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# Rationale & Intent

At St Helen's, we are guided by the National Curriculum for Design and Technology (2014). The National Curriculum for Design and Technology aims to ensure that all pupils:

- develop the creative, technical and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world
- build and apply a repertoire of knowledge, understanding and skills in order to design and make a range of high-quality, prototypes and products from sustainable materials for a wide range of users
- critique, evaluate and test their ideas and products and the work of others
- understand and apply the principles of nutrition and learn how to cook

Our intent is that our teaching of Design and Technology will, through a variety of creative and practical activities, help pupils gain the skills needed to engage in the process of designing and making. As part of their work with food, which is planned into each year group, we endeavour to teach children the principles of nutrition and healthy eating. We aim to instil a love of cooking in pupils and encourage them to plan and prepare affordable and sustainable foods. By teaching children to cook we aim for our children to learn a valuable life skill that we enable them to feed themselves and others now and in later life.

To meet these objectives, we have planned a well sequenced, challenging curriculum. Design and Technology lessons focus on developing practical skills as well as giving the children the opportunity to explore existing products and evaluate their own work against a design criteria. We intend for our children to have real life experiences and learn about Design and Technology in a range of relevant contexts. The planning of learning always begins with the skills and knowledge that needs to be taught and enrichment opportunities and opportunities to apply learning are carefully mapped.

# Reception Learning Journey



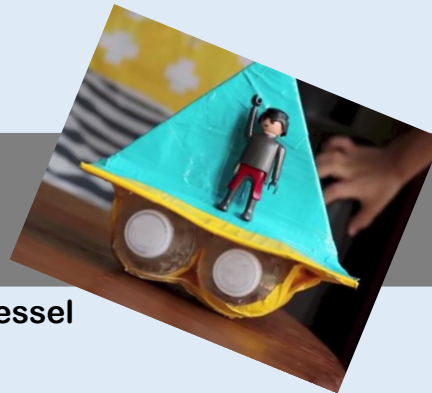
Autumn 1

**Focus:** Designing and Making a Stick Man



Autumn 2

**Focus:** Baking a birthday cake



Spring 2

**Focus:** Making a floating vessel



Spring 1

**Focus:** Creating a recycled mobile



Summer 1

**Focus:** Designing and making a flag



Summer 2

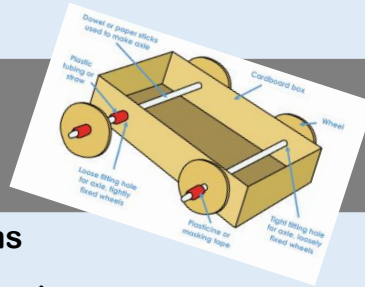
**Focus:** Making a moving object for Percy the Park Keeper

# Key Stage One Learning Journey

Year 1

Aspect: Mechanisms

Focus: Wheels and axles



Year 1

Aspect: Food

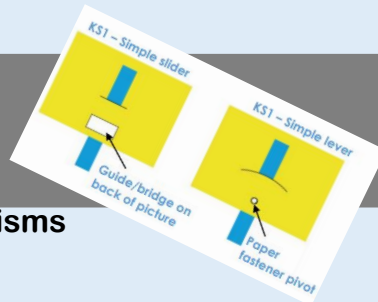
Focus: Preparing Fruit and vegetables



Year 2

Aspect: Mechanisms

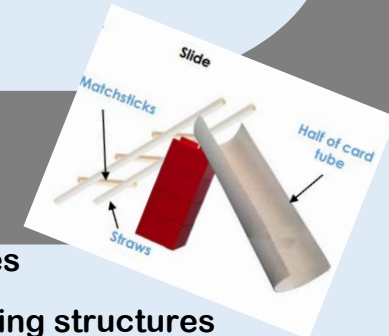
Focus: Sliders



Year 1

Aspect: Structures

Focus: Freestanding structures



Year 2

Aspect: Food

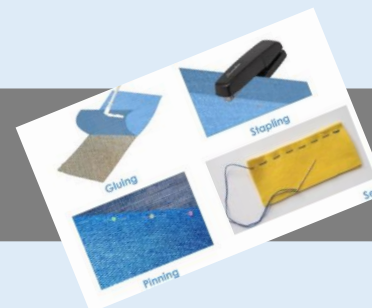
Focus: Making Bread



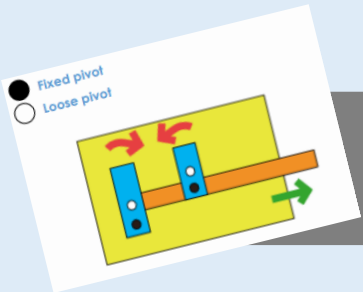
Year 2

Aspect: Textiles

Focus: Templates and joining techniques



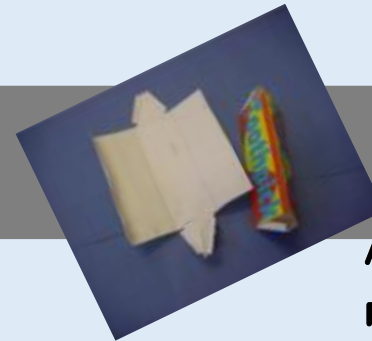
# Lower Key Stage Two Learning Journey



Year 3

**Aspect: Mechanical Systems**

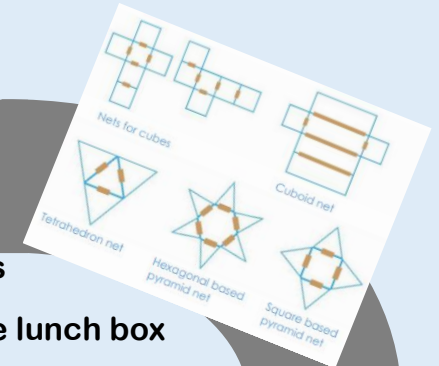
**Focus: Levers & Linkages**



Year 3

**Aspect: Structures**

**Focus: Sustainable lunch box**



Year 4

**Aspect: Textiles**

**Focus: Bag with recycled materials**



Year 3

**Aspect: Food**

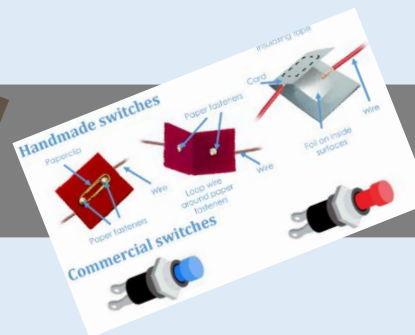
**Focus: Sandwich**



Year 4

**Aspect: Food**

**Focus: Healthy cereal bar**



Year 4

**Aspect: Electrical systems**

**Focus: Design and make an alarm**



# Upper Key Stage Two Learning Journey

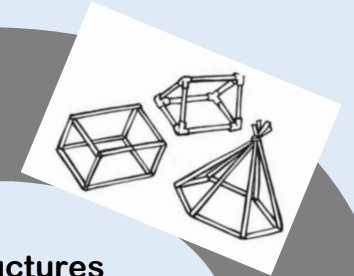
Year 5

**Aspect: Mechanical Systems**  
**Focus: Making a moving game**



Year 5

**Aspect: Structures**  
**Focus: Framing structures**



Year 6

**Aspect: Food**  
**Focus: Following a recipe**



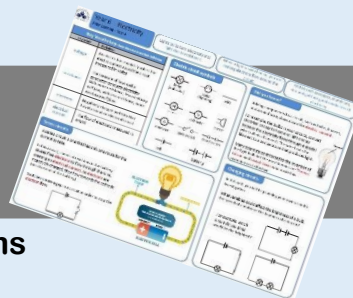
Year 5

**Aspect: Food**  
**Focus: Celebrating seasonality**



Year 6

**Aspect: Electrical Systems**  
**Focus: Complex circuits**



Year 6

**Aspect: Textiles**  
**Focus: Combining different fabric shapes**









# EYFS Long Term Overview




Nursery	
<b>Overview</b>	Throughout the year, children have a weekly rhyme focus. Each week, there is a focus on children developing their own ideas and deciding what materials they need to express them, linked to the featured rhyme. Children talk to adults about what they want to create and adults skilfully offering suggestions to extend/support the children as required. Children have free access to materials and tools, such as scissors, glue, paperclips and fastenings that they may need to make their ideas.
<b>Vocabulary</b>	make, cut, stick, fix, materials

Reception						
	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
<b>Overview</b>	Children will explore the natural environment and use the story 'The Stick Man' to design and make a stick man focusing on how to use tools safely and how to join materials together.	During their 'Celebrations' unit the children will read Kipper's birthday. They will look at birthday cake designs, talk about ideas for Kipper and then design and bake their own birthday cakes. The children will be guided on how to measure and mix the ingredients and then talk about the baking process.	Throughout Spring 1, children will be focusing on the weather and reading 'A Windy Day.' They will be skilfully guided in how to create a recycled material mobile. The children will be encouraged to select and use different textures of material. The mobiles will then hang outside and then talk about how they constructed the final product.	With links to their science unit 'Floating and Sinking,' children will be encouraged to design, select materials, join materials and finally make a floating vessel linked with Mr. Gumpy's outing. These will then be used in context to retell the story.	During the focus of 'Castles' children will be encouraged to design and make a flag to go on the top of the castle. They will be encouraged to discuss the textures they choose to go on the flag and skilfully led on how to join them together to create a finished project.	Throughout their unit on nature, children will be set a challenge to see how their story character – 'Percy the Park Keeper' can move his plants. Children will be provided with a variety of wheels and boxes to allow them to design and make a movable object such as a wheelbarrow.
<b>Vocabulary</b>	design, join, assemble, construct, textures					

# Years 1 to 6 Long Term Overviews

At St Helen's, we use the following symbols in KS1 and KS2 to sequence our teaching and learning. Children are exposed to these symbols throughout each stage of the design, make and evaluate process.

Symbol	Meaning
	Product – What will you be making?
	User – This is who will be using your product.
	Purpose – This is what your product will be used for.
	Investigate and evaluate products on that are already on the market.
	Focused tasks – These are the skills I must practise during this project.
	Design – This is the drawing you will do of your ideas and plans of what to make.

	<p>Safety – These are the things we need to be aware of and that could hurt us if we are not safe and sensible.</p>
	<p>Make – This is the time you make your product using the skills you practised in the focused tasks.</p>
	<p>Evaluate – Look back at the initial task- does your product meet the intended purpose?</p>

Year 1 Unit 1	
Aspect of DT	Mechanisms
Focus	Design and make a movable vehicle using wheels and axels
Substantive and disciplinary knowledge	<p><b>Substantive and Disciplinary Knowledge</b></p> <p><b>Designing</b></p> <ul style="list-style-type: none"> <li>• Generate initial ideas and simple design criteria through talking and using own experiences.</li> <li>• Develop and communicate ideas through drawings and mock-ups.</li> </ul> <p><b>Making</b></p> <ul style="list-style-type: none"> <li>• Select from and use a range of tools and equipment to perform practical tasks such as cutting and joining to allow movement and finishing.</li> <li>• Select from and use a range of materials and components such as paper, card, plastic and wood according to their characteristics.</li> </ul> <p><b>Evaluating</b></p> <ul style="list-style-type: none"> <li>• Explore and evaluate a range of products with wheels and axles.</li> <li>• Evaluate their ideas throughout and their products against original criteria.</li> </ul> <p><b>Technical knowledge and understanding</b></p> <ul style="list-style-type: none"> <li>• Explore and use wheels, axles and axle holders.</li> <li>• Distinguish between fixed and freely moving axles.</li> </ul>
Key Vocabulary	wheel, axel, axel holder, cutting, joining, dowel, body

## Year 1 Unit 2

<b>Aspect of DT</b>	Food
<b>Focus</b>	Preparing fruit and vegetables – Design and make a fruit salad
<b>Substantive and disciplinary knowledge</b>	<p><b>Substantive and Disciplinary Knowledge</b></p> <p><b>Prior learning</b></p> <ul style="list-style-type: none"> <li>• Experience of common fruit and vegetables, undertaking sensory activities i.e. appearance taste and smell.</li> <li>• Experience of cutting soft fruit and vegetables using appropriate utensils.</li> </ul> <p><b>Designing</b></p> <ul style="list-style-type: none"> <li>• Design appealing products for a particular user based on simple design criteria.</li> <li>• Generate initial ideas and design criteria through investigating a variety of fruit and vegetables.</li> <li>• Communicate these ideas through talk and drawings.</li> </ul> <p><b>Making</b></p> <ul style="list-style-type: none"> <li>• Use simple utensils and equipment to e.g. peel, cut, slice, squeeze, grate and chop safely.</li> <li>• Select from a range of fruit and vegetables according to their characteristics e.g. colour, texture and taste to create a chosen product.</li> </ul> <p><b>Evaluating</b></p> <ul style="list-style-type: none"> <li>• Taste and evaluate a range of fruit and vegetables to determine the intended user’s preferences.</li> <li>• Evaluate ideas and finished products against design criteria, including intended user and purpose.</li> </ul> <p><b>Technical knowledge and understanding</b></p> <ul style="list-style-type: none"> <li>• Understand where a range of fruit and vegetables come from e.g. farmed or grown at home.</li> <li>• Understand and use basic principles of a healthy and varied diet to prepare dishes, including how fruit and vegetables are part of <i>The eatwell plate</i>.</li> <li>• Know and use technical and sensory vocabulary relevant to the project</li> </ul>
<b>Key Vocabulary</b>	slice, peeler, grate, squeeze, juicy, healthy, peel, core, grown, farm

Year 1 Unit 3

Aspect of DT	Free-Standing Structures
Focus	Playground equipment
Substantive and disciplinary knowledge	<p><b>Substantive and Disciplinary Knowledge</b></p> <p><b>Designing</b></p> <ul style="list-style-type: none"> <li>• <b>Generate ideas based on simple design criteria and their own experiences, explaining what they could make.</b></li> <li>• <b>Develop, model and communicate their ideas through talking, mock-ups and drawings.</b></li> </ul> <p><b>Making</b></p> <ul style="list-style-type: none"> <li>• <b>Plan by suggesting what to do next.</b></li> <li>• <b>Select and use tools, skills and techniques, explaining their choices.</b></li> <li>• <b>Select new and reclaimed materials and construction kits to build their structures.</b></li> <li>• <b>Use simple finishing techniques suitable for the structure they are creating.</b></li> </ul> <p><b>Evaluating</b></p> <ul style="list-style-type: none"> <li>• <b>Explore a range of existing freestanding structures in the school and local environment e.g. everyday products and buildings.</b></li> <li>• <b>Evaluate their product by discussing how well it works in relation to the purpose, the user and whether it meets the original design criteria.</b></li> </ul> <p><b>Technical knowledge and understanding</b></p> <ul style="list-style-type: none"> <li>• <b>Know how to make freestanding structures stronger, stiffer and more stable.</b></li> <li>• <b>Know and use technical vocabulary relevant to the project.</b></li> </ul>
Key Vocabulary	fold, weak, strong, base, frame, stable, freestanding, joint

Year 2 Unit 1

Aspect of DT	Mechanisms
Focus	Sliders – To make a moving Christmas Card
Substantive and disciplinary knowledge	<p><b>Substantive and Disciplinary Knowledge</b></p> <p><b>Designing</b></p> <ul style="list-style-type: none"> <li>• Generate ideas based on simple design criteria and their own experiences, explaining what they could make.</li> <li>• Develop, model and communicate their ideas through drawings and mock-ups with card and paper.</li> </ul> <p><b>Making</b></p> <ul style="list-style-type: none"> <li>• Plan by suggesting what to do next.</li> <li>• Select and use tools, explaining their choices, to cut, shape and join paper and card.</li> <li>• Use simple finishing techniques suitable for the product they are creating.</li> </ul> <p><b>Evaluating</b></p> <ul style="list-style-type: none"> <li>• Explore a range of existing books and everyday products that use simple sliders and levers.</li> <li>• Evaluate their product by discussing how well it works in relation to the purpose and the user and whether it meets design criteria.</li> </ul> <p><b>Technical knowledge and understanding</b></p> <ul style="list-style-type: none"> <li>• Explore and use sliders and levers.</li> <li>• Understand that different mechanisms produce different types of movement.</li> <li>• Know and use technical vocabulary relevant to the project</li> </ul>
Key Vocabulary	slider, slot, bridge, guide

Year 2 Unit 2

Aspect of DT	Food
Focus	Making bread
Substantive and disciplinary knowledge	<p><b>Substantive and Disciplinary knowledge:</b></p> <p><b>Designing</b></p> <ul style="list-style-type: none"> <li>• Design appealing products for a particular user based on simple design criteria.</li> <li>• Generate initial ideas and design criteria through investigating a variety of breads, seasonings and condiments.</li> <li>• Communicate these ideas through talk and drawings.</li> </ul> <p><b>Making</b></p> <ul style="list-style-type: none"> <li>• Use simple utensils and equipment to e.g. measure, mix,</li> <li>• Learn how to measure accurately using measuring spoons, cups and jugs</li> <li>• Mix carefully and effectively</li> <li>• Select from a range of seasonings and condiments according to their characteristics e.g. colour, texture and taste to create a chosen product.</li> </ul> <p><b>Evaluating</b></p> <ul style="list-style-type: none"> <li>• Taste and evaluate a range of bread to determine the intended user’s preferences.</li> <li>• Evaluate ideas and finished products against design criteria, including intended user and purpose.</li> </ul> <p><b>Technical knowledge and Understanding</b></p> <ul style="list-style-type: none"> <li>• Understand and use basic principles of a healthy and varied diet to prepare dishes, including how bread are part of The Eatwell plate.</li> <li>• Know and use technical and sensory vocabulary relevant to the project.</li> </ul>
Key Vocabulary	knead, dough, rise, yeast, Eatwell plate

Year 2 Unit 3

Aspect of DT	Textiles
Focus	Puppets
Substantive and disciplinary knowledge	<p><b>Substantive and Disciplinary Knowledge</b></p> <p><b>Designing</b></p> <ul style="list-style-type: none"> <li>• Design a functional and appealing product for a chosen user and purpose based on simple design criteria.</li> <li>• Generate, develop, model and communicate their ideas as appropriate through talking, drawing, templates, mock-ups and information and communication technology.</li> </ul> <p><b>Making</b></p> <ul style="list-style-type: none"> <li>• Select from and use a range of tools and equipment to perform practical tasks such as marking out, cutting, joining and finishing.</li> <li>• Select from and use textiles according to their characteristics.</li> </ul> <p><b>Evaluating</b></p> <ul style="list-style-type: none"> <li>• Explore and evaluate a range of existing textile products relevant to the project being undertaken.</li> <li>• Evaluate their ideas throughout and their final products against original design criteria.</li> </ul> <p><b>Technical knowledge and understanding</b></p> <ul style="list-style-type: none"> <li>• Understand how simple 3-D textile products are made, using a template to create two identical shapes.</li> <li>• Understand how to join fabrics using different techniques focusing on running stitch, glue</li> <li>• Explore different finishing techniques e.g. using painting, fabric crayons, stitching, sequins, buttons and ribbons.</li> <li>• Know and use technical vocabulary relevant to the project</li> </ul>
Key Vocabulary	template, pattern, pieces, mark out, join, decorate, finish

Year 3 Unit 1

Aspect of DT	Mechanics
Focus	Levers and Linkages
Substantive and disciplinary knowledge	<p><b>Substantive and Disciplinary Knowledge</b></p> <p><b>Prior learning</b></p> <ul style="list-style-type: none"> <li>• Explored and used mechanisms such as flaps, sliders and levers.</li> <li>• Gained experience of basic cutting, joining and finishing techniques with paper and card.</li> </ul> <p><b>Designing</b></p> <ul style="list-style-type: none"> <li>• Generate realistic ideas and their own design criteria through discussion, focusing on the needs of the user.</li> </ul> <p><b>Making</b></p> <ul style="list-style-type: none"> <li>• Order the main stages of making.</li> <li>• Select from and use appropriate tools with some accuracy to cut, shape and join paper and card.</li> <li>• Select from and use finishing techniques suitable for the product they are creating.</li> </ul> <p><b>Evaluating</b></p> <ul style="list-style-type: none"> <li>• Investigate and analyse books and, where available, other products with lever and linkage mechanisms.</li> <li>• Evaluate their own products and ideas against criteria and user needs, as they design and make.</li> </ul> <p><b>Technical knowledge and understanding</b></p> <ul style="list-style-type: none"> <li>• Understand and use lever and linkage mechanisms.</li> <li>• Distinguish between fixed and loose pivots.</li> <li>• Know and use technical vocabulary relevant to the project.</li> </ul>
Key Vocabulary	mechanism, guide, linear, rotary, oscillating, reciprocating

Year 3 Unit 2

Aspect of DT	Structures
Focus	Make a sustainable lunch box
Substantive and disciplinary knowledge	<p><b>Substantive and Disciplinary Knowledge</b></p> <p><b>Designing</b></p> <ul style="list-style-type: none"> <li>• Generate realistic ideas and design criteria collaboratively through discussion, focusing on the needs of the user and purpose of the product.</li> <li>• Develop ideas through the analysis of existing products and use annotated sketches and prototypes to model and communicate ideas.</li> </ul> <p><b>Making</b></p> <ul style="list-style-type: none"> <li>• Order the main stages of making. Select and use appropriate tools to measure, mark out, cut, score, shape and assemble with some accuracy.</li> <li>• Explain their choice of materials according to functional properties and aesthetic qualities.</li> <li>• Use finishing techniques suitable for the product they are creating.</li> </ul> <p><b>Evaluating</b></p> <ul style="list-style-type: none"> <li>• Investigate and evaluate a range of existing shell structures including the materials, components and techniques that have been used.</li> <li>• Test and evaluate their own products against design criteria and the intended user and purpose.</li> </ul> <p><b>Technical knowledge and understanding</b></p> <ul style="list-style-type: none"> <li>• Develop and use knowledge of how to construct strong, stiff shell structures.</li> <li>• Develop and use knowledge of nets of cubes and cuboids and, where appropriate, more complex 3D shapes.</li> <li>• Know and use technical vocabulary relevant to the project.</li> </ul>
Key Vocabulary	corrugating, ribbing, laminating, tabs, adhesives, assemble, scoring

Year 3 Unit 3

Aspect of DT	Food
Focus	Making a sandwich
Substantive and disciplinary knowledge	<p><b>Substantive and Disciplinary knowledge</b></p> <p><b>Prior learning</b></p> <ul style="list-style-type: none"> <li>• Know some ways to prepare ingredients safely and hygienically.</li> <li>• Have some basic knowledge and understanding about healthy eating and <i>The eatwell plate</i>.</li> <li>• Have used some equipment and utensils and prepared and combined ingredients to make a product.</li> </ul> <p><b>Designing</b></p> <ul style="list-style-type: none"> <li>• Generate and clarify ideas through discussion with peers and adults to develop design criteria including appearance, taste, texture and aroma for an appealing product for a particular user and purpose.</li> <li>• Use annotated sketches and appropriate information and communication technology, such as web-based recipes, to develop and communicate ideas.</li> </ul> <p><b>Making</b></p> <ul style="list-style-type: none"> <li>• Plan the main stages of a recipe, listing ingredients, utensils and equipment.</li> <li>• Select and use appropriate utensils and equipment to prepare and combine ingredients.</li> <li>• Select from a range of ingredients to make appropriate food products, thinking about sensory characteristics.</li> </ul> <p><b>Evaluating</b></p> <ul style="list-style-type: none"> <li>• Carry out sensory evaluations of a variety of ingredients and products. Record the evaluations using e.g. tables and simple graphs.</li> <li>• Evaluate the ongoing work and the final product with reference to the design criteria and the views of others.</li> </ul> <p><b>Technical knowledge and understanding</b></p> <ul style="list-style-type: none"> <li>• Know how to use appropriate equipment and utensils to prepare and combine food.</li> <li>• Know about a range of fresh and processed ingredients appropriate for their product, and whether they are grown, reared or caught.</li> <li>• Know and use relevant technical and sensory vocabulary appropriately.</li> </ul>
Key Vocabulary	fresh, hygienic, edible, appearance, utensils, aroma, texture, appearance

Year 4 Unit 1

Aspect of DT	Textiles
Focus	Design and make a bag using recycled materials
Substantive and disciplinary knowledge	<p><b>Substantive and Disciplinary Knowledge</b></p> <p><b>Prior learning</b></p> <ul style="list-style-type: none"> <li>• Have joined fabric in simple ways by gluing and stitching.</li> <li>• Have used simple patterns and templates for marking out.</li> <li>• Have evaluated a range of textile products.</li> </ul> <p><b>Designing</b></p> <ul style="list-style-type: none"> <li>• Generate realistic ideas through discussion and design criteria for an appealing, functional product fit for purpose and specific user/s.</li> <li>• Produce annotated sketches, prototypes, final product sketches and pattern pieces.</li> </ul> <p><b>Making</b></p> <ul style="list-style-type: none"> <li>• Plan the main stages of making.</li> <li>• Select and use a range of appropriate tools with some accuracy e.g. cutting, joining and finishing.</li> <li>• Select fabrics and fastenings according to their functional characteristics e.g. strength, and aesthetic qualities e.g. pattern.</li> </ul> <p><b>Evaluating</b></p> <ul style="list-style-type: none"> <li>• Investigate a range of 3-D textile products relevant to the project.</li> <li>• Test their product against the original design criteria and with the intended user.</li> <li>• Take into account others' views.</li> </ul> <p><b>Technical knowledge and understanding</b></p> <ul style="list-style-type: none"> <li>• Know how to strengthen, stiffen and reinforce existing fabrics.</li> <li>• Understand how to securely join two pieces of fabric together. – blanket stitch</li> <li>• Understand the need for patterns and seam allowances.</li> <li>• Know and use technical vocabulary relevant to the project</li> </ul>
Key Vocabulary	fastening, compartment, structure, weakness, stiffening, templates, stitch, seam, seam allowance, blanket stitch

Year 4 Unit 2

Aspect of DT	Food
Focus	Create a Healthy Cereal Bar
Substantive and disciplinary knowledge	<p><b>Substantive and Disciplinary Knowledge</b></p> <p><b>Designing</b></p> <ul style="list-style-type: none"> <li>• Generate and clarify ideas through discussion with peers and adults to develop design criteria including appearance, taste, texture and aroma for an appealing product for a particular user and purpose.</li> <li>• Use annotated sketches and appropriate information and communication technology, such as web-based recipes, to develop and communicate ideas.</li> </ul> <p><b>Making</b></p> <ul style="list-style-type: none"> <li>• Plan the main stages of a recipe, listing ingredients, utensils and equipment.</li> <li>• Select and use appropriate utensils and equipment to prepare and combine ingredients.</li> <li>• Select from a range of ingredients to make appropriate food products, thinking about sensory characteristics.</li> </ul> <p><b>Evaluating</b></p> <ul style="list-style-type: none"> <li>• Carry out sensory evaluations of a variety of ingredients and products. Record the evaluations using e.g. tables and simple graphs.</li> <li>• Evaluate the ongoing work and the final product with reference to the design criteria and the views of others.</li> </ul> <p><b>Technical knowledge and understanding</b></p> <ul style="list-style-type: none"> <li>• Know how to use appropriate equipment and utensils to prepare and combine food.</li> <li>• Know about a range of fresh and processed ingredients appropriate for their product, and whether they are grown, reared or caught.</li> <li>• Know and use relevant technical and sensory vocabulary appropriately</li> </ul>
Key Vocabulary	ingredients, recipe, dried fruit, combine, cereal

Year 4 Unit 3

Aspect of DT	Electrical Systems
Focus	Design and make an alarm.
Substantive and disciplinary knowledge	<p><b>Substantive and Disciplinary Knowledge</b></p> <ul style="list-style-type: none"> <li>• <b>learning</b></li> <li>• Constructed a simple series electrical circuit in science, using bulbs, switches and buzzers.</li> <li>• Cut and joined a variety of construction materials, such as wood, card, plastic, reclaimed materials and glue.</li> </ul> <p><b>Designing</b></p> <ul style="list-style-type: none"> <li>• Gather information about needs and wants, and develop design criteria to inform the design of products that are fit for purpose, aimed at particular individuals or groups.</li> <li>• Generate, develop, model and communicate realistic ideas through discussion and, as appropriate, annotated sketches, cross-sectional and exploded diagrams.</li> </ul> <p><b>Making</b></p> <ul style="list-style-type: none"> <li>• Order the main stages of making.</li> <li>• Select from and use tools and equipment to cut, shape, join and finish with some accuracy.</li> <li>• Select from and use materials and components, including construction materials and electrical components according to their functional properties and aesthetic qualities.</li> </ul> <p><b>Evaluating</b></p> <ul style="list-style-type: none"> <li>• Investigate and analyse a range of existing battery-powered products.</li> <li>• Evaluate their ideas and products against their own design criteria and identify the strengths and areas for improvement in their work.</li> </ul> <p><b>Technical knowledge and understanding</b></p> <ul style="list-style-type: none"> <li>• Understand and use electrical systems in their products, such as series circuits incorporating switches, bulbs and buzzers.</li> <li>• Apply their understanding of computing to program and control their products.</li> <li>• Know and use technical vocabulary relevant to the project.</li> </ul>
Key Vocabulary	control, program, system, input device, output device

Year 5 Unit 1

Aspect of DT	Mechanical Systems
Focus	To make a moving game
Substantive and disciplinary knowledge	<p><b>Substantive and Disciplinary Knowledge</b></p> <p><b>Designing</b></p> <ul style="list-style-type: none"> <li>• Generate innovative ideas by carrying out research using surveys, interviews, questionnaires and web-based resources.</li> <li>• Develop a simple design specification to guide their thinking.</li> <li>• <b>Develop and communicate ideas through discussion, annotated drawings, exploded drawings and drawings from different views.</b></li> </ul> <p><b>Making</b></p> <ul style="list-style-type: none"> <li>• Produce detailed lists of tools, equipment and materials. Formulate step-by-step plans and, if appropriate, allocate tasks within a team.</li> <li>• Select from and use a range of tools and equipment to make products that that are accurately assembled and well finished. Work within the constraints of time, resources and cost.</li> </ul> <p><b>Evaluating</b></p> <ul style="list-style-type: none"> <li>• Compare the final product to the original design specification.</li> <li>• Test products with intended user and critically evaluate the quality of the design, manufacture, functionality and fitness for purpose.</li> <li>• Consider the views of others to improve their work.</li> <li>• Investigate famous manufacturing and engineering companies relevant to the project.</li> </ul> <p><b>Technical knowledge and understanding</b></p> <ul style="list-style-type: none"> <li>• <b>Understand that mechanical and electrical systems have an input, process and an output.</b></li> <li>• <b>Understand how gears and pulleys can be used to speed up, slow down or change the direction of movement.</b></li> </ul> <p><b>Technical knowledge and understanding</b></p> <ul style="list-style-type: none"> <li>• <b>Understand that mechanical and electrical systems have an input, process and an output.</b></li> <li>• <b>Understand how gears and pulleys can be used to speed up, slow down or change the direction of movement.</b></li> <li>• <b>Know and use technical vocabulary relevant to the project</b></li> </ul>
Key Vocabulary	snail cam, off-centre cam, peg cam, pear shaped cam follower, axle, shaft, crank, housing, rotation, rotary motion, oscillating motion, reciprocating motion

Year 5 Unit 2

Aspect of DT	Structures
Focus	Frame Structures
Substantive and disciplinary knowledge	<p><b>Substantive and Disciplinary Knowledge</b></p> <p><b>Designing</b></p> <ul style="list-style-type: none"> <li>• Carry out research into user needs and existing products, using surveys, interviews, questionnaires and web-based resources.</li> <li>• Develop a simple design specification to guide the development of their ideas and products, taking account of constraints including time, resources and cost.</li> <li>• Generate, develop and model innovative ideas, through discussion, prototypes and annotated sketches.</li> </ul> <p><b>Making</b></p> <ul style="list-style-type: none"> <li>• Formulate a clear plan, including a step-by-step list of what needs to be done and lists of resources to be used.</li> <li>• Competently select from and use appropriate tools to accurately measure, mark out, cut, shape and join construction materials to make frameworks.</li> <li>• Use finishing and decorative techniques suitable for the product they are designing and making.</li> </ul> <p><b>Evaluating</b></p> <ul style="list-style-type: none"> <li>• Investigate and evaluate a range of existing frame structures.</li> <li>• Critically evaluate their products against their design specification, intended user and purpose, identifying strengths and areas for development, and carrying out appropriate tests.</li> <li>• Research key events and individuals relevant to frame structures.</li> </ul> <p><b>Technical knowledge and understanding</b></p> <ul style="list-style-type: none"> <li>• Understand how to strengthen, stiffen and reinforce 3-D frameworks.</li> <li>• Know and use technical terms relevant to the project</li> </ul>
Key Vocabulary	<b>Vocabulary:</b> frame structure, stiffen, strengthen, reinforce, triangulation, stability, temporary, permanent

Year 5 Unit 3

Aspect of DT	Food
Focus	Celebrating Seasonality
Substantive and disciplinary knowledge	<p><b>Substantive and Disciplinary Knowledge</b></p> <p><b>Designing</b></p> <ul style="list-style-type: none"> <li>• Generate innovative ideas through research and discussion with peers and adults to develop a design brief and criteria for a design specification.</li> <li>• Explore a range of initial ideas, and make design decisions to develop a final product linked to user and purpose.</li> <li>• <b>Use words, annotated sketches and information and communication technology as appropriate to develop and communicate ideas.</b></li> </ul> <p><b>Making</b></p> <ul style="list-style-type: none"> <li>• Write a step-by-step recipe, including a list of ingredients, equipment and utensils</li> <li>• Select and use appropriate utensils and equipment accurately to measure and combine appropriate ingredients.</li> <li>• Make, decorate and present the food product appropriately for the intended user and purpose.</li> </ul> <p><b>Evaluating</b></p> <ul style="list-style-type: none"> <li>• Carry out sensory evaluations of a range of relevant products and ingredients. Record the evaluations using e.g. tables/graphs/charts such as star diagrams.</li> <li>• Evaluate the final product with reference back to the design brief and design specification, taking into account the views of others when identifying improvements.</li> <li>• <b>Understand how the availability of ingredients has influenced eating habits to promote varied and healthy diets.</b></li> </ul> <p><b>Technical knowledge and understanding</b></p> <ul style="list-style-type: none"> <li>• <b>Know how to use utensils and equipment including heat sources to prepare and cook food.</b></li> <li>• <b>Understand about seasonality in relation to food products and the source of different food products.</b></li> <li>• <b>Know and use relevant technical and sensory vocabulary.</b></li> </ul>
Key Vocabulary	spice, herbs varied, carbohydrate, seasonal, availability, processed

Year 6 Unit 1

Aspect of DT	Food
Focus	Following a recipe
Substantive and disciplinary knowledge	<p><b>Substantive</b> and <b>Disciplinary</b> Knowledge</p> <p><b>Design</b></p> <ul style="list-style-type: none"> <li>• Carry out sensory evaluations of a range of relevant products and ingredients.</li> <li>• Record the evaluations using e.g. tables/graphs/charts such as star diagrams.</li> </ul> <p><b>Making</b></p> <ul style="list-style-type: none"> <li>• Select and use appropriate utensils and equipment accurately to measure and combine appropriate ingredients.</li> <li>• Read and follow a chosen recipe.</li> </ul> <p><b>Evaluating</b></p> <ul style="list-style-type: none"> <li>• Evaluate the final product with reference back to the design brief and design specification, taking into account the views of others when identifying improvements.</li> <li>• <b>Technical knowledge and understanding</b></li> <li>• Know how to use utensils and equipment including heat sources to prepare and cook food.</li> <li>• Understand about seasonality in relation to food products and the source of different food products.</li> <li>• Know and use relevant technical and sensory vocabulary.</li> </ul>
Key Vocabulary	sustainability, produce, locality, nutritional value, calories, vitamins, processed, intolerance

Year 6 Unit 2

Aspect of DT	Electrical Systems
Focus	Complex Circuits
Substantive and disciplinary knowledge	<p><b>Substantive and Disciplinary Knowledge</b>            Understanding of the essential characteristics of a series circuit and experience of creating a battery powered, functional, electrical product.</p> <p><b>Designing</b></p> <ul style="list-style-type: none"> <li>• Use research to develop a design specification for a functional product that responds automatically to changes in the environment. Take account of constraints including time, resources and cost.</li> <li>• Generate and develop innovative ideas and share and clarify these through discussion.</li> <li>• Communicate ideas through annotated sketches, pictorial representations of electrical circuits or circuit diagrams.</li> </ul> <p><b>Making</b></p> <ul style="list-style-type: none"> <li>• Formulate a step-by-step plan to guide making, listing tools, equipment, materials and components.</li> <li>• Competently select and accurately assemble materials, and securely connect electrical components to produce a reliable, functional product.</li> </ul> <p><b>Evaluating</b></p> <ul style="list-style-type: none"> <li>• Continually evaluate and modify the working features of the product to match the initial design specification.</li> <li>• Test the system to demonstrate its effectiveness for the intended user and purpose.</li> </ul> <p><b>Technical knowledge and understanding</b></p> <ul style="list-style-type: none"> <li>• Understand and use electrical systems in their products.</li> <li>• Know and use technical vocabulary relevant to the project</li> </ul>
Key Vocabulary	series circuit, components, system, control, switch input and output, program, flowchart, prototype, function

Year 6 Unit 3

Aspect of DT	Textiles
Focus	Combining different fabric shapes
Substantive and disciplinary knowledge	<p><b>Substantive and Disciplinary Knowledge</b></p> <p><b>Designing</b></p> <ul style="list-style-type: none"> <li>• Generate innovative ideas by carrying out research using surveys, interviews, questionnaires and web-based resources.</li> <li>• Develop a simple design specification to guide their thinking.</li> <li>• Develop and communicate ideas through discussion, annotated drawings, exploded drawings and drawings from different views.</li> </ul> <p><b>Making</b></p> <ul style="list-style-type: none"> <li>• Produce detailed lists of tools, equipment and materials. Formulate step-by-step plans and, if appropriate, allocate tasks within a team.</li> <li>• Select from and use a range of tools and equipment to make products that that are accurately assembled and well finished. Work within the constraints of time, resources and cost.</li> </ul> <p><b>Evaluating</b></p> <ul style="list-style-type: none"> <li>• Compare the final product to the original design specification.</li> <li>• Test products with the intended user, where safe and practical, and critically evaluate the quality of the design, manufacture, functionality and fitness for purpose.</li> <li>• Consider the views of others to improve their work.</li> <li>• Investigate famous manufacturing and engineering companies relevant to the project.</li> </ul> <p><b>Technical knowledge and understanding</b></p> <ul style="list-style-type: none"> <li>• Understand that mechanical systems have an input, process and an output.</li> <li>• Understand how cams can be used to produce different types of movement and change the direction of movement.</li> <li>• Know and use technical vocabulary relevant to the project.</li> </ul>
Key Vocabulary	design decisions, wadding, functionality, right side, wrong side, mock-up, hem, insulating

# Progression in DT Skills

	<b>Designing – understanding contexts, users and purposes</b>
<b>Nursery</b>	<ul style="list-style-type: none"> <li>• Begin to talk about what they want to make</li> <li>• Begin to talk about who their product is for</li> </ul>
<b>Reception</b>	<ul style="list-style-type: none"> <li>• Talk about what they want to make</li> <li>• Talk about who their product is for</li> </ul>
<b>Key Stage One</b>	<ul style="list-style-type: none"> <li>• Work confidently within a range of contexts, such as imaginary, story-based, home, school, gardens, playgrounds, local community, industry and the wider environment</li> <li>• State what products they are designing and making</li> <li>• Say whether their products are for themselves or other users and why</li> <li>• Describe what their products are for</li> <li>• Say how their products will work</li> <li>• Say how they will make their products suitable for their intended users</li> <li>• Use simple design criteria to help develop their ideas</li> </ul>
<b>Lower Key Stage Two</b>	<ul style="list-style-type: none"> <li>• Gather information about the needs and wants of particular individuals and groups</li> <li>• Develop their own design criteria and use these to inform their ideas</li> <li>• Work with increasing confidence within a range of contexts, such as the home, school, leisure, culture, enterprise, industry and the wider environment</li> <li>• Begin to describe the purpose of their products</li> <li>• Indicate some of the design features of their products that will appeal to intended users</li> <li>• Explain how particular parts of their products work</li> </ul>
<b>Upper Key Stage Two</b>	<ul style="list-style-type: none"> <li>• Carry out research, using surveys, interviews, questionnaires and web-based resources</li> <li>• Identify the needs, wants, preferences and values of particular individuals and groups</li> <li>• Develop a simple design specification to guide their thinking</li> <li>• Work confidently within a range of contexts, such as the home, school, leisure, culture, enterprise, industry and the wider environment</li> <li>• Describe the purpose of their products</li> <li>• Indicate the design features of their products that will appeal to intended users</li> <li>• Explain in detail how particular parts of their products work</li> </ul>

## Designing – generating, developing, modelling and communicating ideas

Nursery	<ul style="list-style-type: none"><li>• Talk about their ideas to an adult</li></ul>
Reception	<ul style="list-style-type: none"><li>• Talk about their ideas to adults and their peers</li><li>• Begin to generate ideas by using what they know</li></ul>
Key Stage One	<ul style="list-style-type: none"><li>• Generate ideas by drawing on their own experiences</li><li>• Use knowledge of existing products to help come up with ideas</li><li>• Develop and communicate ideas by talking and drawing</li><li>• Model ideas by exploring materials, components and construction kits and by making templates and mockups</li><li>• Use information and communication technology, where appropriate, to develop and communicate their ideas</li></ul>
Lower Key Stage Two	<ul style="list-style-type: none"><li>• Generate realistic ideas, focusing on the needs of the user</li><li>• Make design decisions that take account of the availability of resources</li><li>• Begin to share and clarify ideas through discussion</li><li>• Model some of their ideas using prototypes and pattern pieces</li><li>• Use annotated sketches to develop and communicate their ideas</li></ul>
Upper Key Stage Two	<ul style="list-style-type: none"><li>• Generate innovative ideas, drawing on research</li><li>• Make design decisions, taking account of constraints such as time, resources and cost</li><li>• Share and clarify ideas through discussion</li><li>• Model their ideas using prototypes and pattern pieces</li><li>• Use annotated sketches, cross-sectional drawings and exploded diagrams to develop and communicate their ideas</li><li>• Use computer-aided design to develop and communicate their ideas</li></ul>

## Making – Planning

Nursery	<ul style="list-style-type: none"><li>• When asked, explain what they are going to do next</li></ul>
Reception	<ul style="list-style-type: none"><li>• Plan by suggesting what to do next</li><li>• Select from a given range of tools and equipment</li><li>• With adult input, select from a given range of materials and components according to their characteristics</li></ul>
Key Stage One	<ul style="list-style-type: none"><li>• Select from a given range of tools and equipment, explaining their choices</li><li>• Select from a given range of materials and components according to their characteristics</li></ul>
Lower Key Stage Two	<ul style="list-style-type: none"><li>• Order the main stages of making</li><li>• With help, select tools and equipment suitable for the task</li><li>• With help, explain their choice of tools and equipment in relation to the skills and techniques they will be using</li><li>• With help, select materials and components suitable for the task</li></ul>
Upper Key Stage Two	<ul style="list-style-type: none"><li>• Produce appropriate lists of tools, equipment and materials that they need</li><li>• Formulate step-by-step plans as a guide to making</li><li>• Select tools and equipment suitable for the task</li><li>• Explain their choice of tools and equipment in relation to the skills and techniques they will be using</li><li>• Select materials and components suitable for the task</li><li>• Explain their choice of materials and components according to functional properties and aesthetic qualities</li></ul>

## Making – Practical skills and techniques

<b>Nursery</b>	<ul style="list-style-type: none"> <li>• Cut simple materials independently making the shapes that they wish</li> <li>• With support, begin to cut more difficult materials</li> <li>• Join materials together using glue, masking tape and cellotape</li> </ul>
<b>Reception</b>	<ul style="list-style-type: none"> <li>• Begin to understand some procedures for safety and hygiene</li> <li>• Begin to assemble, join and combine materials and components using resources provided for them</li> <li>• Cut materials independently</li> <li>• Begin to mark out materials that they want to cut.</li> </ul>
<b>Key Stage One</b>	<ul style="list-style-type: none"> <li>• Follow procedures for safety and hygiene</li> <li>• Use a range of materials and components, including construction materials and kits, textiles, food ingredients and mechanical components</li> <li>• Measure, mark out, cut and shape materials and components</li> <li>• Assemble, join and combine materials and components using resources provided for them</li> <li>• Use finishing techniques, including those from art and design</li> </ul>
<b>Lower Key Stage Two</b>	<ul style="list-style-type: none"> <li>• Measure, mark out, cut and shape materials and components with some accuracy</li> <li>• Assemble, join and combine materials and components with some accuracy</li> <li>• Apply a range of finishing techniques, including those from art and design, with some accuracy</li> <li>• Follow procedures for safety and hygiene with guidance</li> <li>• Use a wider range of materials and components than KS1, including construction materials and kits, textiles, food ingredients, mechanical components and electrical components</li> </ul>
<b>Upper Key Stage Two</b>	<ul style="list-style-type: none"> <li>• Accurately measure, mark out, cut and shape materials and components</li> <li>• Accurately assemble, join and combine materials and components</li> <li>• Accurately apply a range of finishing techniques, including those from art and design</li> <li>• Use techniques that involve a number of steps</li> <li>• Demonstrate resourcefulness when tackling practical problems</li> <li>• Follow procedures for safety and hygiene with increasing independence</li> <li>• Use a wider range of materials and components than LKS2, including construction materials and kits, textiles, food ingredients, mechanical components and electrical components</li> </ul>

	<b>Evaluating – Own ideas and products</b>
<b>Nursery</b>	<ul style="list-style-type: none"> <li>• Talk about what they are making</li> <li>• Begin to talk about what they like about what they have made</li> </ul>
<b>Reception</b>	<ul style="list-style-type: none"> <li>• Talk about what they are making and what they like about what they have made</li> </ul>
<b>Key Stage One</b>	<ul style="list-style-type: none"> <li>• Talk about their design ideas and what they are making</li> <li>• Make simple judgements about their products and ideas against design criteria</li> <li>• Suggest how their products could be improved</li> </ul>
<b>Lower Key Stage Two</b>	<ul style="list-style-type: none"> <li>• Refer to their design criteria as they design and make</li> <li>• Use their design criteria to evaluate their completed products</li> <li>• Begin to identify the strengths and areas for development in their ideas and products</li> <li>• Begin to consider the views of others, including intended users, to improve their work</li> </ul>
<b>Upper Key Stage Two</b>	<ul style="list-style-type: none"> <li>• Critically evaluate the quality of the design, manufacture and fitness for purpose of their products as they design and make</li> <li>• Evaluate their ideas and products against their original design specification</li> <li>• Identify the strengths and areas for development in their ideas and products</li> <li>• Consider the views of others, including intended users, to improve their work</li> </ul>

	<b>Evaluating – Key Events and Individuals</b>
<b>Across Key Stage Two</b>	<ul style="list-style-type: none"> <li>• Know and learn about inventors, designers, engineers, chefs and manufacturers who have developed ground-breaking products</li> </ul>

## Evaluating – Existing products

<b>Nursery</b>	<ul style="list-style-type: none"> <li>• Begin to talk about what they like about products</li> </ul>
<b>Reception</b>	<ul style="list-style-type: none"> <li>• Begin to explore what materials products are made from</li> <li>• Talk about what they like about products</li> <li>• Begin to talk about what they dislike about products</li> </ul>
<b>Key Stage One</b>	<p>Pupils should explore:</p> <ul style="list-style-type: none"> <li>• What products are</li> <li>• Who products are for</li> <li>• What products are for</li> <li>• How products work</li> <li>• How products are used</li> <li>• Where products might be used</li> <li>• What materials products are made from</li> <li>• What they like and dislike about products</li> </ul>
<b>Lower Key Stage Two</b>	<p>Pupils should investigate and analyse:</p> <ul style="list-style-type: none"> <li>• Who designed and made the products</li> <li>• Where products were designed and made</li> <li>• When products were designed and made</li> <li>• Whether products can be recycled or reused</li> </ul>
<b>Upper Key Stage Two</b>	<p>Pupils should investigate and analyse:</p> <ul style="list-style-type: none"> <li>• How much products cost to make</li> <li>• How innovative products are</li> <li>• How sustainable the materials in products are</li> <li>• What impact products have beyond their intended purpose</li> </ul>
<b>Across Key Stage Two</b>	<p>Pupils should investigate and analyse:</p> <ul style="list-style-type: none"> <li>• How well products have been designed</li> <li>• How well products have been made</li> <li>• Why materials have been chosen</li> <li>• What methods of construction have been used</li> <li>• How well products work</li> <li>• How well products achieve their purposes</li> <li>• How well products meet user needs and wants</li> </ul>

## Technical Knowledge – Making products work

Nursery	<ul style="list-style-type: none"> <li>• Explore how to make their structures stay ‘standing up’</li> </ul>
Reception	<ul style="list-style-type: none"> <li>• Explore how to make their structures stronger</li> <li>• Explore how to make wheels move</li> </ul>
Key Stage One	<p>Pupils should know:</p> <ul style="list-style-type: none"> <li>• About the simple working characteristics of materials and components</li> <li>• About the movement of simple mechanisms such as levers, sliders, wheels and axles</li> <li>• How freestanding structures can be made stronger, stiffer and more stable</li> <li>• That a 3-D textiles product can be assembled from two identical fabric shapes</li> </ul>
Lower Key Stage Two	<p>Pupils should know:</p> <ul style="list-style-type: none"> <li>• How mechanical systems such as levers and linkages create movement</li> <li>• How simple electrical circuits and components can be used to create functional products</li> <li>• How to make strong, stiff shell structures</li> <li>• That a single fabric shape can be used to make a 3D textiles product</li> <li>• That food ingredients can be fresh, pre-cooked and processed</li> </ul>
Upper Key Stage Two	<p>Pupils should know:</p> <ul style="list-style-type: none"> <li>• How mechanical systems such as cams create movement</li> <li>• How more complex electrical circuits and components can be used to create functional products</li> <li>• How to program a computer to monitor changes in the environment and control their products</li> <li>• How to reinforce and strengthen a 3D framework</li> <li>• That a 3D textiles product can be made from a combination of fabric shapes</li> <li>• That a recipe can be adapted by adding or substituting one or more ingredients</li> </ul>

## Cooking and Nutrition – Where food comes from

Nursery	<ul style="list-style-type: none"><li>Name some food items that can be grown in our gardens at home</li></ul>
Reception	<ul style="list-style-type: none"><li>Learn what we can grow in our gardens at home</li><li>Name a variety of food items that can be grown in our gardens at home</li></ul>
Key Stage One	<p>Pupils should know:</p> <ul style="list-style-type: none"><li>That all food comes from plants or animals</li><li>That food has to be farmed, grown elsewhere (e.g. home) or caught</li></ul>
Lower Key Stage Two	<p>Pupils should know:</p> <ul style="list-style-type: none"><li>That food is grown (such as tomatoes, wheat and potatoes), reared (such as pigs, chickens and cattle) and caught (such as fish) in the UK, Europe and the wider world</li></ul>
Upper Key Stage Two	<p>Pupils should know:</p> <ul style="list-style-type: none"><li>That seasons may affect the food available</li><li>How food is processed into ingredients that can be eaten or used in cooking</li></ul>

## Cooking and Nutrition – Food preparation, cooking and nutrition

<b>Nursery</b>	<ul style="list-style-type: none"> <li>• Make healthy choices about food and drink.</li> <li>• Name and identify a range of different foods.</li> <li>• Express their likes and dislikes in food.</li> </ul>
<b>Reception</b>	<ul style="list-style-type: none"> <li>• Name a variety of different foods.</li> <li>• Know some foods are healthy and some foods are unhealthy and be able to talk to adults about this.</li> <li>• Use basic tools to prepare food products.</li> <li>• Begin to work safely and hygienically with adult support</li> </ul>
<b>Key Stage One</b>	<p>Pupils should know:</p> <ul style="list-style-type: none"> <li>• How to name and sort foods into the five groups in ‘The eatwell plate’</li> <li>• That everyone should eat at least five portions of fruit and vegetables every day</li> <li>• How to prepare simple dishes safely and hygienically, without using a heat source</li> <li>• How to use techniques such as cutting, peeling and grating</li> </ul>
<b>Lower Key Stage Two</b>	<p>Pupils should know:</p> <ul style="list-style-type: none"> <li>• That a healthy diet is made up from a variety and balance of different food and drink, as depicted in The Eatwell plate</li> <li>• That to be active and healthy, food and drink are needed to provide energy for the body</li> </ul>
<b>Upper Key Stage Two</b>	<p>Pupils should know:</p> <ul style="list-style-type: none"> <li>• That recipes can be adapted to change the appearance, taste, texture and aroma</li> <li>• That different food and drink contain different substances – nutrients, water and fibre – that are needed for health</li> </ul>
<b>Across Key Stage Two</b>	<p>Pupils should know:</p> <ul style="list-style-type: none"> <li>• How to prepare and cook a variety of predominantly savoury dishes safely and hygienically including, where appropriate, the use of a heat source</li> <li>• How to use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking</li> </ul>