<p><u>Create circuits using electronics kits that employ a number of components (such as LEDs, resistors, transistors and chips).</u></p> <p><u>Ensure products have a high quality finish.</u></p> <p><u>Use prototypes to represent designs.</u></p> <p><u>Evaluate the design of products</u></p>	<p><u>Show an understanding of the qualities of materials to choose appropriate tools to cut and shape</u></p> <p><u>Use the qualities of materials to create suitable visual and tactile effects in the decoration of textiles</u></p> <p><u>Use innovative combinations of computing in product designs.</u></p> <p><u>Ensure products have a high quality finish, using art skills where appropriate.</u></p> <p><u>Use prototypes and cross-sectional diagrams to represent designs.</u></p> <p><u>Evaluate the design of products so as to suggest improvements to the user experience.</u></p>	<p><u>Measure accurately and calculate ratios of ingredients to scale up or down from a recipe.</u></p> <p><u>Demonstrate a range of baking and cooking techniques.</u></p> <p><u>Ensure products have a high quality finish, using art skills where appropriate.</u></p> <p><u>Use prototypes, cross-sectional diagrams and computer aided designs to represent designs.</u></p> <p><u>Evaluate the design of products so as to suggest improvements to the user experience.</u></p>
Knowledge Webs & POP Tasks	<p style="text-align: center;"><b><u>Christmas Decorations (Electricity)</u></b></p> <p>Apply skills and knowledge of soldering to build a working circuit.</p> <p>Test and modify a circuit in the purpose of finding fault.</p> <p>Understand how to read a resistor</p> <p>Understand the characteristics and functions of capacitors</p> <p>Understand the characteristics and functions of LEDs</p> <p>Understand the characteristics and functions of transistors</p> <p>Understand the characteristics and functions of switches</p> <p>Understand the characteristics and functions of functioning circuits</p> <p>Understand the characteristics and functions of resistors.</p> <p>Design, make and evaluate a Christmas decoration which includes a LED light.</p>	<p style="text-align: center;"><b><u>Felt Phone Cases (Textiles)</u></b></p> <p>Select appropriate decorative techniques and fastenings for a product.</p> <p>Practices using different types of stitches and choose the best one to use on a final product.</p> <p>Write design criteria for a mobile phone case.</p> <p>Evaluate a product against their own design criteria.</p> <p>Create a step by step plan to communicate the making process.</p> <p>Make a paper template</p> <p>Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams</p> <p>Generate a range of design ideas and clearly communicate my final design.</p> <p>Use existing designs and research to develop design criteria for a product.</p>	<p style="text-align: center;"><b><u>Global Food (Food)</u></b></p> <p>Prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques in the context of cooking a German dish, a pretzel.</p> <p>Demonstrate a range of basic and advanced food skills and cooking techniques to cook a Chinese dish.</p> <p>Demonstrate a range of food skills and techniques to cook a Mexican dish.</p> <p>Accurately and mainly independently write up and follow a recipe demonstrating a range of cooking techniques.</p> <p>Cook rice and explain the nutritional benefits of eating it.</p> <p>Understand and apply the principles of a healthy and varied diet.</p> <p>Explain that diets around the world are based on similar food groups.</p>

	Evaluate and analyse existing LED Christmas decorations.		
<b>Vocabulary</b>	LED, resistor, solder, circuit, switches, transistors, capacitors	Felt, mobile phone case, velcro, thread, needle, press studs, fastening	Equipment, heat, global, traditional, preparation, recipe, ingredients,
<b>Health and safety</b>	Consider the materials, tools and equipment being used. Explain to children that they should not experiment with mains electricity. Rechargeable batteries shouldn't be used for home-made circuits. In the event of a short circuit they could get very hot and may cause injury. Care should be taken when using wire strippers and cutters as they have sharp edges. Take care when using a solder, ensure it is done under adult supervision.	Adult supervision will be required when using sharp objects. Take care with the storage of sharp objects. Felt pads with lines drawn on are useful for storing and checking needles. Ongoing work with needles attached should be stored in resealable bags.	Ensure you have permission for food tasting. Consider food allergies or intolerances. Ensure that there is adequate adult supervision and guidance when children are using kitchen equipment. Food preparation should be done hygienically, surfaces need to be wiped down and hands washed. Extra care should be taken when using a heat source to cook food and children should be made aware of health and safety factors.
<b>Suggested Trips / Enrichment</b>	Showcase created products	Specialist visitor	Visit from our own school chef Forest school