

# Ditton Primary School Design and Technology



## Curriculum INTENT

We have identified and defined some key vocabulary that is critical for DT and runs throughout the entire curriculum.

<b>Design</b>	A plan or drawing produced to show the look and function or workings of a building, garment, or other object before it is made.
<b>Nutrition</b>	The nourishment or energy that is obtained from food consumed or the process of consuming the proper amount of nourishment and energy. An example of nutrition is the nutrients found in fruits and vegetables. An example of nutrition is eating a healthy diet.
<b>Technology</b>	Technology is science or knowledge put into practical use to solve problems or invent useful tools.
<b>Data</b>	Data is "known facts". It especially refers to numbers, but can also mean words, sounds, and images too. Originally, data is the plural of the Latin word datum which means "give".
<b>Evaluate</b>	To evaluate is the act or the result of evaluating a situation that requires careful consideration to determine the value, nature, character, or quality of something.
<b>Functionality</b>	The quality or state of being functional. A design that is admired both for its beauty and for its functionality: the set of functions or capabilities associated with something.
<b>Innovation</b>	The process of making (something) new or doing something in a new way. Innovation also has to include the concept of improvement; to innovate is not just to do something differently, but to do or make something better.

As we support a diverse community that can face social and economic challenges, we have designed a curriculum to respond to the school's context, giving rich knowledge and experiences that some of our children may not naturally access, while still operating within the framework that our Multi Academy Trust has developed with all our stakeholder schools. So, in relation to design and technology, we have taken note that our school operates within an area where NHS obesity figures are above National averages and as such, we have introduced additional food units each year, in each key stage. These units of work compliment or build on prior learning undertaken in the main food technology units of work.

Ditton Primary School- **Design and Technology** progression through EYFS

**EAD: Creating with Materials & Being Imaginative and Expressive**

**Educational Programme:** The development of children’s artistic and cultural awareness supports their imagination and creativity. It is important children have regular opportunities to engage with the arts, enabling them to explore/play with a wide range of media/materials. The quality and variety of what children see, hear and participate in is crucial for developing understanding, self-expression, vocabulary and ability to communicate through the arts. The frequency, repetition and depth of their experiences are fundamental to their progress in interpreting and appreciating what they hear, respond to and observe.

**ELG: EAD / Creating with Materials and Being Imaginative**

- Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function
- Share their creations, explaining the process they have used
- Make use of props and materials when role-playing characters in narratives and stories

Focus	Designing	Making	Evaluating	Technical Skills	Food Technology	Vocabulary- To be used daily.
<b>Reception Skills</b>	<ul style="list-style-type: none"> <li>Develop own ideas through experimentation with diverse materials to express and communicate their discoveries and understanding</li> <li>Create collaboratively sharing ideas, resources and skills</li> </ul>	<ul style="list-style-type: none"> <li>Use increasing knowledge and understanding of materials to explore their interests and enquiries and develop their thinking</li> <li>Create representations both imaginary &amp; real-life ideas, events, people and objects</li> </ul>	<ul style="list-style-type: none"> <li>Express and communicates working theories, feelings and understandings</li> <li>Responds imaginatively to artworks &amp; objects</li> <li>Return to and build on previous learning, refining ideas and developing their ability to represent them</li> <li>Discuss problems and how they might be solved</li> </ul>	<ul style="list-style-type: none"> <li>Use different techniques for joining materials</li> <li>Use tools independently, with care and precision</li> </ul>	<ul style="list-style-type: none"> <li>Look closely at similarities, differences, patterns and change</li> <li>Know and talk about the different factors that support their overall health &amp; well- being</li> </ul>	Cutting, measure, folding, joining, gluing, tearing, decorate, printing, pinching, squeezing, pulling, poking, patting, sausages, balls, thumb pot, roll, flatten, tools, strong, shape, materials, textiles, wheels, equipment, like, dislike, improve, better, cutting, plants, animals, farming, foods, pour, choose, healthy, spread, chop, material names, shape, mould, combine, spiky, smooth, fury.
	<b>Autumn 1</b> All About Me Friendships and Animals	<b>Autumn 2</b> Stars and Space	<b>Spring 1</b> Superheroes	<b>Spring 2</b> Traditional Tales	<b>Summer 1</b> Growing	<b>Summer 2</b> Seaside
<b>Reception Knowledge</b>	Clay/Playdough Mould with hands using techniques such as pinching, squeezing, pulling, poking, and patting to achieve a desired effect (e.g. sausages, balls, thumb pot). Use tools appropriately to roll, cut, flatten etc. Loose Parts Independently make constructions, using own ideas and loose parts. Show increasing skills with combining, lining up, stacking etc Explore a range of join joining materials such as tapes, strings,wools and glues <b>Snack life skills:</b> Wash hands and sit at table for snack with support. Choose own fruit and snack. Pouring own cup of water/milk. Spread onto a cracker with a knife.		Clay/Playdough Combine pieces using different techniques and tools to represent a familiar object (e.g. a caterpillar) and represent the feel of an object (e.g. spiky, furry, smooth). Loose Parts Build and de-construct loose part models / constructions to represent real life / imaginary objects and experiences. Handle tools and materials with increasing control. <b>Snack life skills:</b> Wash hands and sit at the table for snack with increasing independence. Spread onto a piece of toast. Cut own snack with a knife.		Clay/Playdough Make models with a purpose and with increasing skill (e.g. shaping, moulding or combining pieces) For instance, with a systematic approach - begin with a body, add a head, legs and a tail to make a dog. Loose Parts Make imaginative structures, using tools with control. Explore a wide range of materials, making simple forms and applying simple decorative features where wanted. Begin to evaluate their work through talk; explaining what is good and identifying a way they could improve it. <b>Snack life skills:</b> Follow snack routine independently. Use knives for cutting, chopping and spreading. To select own ingredients to make a sandwich	
	<b>Food</b>		<b>Mechanisms</b>		<b>Structures</b>	

Ongoing Across Reception Year Exploring, evaluating & developing ideas: Alongside children’s open-ended play / learning with art materials, practitioners should: □ scaffold learning □ target specific skills □ develop thinking □ encourage children to talk about their art work □ model responses to their art to develop their thinking □ Children to be exposed to key vocabulary daily in provision. □ High quality resources will be provided for daily accessibility. □ Playdough/ Malleable/Art/building/small world and outdoor provisions will provide a wealth of opportunity. □ Resources will be enhanced and developed as children develop their skill set.

<p>KS1 Year 1: Design and Technology Substantive and Disciplinary Knowledge Progression</p>	
<p><b>KS1: POS</b></p> <ul style="list-style-type: none"> <li>● Use the basic principles of a healthy and varied diet to prepare dishes.</li> <li>● To understand where food comes from.</li> <li>● Design purposeful, functional, appealing products for themselves and other users based on design criteria.</li> <li>● Select from and use a range of tools and equipment to perform practical tasks [for example cutting, shaping, joining and finishing.</li> <li>● Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics.</li> <li>● Explore and evaluate a range of existing products.</li> <li>● Explore and use mechanisms [for example levers, sliders, wheels and axles], in their products.</li> <li>● Use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups.</li> <li>● Generate, develop, model and communicate their ideas through discussion, annotated sketches and prototypes.</li> <li>● Select from tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing] accurately.</li> <li>● Investigate and analyse a range of existing products.</li> <li>● Evaluate their ideas and products against their own design criteria.</li> </ul>	<p><b>Design</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 initial ideas and simple design criteria through talking and using own experiences.</li> <li>● Generate ideas based on simple design criteria and their own experiences, explaining what they could make.</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> <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>Make</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> <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>● Plan by suggesting what to do next.</li> <li>● Select from and use textiles according to their characteristics.</li> <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>● Use simple finishing techniques suitable for the product they are creating.</li> <li>● Select new and reclaimed materials and construction kits to build their structures.</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>Evaluate</b></p> <ul style="list-style-type: none"> <li>● Taste and evaluate a range of fruit and vegetables to determine the intended users' preference.</li> <li>● Explore a range of existing books and everyday products that use simple sliders and levers.</li> <li>● Evaluate ideas and finished products against design criteria, including intended user and purpose.</li> <li>● Explore a range of existing freestanding structures in the school and local environment e.g. everyday products and buildings.</li> <li>● Evaluate their ideas throughout and their final products against original design criteria.</li> </ul>
<p><b>Technical Knowledge</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 the Eatwell plate.</li> <li>● Know and use technical and sensory vocabulary relevant to the project.</li> <li>● Explore and use sliders and levers.</li> <li>● Understand that different mechanisms produce different types of movement.</li> <li>● Know how to make freestanding structures stronger, stiffer and more stable.</li> </ul>	

**KS1 Year 1 – End points**

<p><b>Mechanisms – Sliders and Levers</b></p>	<ul style="list-style-type: none"> <li>- Children know how to design a product with a slider or lever and can explain the user and purpose. For example: a Christmas card with a moving character</li> <li>- Children know how to draw an annotated sketch of their slider or lever product and can label it with materials and key parts (slider/lever, slit, split pin)</li> <li>- Children know how to make prototypes of both sliders and levers.</li> <li>- Children select from PVA glue, glue sticks and scissors to cut and join materials (card and paper).</li> <li>- Children know a variety of real-life items that use sliders and levers such as books, games (hungry hippos), seesaws at a park, brakes on a bike etc and can explain how the slider or lever creates movement.</li> <li>- They understand the difference between sliders and levers.</li> <li>- Children state if their card is suitable for the intended user and purpose. They offer a way to improve their card with some guidance.</li> </ul>		
<p><b>Food – Preparing fruits and vegetables to make a sandwich</b></p>	<ul style="list-style-type: none"> <li>- Children know how to design a healthy snack and can explain the user and purpose. For example: a cold sandwich</li> <li>- Children know how to draw an annotated sketch of their sandwich and can label it with ingredients.</li> <li>- Children know how to select from a variety of ingredients to create their sandwich, considering the taste, colour and general appeal of the ingredients.</li> <li>- Children know how to select from knives, graters, peelers and juices to prepare common fruits and vegetables (tomatoes, cucumber, lettuce, onion, avocado) discussing why some preparation methods may not be suitable for some of the fruits/vegetables - e.g. you wouldn't grate a tomato as it just turns mushy.</li> <li>- Children discuss different, existing sandwiches and evaluate their appeal, potential purpose and user. Consider which fillings are often paired together and which fillings the children like. (e.g. ham and cheese/ cheese and tomato/ chicken, tomato and lettuce/ salmon and cucumber)</li> <li>- Children evaluate their own sandwich considering the intended user, purpose and its overall appeal as well as considering its effectiveness of being a healthy snack.</li> <li>- Children know that food comes from different countries and can be grown.</li> </ul>		
<p><b>Structures – Freestanding structures</b></p>	<ul style="list-style-type: none"> <li>- Children know how to design a structure and can explain the user and purpose. For example: an animal enclosure for people to visit.</li> <li>- Children know how to draw an annotated sketch of their free-standing structure and can label it with materials.</li> <li>- Children know how to select from PVA glue, glue sticks and scissors to cut and join materials (card and cardboard).</li> <li>- Children know how to name free-standing structures: Eiffel tower (European. More familiar example) and The Burj Khalifa in Dubai (tallest example)</li> <li>- Children know how to discuss the different types of animal enclosures – penguins have to have water to swim in and land, lions need high fences so they don't jump out, giraffes need trees to eat from.</li> <li>- Children state if their structure is suitable for the intended user and purpose. They can offer a way to improve their structure with some guidance.</li> <li>- Children know how to strengthen a structure using stronger materials, like card instead of paper or lolly pop sticks instead of cardboard.</li> </ul>		
<p>Additional food unit – overnight oats</p>	<ul style="list-style-type: none"> <li>- Children know how to design a healthy snack and can explain the user and purpose.</li> <li>- Children know how to draw an annotated sketch of their snack and can label it with ingredients.</li> <li>- Children know how to select from a variety of ingredients, considering the taste, colour and general appeal of the fruits.</li> <li>- Children discuss different, existing products and evaluate their appeal, potential purpose and user.</li> <li>- Children evaluate their own portion of veg and dips considering the intended user, purpose and its overall appeal as well as considering its effectiveness of being a healthy snack.</li> <li>- Children know that food comes from different countries and can be grown.</li> </ul>		
<p><b>Experiences</b> Knowsley safari park and Chester zoo trip to support with structures unit where we build a zoo enclosure for an animal. We have a DT consultant work with us on our structures unit to offer high quality resources and teaching.</p>	<p><b>SMSC</b> Moral – during our animal enclosures unit we discuss the positives and drawbacks of having animals in zoos. Cultural – during the autumn unit of sliders and levers we make Christmas/winter cards and discuss respect and tolerance for those children who do not celebrate Christmas</p>	<p><b>British values</b> Rule of law – during the animal enclosures unit we discuss the rules for keeping animals both at home and at zoos.</p>	<p><b>WPAT/school values</b> Resilience – during the entire making process, we discuss keeping on trying and never giving up even if the task gets tricky. Honesty – during the evaluation stages we discuss being honest with ourselves (self-reflection) and others to ensure we can improve ourselves and our work. During our food topic we teach honesty and responsibility when we talk about where food is grown and the journey it takes to get from the farm to our homes. We also discuss how healthy we are with the foods we consume.</p>

KS1 Year 2: Design and Technology Substantive and Disciplinary Knowledge Progression	
<p><b><u>KS1: POS</u></b></p> <ul style="list-style-type: none"> <li>• Use the basic principles of a healthy and varied diet to prepare dishes.</li> <li>• To understand where food comes from.</li> <li>• Design purposeful, functional, appealing products for themselves and other users based on design criteria.</li> <li>• Select from and use a range of tools and equipment to perform practical tasks [for example cutting, shaping, joining and finishing].</li> <li>• Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics.</li> <li>• Explore and evaluate a range of existing products.</li> <li>• Explore and use mechanisms [for example levers, sliders, wheels and axles], in their products.</li> <li>• Use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups.</li> <li>• Generate, develop, model and communicate their ideas through discussion, annotated sketches and prototypes.</li> <li>• Select from tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing] accurately.</li> <li>• Investigate and analyse a range of existing products.</li> <li>• Evaluate their ideas and products against their own design criteria.</li> </ul>	<p><b><u>Design</u></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 initial ideas and simple design criteria through talking and using own experiences.</li> <li>• Generate ideas based on simple design criteria and their own experiences, explaining what they could make.</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> <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><u>Make</u></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> <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>• Plan by suggesting what to do next.</li> <li>• Select from and use textiles according to their characteristics.</li> <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>• Use simple finishing techniques suitable for the product they are creating.</li> <li>• Select new and reclaimed materials and construction kits to build their structures.</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><u>Evaluate</u></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> <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> <li>• Explore and evaluate a range of products with wheels and axles</li> </ul>
<p><b><u>Technical Knowledge</u></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 the Eatwell plate.</li> <li>• Know and use technical and sensory vocabulary relevant to the project.</li> <li>• Explore and use wheels, axles and axle holders.</li> <li>• Distinguish between fixed and freely moving axles.</li> <li>• Understand that different mechanisms produce different types of movement.</li> <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 e.g. running stitch, glue, over stitch, stapling.</li> <li>• Explore different finishing techniques e.g. using painting, fabric crayons, stitching, sequins, buttons and ribbons.</li> </ul>	

**KS1 Year 2 – End points**

<p><b>Mechanisms- Wheels and Axles</b></p>	<ul style="list-style-type: none"> <li>- Children know how to design a product with wheels and axles and can explain the user and purpose. For example: a car for a small teddy, an ice cream van etc</li> <li>- Children know how to draw an annotated sketch of their wheels and axles product and can label it with materials and key parts (wheel, axle, chassis)</li> <li>- Children know how to select from PVA glue, glue sticks and scissors to cut and join materials (card and paper).</li> <li>- Children know how to name a variety of real-life items that use wheels and axles such as cars, vans, lorries, bicycles, Ferris wheels, electric fans etc and can explain is the axle is fixed or moving.</li> <li>- They know the difference between fixed and moving axles.</li> </ul> <p>Children know if their vehicle is suitable for the intended user and purpose. They can offer a way to improve their vehicle with some guidance.</p>
<p><b>Food – Preparing fruit and vegetables (Soup)</b></p>	<ul style="list-style-type: none"> <li>- Children know how to design a healthy snack and can explain the user and purpose. For example: a vegetable soup. (leek and potato/tomato/vegetable [depending on children’s preferences+])</li> <li>- Children know how to draw an annotated sketch of their soup and can label it with ingredients.</li> <li>- Children know how to select from a variety of ingredients to create the soup, considering the taste, colour and general appeal of the soup.</li> <li>- Children know how to select from knives, graters and peelers to prepare common vegetables (leeks, potatoes, carrots, sweet potatoes, onions, celery, cucumber) discussing why some preparation methods may not be suitable for some of the fruits/vegetables - e.g. you wouldn’t grate an onion, you wouldn’t peel a leek.</li> <li>- Children discuss different, existing vegetable soups and evaluate their appeal, potential purpose and user.</li> <li>- Children know how to evaluate their own soup considering the intended user, purpose and its overall appeal as well as considering its effectiveness of being a healthy dish.</li> <li>- Children have an understanding that food comes from different countries and can be grown.</li> </ul>
<p><b>Textiles- Templates and Joining Techniques</b></p>	<ul style="list-style-type: none"> <li>- Children know how to design a product which requires them to use templates and joining techniques and can explain the user and purpose. For example: a puppet for themselves.</li> <li>- Children know how to draw an annotated sketch of their puppet and can label it with materials and key parts (joining techniques, gap for hand to go, appealing qualities).</li> <li>- Children know how to create templates that were used to create the final product</li> <li>- Children know how to select from PVA glue, glue sticks, staples, pins, stitching techniques and scissors to cut and join materials (fabric)</li> <li>- Children know a variety of real-life items that use a variety of joining techniques such as books, clothes etc and can explain why the joining technique is effective.</li> <li>- Children know if their puppet is suitable for the intended user and purpose. They can discuss if it is appealing and functional. They can offer a way to improve their card with some guidance where required.</li> </ul>

<p>Additional food unit – banana berry split</p>	<ul style="list-style-type: none"> <li>- Children know how to design a healthy snack and can explain the user and purpose.</li> <li>- Children know how to draw an annotated sketch of their snack and can label it with ingredients.</li> <li>- Children know how to select from a variety of ingredients, considering the taste, colour and general appeal of the fruits.</li> <li>- Children discuss different, existing banana berry split and evaluate their appeal, potential purpose and user.</li> <li>- Children evaluate their own banana berry split considering the intended user, purpose and its overall appeal as well as considering its effectiveness of being a healthy snack.</li> <li>- Children know that food comes from different countries and can be grown.</li> </ul>
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<p><b>Experiences</b> We have a DT consultant work with us on our wheels and axles – mechanisms unit to offer high quality resources and teaching. Trip to Lidl to look at where the different foods come from, looking at packaging.</p>	<p><b>SMSC</b> Social – we discuss the different uses of vehicles and how they support and impact the local and wider community.</p>	<p><b>British values</b> During our food topic we teach respect, tolerance and individual liberty when we talk about different food choices and diets.</p>	<p><b>WPAT/school values</b> Resilience – during the entire making process, we discuss keeping on trying and never giving up even if the task gets tricky. Honesty – during the evaluation stages we discuss being honest with ourselves (self-reflection) and others to ensure we can improve ourselves and our work.</p>
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**Guiding Principle: "To deliver a first class education through partnership, innovation, school improvement and accountability."**

LKS2 Year 3: Design and Technology Substantive and Disciplinary Knowledge Progression	
<p><b>KS2- POS</b></p> <ul style="list-style-type: none"> <li>To understand and apply the principles of a healthy and varied diet</li> <li>Prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques</li> <li>To understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.</li> <li>To use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups.</li> <li>To generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design.</li> <li>Select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately.</li> <li>Select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities.</li> <li>Investigate and analyse a range of existing products.</li> <li>Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work.</li> <li>To understand how key events and individuals in design and technology have helped shape the world</li> <li>Apply their understanding of how to strengthen, stiffen and reinforce more complex structures</li> <li>To understand and use mechanical systems in their products.</li> <li>To understand and use electrical systems in their products.</li> <li>Apply their understanding of computing to program, monitor and control their products.</li> </ul>	<p><b>Design</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>Explore a range of initial ideas, and make design decisions to develop a final product linked to user and purpose.</li> <li>Develop, model and communicate ideas through talking, drawing, templates, mock-ups and prototypes and, where appropriate, computer aided design.</li> <li>Generate realistic ideas through discussion and design criteria for an appealing, functional product fit for purpose and specific user/s.</li> <li>Develop ideas through the analysis of existing products and use annotated sketches and prototypes to model and communicate ideas.</li> <li>Produce annotated sketches, prototypes, final product sketches and pattern pieces</li> <li>Generate, develop and model innovative ideas, through discussion, prototypes and annotated sketches</li> <li>Generate innovative ideas through research and discussion with peers and adults to develop a design brief and criteria for a design specification.</li> </ul>
<p><b>Make</b></p> <ul style="list-style-type: none"> <li>Order the main stages of making.</li> <li>Select from and use finishing techniques suitable for the product they are creating.</li> <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> <li>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> <li>Select from and use appropriate tools with some accuracy to cut and join materials and components such as tubing, syringes and balloons.</li> <li>Select from and use materials and components, including construction materials and electrical components according to their functional properties and aesthetic qualities.</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>Evaluate</b></p> <ul style="list-style-type: none"> <li>Evaluate their ideas and products against their own design criteria and identify the strengths and areas for improvement in their work.</li> <li>Compare the final product to the original design specification.</li> <li>Take into account others' views.</li> <li>Test products with intended user and critically evaluate the quality of the design, manufacture, functionality and fitness for purpose.</li> <li>Investigate famous manufacturing and engineering companies relevant to the project.</li> <li>Test products with intended user and critically evaluate the quality of the design, manufacture, functionality and fitness for purpose.</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> </ul>
<p><b>Technical Knowledge</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>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>	<ul style="list-style-type: none"> <li>Know and use relevant technical and sensory vocabulary appropriately.</li> <li>Know how to strengthen, stiffen and reinforce existing fabrics.</li> <li>Understand how to securely join two pieces of fabric together.</li> <li>Understand the need for patterns and seam allowances.</li> </ul>

**LKS2 Year 3 – End points**

<b>Shell Structures</b>	<ul style="list-style-type: none"> <li>- Children know how to design a structure using a cube or cuboid shaped shell and can explain the user and purpose. For example: a gift box for a friend, a lunch box for them self.</li> <li>- Children know how to draw an annotated sketch of a shell structure and can label it with materials and strengthening solutions. Children can use a computer to design their net.</li> <li>- Children know how to make a prototype of a shell structure using paper to practise joining techniques and strengthening solutions (laminating, ribbing, corrugating)</li> <li>- Children know how to select from PVA glue, glue sticks and scissors to cut and join materials (card and cardboard). They can use card or paper straws to strengthen their structure.</li> <li>- Children know how to name a real shell structure – The Shard, the O2 building.</li> <li>- Children know if their structure is suitable for the intended user and purpose. They can offer a way to improve their structure.</li> </ul> <p>Children know how to strengthen a structure using ribbing, corrugating or laminating and explain what this means.</p>
<b>Electrical Systems- Circuits and Switches</b>	<ul style="list-style-type: none"> <li>- Children know how to design an electrical circuit for a product. For example: a torch</li> <li>- Children know how to draw an annotated sketch of an electrical circuit and can label it with materials and components.</li> <li>- Children know how to select from batteries, switches, foil, paper clips, buzzers, bulbs to create their product.</li> <li>- Children know how to name products that use electrical circuits – lights, torches, children’s toys.</li> <li>- Children know how to state if their electrical circuit and final product is suitable for the intended user and purpose. They can offer a way to improve their product.</li> </ul> <p>Children know how to understand and use electrical systems in their products, such as series circuits incorporating switches, bulbs and buzzers.</p>
<b>Textiles- 2D shapes to a 3D product</b>	<ul style="list-style-type: none"> <li>- Children know how to design a 3D textiles product using a 2D shapes and can explain the user and purpose. For example: pencil for themselves when they go to a fair</li> <li>- Children know how to draw an annotated sketch of a pencil case using 2D shapes as a basis and can label it with materials and strengthening solutions.</li> <li>- Children know how to make a pattern-pieces for their pencil case using paper.</li> <li>- Children know how to select from PVA glue, glue sticks and scissors to cut and join materials (card and cardboard). They can use card or paper straws to strengthen their structure.</li> <li>- Children know if their pencil case is suitable for the intended user and purpose. They can offer a way to improve their pencil case.</li> </ul>

<b>Additional food unit – hot sandwiches</b>	<ul style="list-style-type: none"> <li>- Children know how to research and design a healthy snack/dish that is innovative, functional and appealing</li> <li>- Children know how to generate, develop, model and communicate their ideas through discussion and annotated sketches</li> <li>- Children know how to select from and use a wider range of utensils to perform practical tasks accurately</li> <li>- Children know how to select from and use a wider range of ingredients, according to their functional properties and aesthetic qualities.</li> <li>- Children know how to investigate and analyse a range of existing food products</li> <li>- Children know how to evaluate their ideas and products against their own design criteria and consider the views of others to improve their work</li> <li>- Children know how to understand and apply the principles of a healthy and varied diet</li> <li>- Children know how to cook a repertoire of predominantly savoury dishes so that they are able to feed themselves and others a healthy and varied diet</li> <li>- Children become competent in a range of cooking techniques [for example, selecting and preparing ingredients; using utensils and electrical equipment; applying heat in different ways; using awareness of taste, texture and smell to decide how to season dishes and combine ingredients; adapting and using their own recipes]</li> <li>- Children understand the source, seasonality and characteristics of a broad range of ingredients</li> </ul>
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<p><b>Experiences</b> Sewing club to support textiles learning. We have a DT consultant work with us on our electrical systems unit to offer high quality resources and teaching.</p>	<p><b>SMSC</b> Cultural – during the textiles unit different fabric patterns are discussed as well as their origin.</p>	<p><b>British values</b> Individual liberty – children are encouraged to make their products different and unique.</p>	<p><b>WPAT/school values</b> Resilience – during the entire making process, we discuss keeping on trying and never giving up even if the task gets tricky. Honesty – during the evaluation stages we discuss being honest with ourselves (self-reflection) and others to ensure we can improve ourselves and our work.</p>
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**Guiding Principle: "To deliver a first class education through partnership, innovation, school improvement and accountability."**

LKS2 Year 4: Design and Technology Substantive and Disciplinary Knowledge Progression	
<p><b>KS2- POS</b></p> <ul style="list-style-type: none"> <li>• To understand and apply the principles of a healthy and varied diet</li> <li>• Prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques</li> <li>• To understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.</li> <li>• To use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups.</li> <li>• To generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design.</li> <li>• Select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately.</li> <li>• Select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities.</li> <li>• Investigate and analyse a range of existing products.</li> <li>• Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work.</li> <li>• To understand how key events and individuals in design and technology have helped shape the world</li> <li>• apply their understanding of how to strengthen, stiffen and reinforce more complex structures</li> <li>• To understand and use mechanical systems in their products.</li> <li>• To understand and use electrical systems in their products.</li> <li>• Apply their understanding of computing to program, monitor and control their products.</li> </ul>	<p><b>Design</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>• Explore a range of initial ideas, and make design decisions to develop a final product linked to user and purpose.</li> <li>• Develop, model and communicate ideas through talking, drawing, templates, mock-ups and prototypes and, where appropriate, computer aided design.</li> <li>• Generate realistic ideas through discussion and design criteria for an appealing, functional product fit for purpose and specific user/s.</li> <li>• Develop ideas through the analysis of existing products and use annotated sketches and prototypes to model and communicate ideas.</li> <li>• Produce annotated sketches, prototypes, final product sketches and pattern pieces</li> <li>• Generate, develop and model innovative ideas, through discussion, prototypes and annotated sketches</li> <li>• Generate innovative ideas through research and discussion with peers and adults to develop a design brief and criteria for a design specification.</li> </ul>
<p><b>Make</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 and join materials and components such as tubing, syringes and balloons.</li> <li>• Select from and use finishing techniques suitable for the product they are creating.</li> <li>• Select from and use materials and components, including construction materials and electrical components according to their functional properties and aesthetic qualities.</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>Evaluate</b></p> <ul style="list-style-type: none"> <li>• Investigate and analyse books, videos and products with pneumatic mechanisms.</li> <li>• Evaluate their ideas and products against their own design criteria and identify the strengths and areas for improvement in their work.</li> <li>• Compare the final product to the original design specification.</li> <li>• Take into account others' views.</li> <li>• Investigate and analyse books and, where available, other products with lever and linkage mechanisms.</li> <li>• Carry out sensory evaluations of a variety of ingredients and products. Record the evaluations using e.g. tables and simple graphs.</li> <li>• Test products with intended user and critically evaluate the quality of the design, manufacture, functionality and fitness for purpose.</li> <li>• Investigate famous manufacturing and engineering companies relevant to the project.</li> <li>• Test products with intended user and critically evaluate the quality of the design, manufacture, functionality and fitness for purpose.</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> </ul>
<p><b>Technical Knowledge</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 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> </ul>	<ul style="list-style-type: none"> <li>• Understand and use pneumatic mechanisms.</li> <li>• Know and use technical vocabulary relevant to the project.</li> </ul>

**LKS2 Year 4 – End points**

<p><b>Levers and Linkages (Mechanical Systems)</b></p>	<ul style="list-style-type: none"> <li>- Children know how to design a mechanical system using more than one lever or linkage that is appealing and can explain the user and purpose. For example: a book</li> <li>- Children know how to draw an annotated sketch of a mechanical system and can label it with materials and equipment.</li> <li>- Children know how to make a prototype of levers and linkages using paper/card and can identify the input, output, fixed and moving parts.</li> <li>- Children know how to select from PVA glue, glue sticks, paper clips, split pins and scissors to cut and join materials (card and cardboard).</li> <li>- Children know how to name real items that use levers or linkages: windshield wiper, the bicycle suspension and hydraulic actuators for heavy equipment</li> <li>- Children know if their moving product is appealing and suitable for the intended user and purpose. They can listen to other' views and can offer a way to improve their product.</li> <li>- Children know how to use levers and/or linkages in their product.</li> </ul>		
<p><b>Pneumatics and hydraulics</b></p>	<ul style="list-style-type: none"> <li>- Children know how to design a product using pneumatics or hydraulics</li> <li>- Children know how to draw an annotated sketch of a pneumatics system.</li> <li>- Children know how to use scissors to cut cardboard and rulers to measure out the sizes they require.</li> <li>- Children know how to choose from and use cardboard, syringes and plastic tubing to make a functional 'bust' of a chosen creature and ensure it is aesthetically pleasing.</li> <li>- Children know that real life products that use hydraulic systems to create movement.</li> </ul>		
<p><b>Cooking and Nutrition (Healthy and Varied Diet)</b></p>	<ul style="list-style-type: none"> <li>- Children know how to research and design a healthy snack/dish that is innovative, functional and appealing</li> <li>- Children know how to generate, develop, model and communicate their ideas through discussion and annotated sketches</li> <li>- Children know how to select from and use a wider range of utensils to perform practical tasks accurately</li> <li>- Children know how to select from and use a wider range of ingredients, according to their functional properties and aesthetic qualities.</li> <li>- Children know how to investigate and analyse a range of existing food products</li> <li>- Children know how to evaluate their ideas and products against their own design criteria and consider the views of others to improve their work</li> <li>- Children know how to understand and apply the principles of a healthy and varied diet</li> <li>- Children know how to cook a repertoire of predominantly savoury dishes so that they are able to feed themselves and others a healthy and varied diet</li> <li>- Children become competent in a range of cooking techniques [for example, selecting and preparing ingredients; using utensils and electrical equipment; applying heat in different ways; using awareness of taste, texture and smell to decide how to season dishes and combine ingredients; adapting and using their own recipes]</li> <li>- Children understand the source, seasonality and characteristics of a broad range of ingredients</li> </ul>		
<p>Additional food unit – fruit pie</p>	<ul style="list-style-type: none"> <li>- Children know how to research and design a healthy snack/dish that is innovative, functional and appealing</li> <li>- Children know how to generate, develop, model and communicate their ideas through discussion and annotated sketches</li> <li>- Children know how to select from and use a wider range of utensils to perform practical tasks accurately</li> <li>- Children know how to select from and use a wider range of ingredients, according to their functional properties and aesthetic qualities.</li> <li>- Children know how to investigate and analyse a range of existing food products</li> <li>- Children know how to evaluate their ideas and products against their own design criteria and consider the views of others to improve their work</li> <li>- Children know how to understand and apply the principles of a healthy and varied diet</li> <li>- Children know how to cook a repertoire of predominantly savoury dishes so that they are able to feed themselves and others a healthy and varied diet</li> <li>- Children become competent in a range of cooking techniques [for example, selecting and preparing ingredients; using utensils and electrical equipment; applying heat in different ways; using awareness of taste, texture and smell to decide how to season dishes and combine ingredients; adapting and using their own recipes]</li> <li>- Children understand the source, seasonality and characteristics of a broad range of ingredients</li> </ul>		
<p><b>Experiences</b> Sewing club to support textiles learning. We have a DT consultant work with us on our pneumatics unit to offer high quality resources and teaching.</p>	<p><b>SMSC</b> Moral – during the pneumatics unit we discuss the use of water and that we should be conservative with it. Cultural – the children are taught about some differences regarding food in different cultures.</p>	<p><b>British values</b> Individual liberty – children are encouraged to make their products different and unique. Respect and tolerance - the children are taught about some differences regarding food in different cultures.</p>	<p><b>WPAT/school values</b> Resilience – during the entire making process, we discuss keeping on trying and never giving up even if the task gets tricky. Honesty – during the evaluation stages we discuss being honest with ourselves (self-reflection) and others to ensure we can improve ourselves and our work. During our food topic we teach honesty and responsibility when we talk about where food is grown and the journey it takes to get from the farm to our homes. We also discuss how healthy we are with the foods we consume.</p>

UKS2 Year 5: Design and Technology Substantive and Disciplinary Knowledge Progression	
<p><b>KS2- POS</b></p> <ul style="list-style-type: none"> <li>• To understand and apply the principles of a healthy and varied diet</li> <li>• Prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques</li> <li>• To understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.</li> <li>• To use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups.</li> <li>• To generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design.</li> <li>• Select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately.</li> <li>• Select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities.</li> <li>• Investigate and analyse a range of existing products.</li> <li>• Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work.</li> <li>• To understand how key events and individuals in design and technology have helped shape the world</li> <li>• apply their understanding of how to strengthen, stiffen and reinforce more complex structures</li> <li>• To understand and use mechanical systems in their products.</li> <li>• To understand and use electrical systems in their products.</li> </ul>	<p><b>Design</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 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>• Communicate ideas through annotated sketches, pictorial representations of electrical circuits or circuit diagrams.</li> <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, model and communicate realistic ideas through discussion and, as appropriate, annotated sketches, cross-sectional and exploded diagrams.</li> </ul>
<p><b>Make</b></p> <ul style="list-style-type: none"> <li>• Work within the constraints of time, resources and cost.</li> <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> <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> <li>• Create and modify a computer control program to enable an electrical product to work automatically in response to changes in the environment.</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>Evaluate</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>• Compare the final product to the original design specification.</li> <li>• Investigate and analyse books and, where available, other products with lever and linkage mechanisms.</li> <li>• Carry out sensory evaluations of a variety of ingredients and products. Record the evaluations using e.g. tables and simple graphs.</li> <li>• Test products with intended user and critically evaluate the quality of the design, manufacture, functionality and fitness for purpose.</li> <li>• Investigate famous manufacturing and engineering companies relevant to the project.</li> <li>• Test products with intended user and critically evaluate the quality of the design, manufacture, functionality and fitness for purpose.</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>• Research key events and individuals relevant to frame structures.</li> <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>• Compare the final product to the original design specification.</li> </ul>
<p><b>Technical Knowledge</b></p> <ul style="list-style-type: none"> <li>• Understand that mechanical and electrical systems have an input, process and an output.</li> <li>• Understand how gears and pulleys can be used to speed up, slow down or change the direction of movement.</li> <li>• Know and use technical vocabulary relevant to the project</li> </ul>	<ul style="list-style-type: none"> <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>• Understand how to strengthen, stiffen and reinforce 3-D frameworks. Know and use technical vocabulary relevant to the project.</li> </ul>

**UKS2 Year 5 – End points**

<p><b>Frame Structures</b></p>	<ul style="list-style-type: none"> <li>- Children know how to design a structure using a cube, cuboid, triangular prism or hexagonal prism shaped frame and can explain the user and purpose. For example: a house for a homeless person, a tree house for a child, a shelter for people waiting for a bus.</li> <li>- Children know how to draw an annotated sketch of a frame structure and can label it with materials, dimensions and strengthening solutions.</li> <li>- Children know how to make a prototype of a frame structure using paper straws to practise joining techniques and triangulation.</li> <li>- Children know how to select from PVA glue, glue sticks, glue guns, scissors and saws to cut and join materials (wood, card and cardboard).</li> <li>- Children name real frame structures – Eiffel tower, Empire State building, Iron bridge</li> <li>- Children know if their structure is suitable for the intended user and purpose. They can offer a way to improve their structure.</li> <li>- Children know how to strengthen a structure using triangulation and explain what this means.</li> </ul>
<p><b>Food and Nutrition (Celebrating Culture and Seasonality - Pizza)</b></p>	<ul style="list-style-type: none"> <li>- Children know that a healthy and varied diet is made up of fruits, vegetables, carbohydrates, meats/fish, dairy, fats and sugar.</li> <li>- Children know how to make a savoury dish - bread</li> <li>- Children know how to make bread using kneading techniques, know the importance of the use of yeast in bread and how know how the heat effects the dough and turns it to bread.</li> <li>- Children know that different fruits and vegetables are best in terms of flavour or harvest in different seasons and can name some: Cherries—July, Strawberries— June, July, August and September, New potatoes—April, May, June and July, Turnips—January, February, October, November and December.</li> <li>- Children know how to create a design criterion, design and write a recipe for an appealing bread dish aimed at a specific user and purpose.</li> <li>- Children know that climate conditions affect when food is produced in the UK so food may be grown elsewhere and sent to the UK.</li> <li>- Children know how to use yeast’s functional properties to make bread.</li> <li>- Children know the difference between a variety of breads, dairy free bread and gluten free bread and can discuss the difference in taste and flavours. Children know if their bread is suitable for the intended user and purpose. They can offer a way to improve their bread.</li> </ul>
<p><b>Mechanical Systems (Pulleys and Gears)</b></p>	<ul style="list-style-type: none"> <li>- Children know how to design a mechanical system using pulleys and gears and can explain the user and purpose. For example: a fairground ride for a child.</li> <li>- Children know how to draw annotated sketches and exploded diagrams of pulleys and gears and can show it from different angles.</li> <li>- Children know how to make a prototype of a pulley and a gear to show how they make different movements.</li> <li>- Children know how to select from PVA glue, glue sticks, glue guns and scissors to cut and join materials (wood, card and cardboard).</li> <li>- Children know how to name where gears and pulleys are used in real life – gears: non-digital clocks, vehicles, drills, manual can openers and bicycles. Pulleys: wells, elevators, construction vehicles.</li> <li>- Children state if their mechanical system is suitable for the intended user and purpose. They can offer a way to improve their mechanical system.</li> <li>- Children know how to use pulleys and gears and understand the differences in direction, speed and rotation.</li> </ul>

<p>Additional food unit – fruit taquito</p>	<ul style="list-style-type: none"> <li>- Children know how to research and design a healthy snack/dish that is innovative, functional and appealing</li> <li>- Children know how to generate, develop, model and communicate their ideas through discussion and annotated sketches</li> <li>- Children know how to select from and use a wider range of utensils to perform practical tasks accurately</li> <li>- Children know how to select from and use a wider range of ingredients, according to their functional properties and aesthetic qualities.</li> <li>- Children know how to investigate and analyse a range of existing food products</li> <li>- Children know how to evaluate their ideas and products against their own design criteria and consider the views of others to improve their work</li> <li>- Children know how to understand and apply the principles of a healthy and varied diet</li> <li>- Children know how to cook a repertoire of predominantly savoury dishes so that they are able to feed themselves and others a healthy and varied diet</li> <li>- Children become competent in a range of cooking techniques [for example, selecting and preparing ingredients; using utensils and electrical equipment; applying heat in different ways; using awareness of taste, texture and smell to decide how to season dishes and combine ingredients; adapting and using their own recipes]</li> <li>- Children understand the source, seasonality and characteristics of a broad range of ingredients</li> </ul>
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<p><b>Experiences</b> We have a DT consultant work with us on our framed structures unit to offer high quality resources and teaching.</p>	<p><b>SMSC</b> Moral – during the framed structures unit the children are taught about homelessness. Cultural – children are taught about food in different cultures.</p>	<p><b>British values</b> Individual liberty – children are encouraged to make their products different and unique. Respect and tolerance - the children are taught about some differences regarding food in different cultures.</p>	<p><b>WPAT/school values</b> Resilience – during the entire making process, we discuss keeping on trying and never giving up even if the task gets tricky.</p>
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UKS2 Year 6: Design and Technology Substantive and Disciplinary Knowledge Progression	
<p><b>KS2- POS</b></p> <ul style="list-style-type: none"> <li>- To use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups.</li> <li>- To generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design.</li> <li>- Select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately.</li> <li>- Select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities.</li> <li>- Investigate and analyse a range of existing products.</li> <li>- Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work.</li> <li>- To understand how key events and individuals in design and technology have helped shape the world</li> <li>- apply their understanding of how to strengthen, stiffen and reinforce more complex structures</li> <li>- To understand and use mechanical systems in their products.</li> <li>- To understand and use electrical systems in their products.</li> <li>- Apply their understanding of computing to program, monitor and control their products.</li> </ul>	<p><b>Design</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> <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>Make</b></p> <ul style="list-style-type: none"> <li>• Work within the constraints of time, resources and cost.</li> <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> <li>• Create and modify a computer control program to enable an electrical product to work automatically in response to changes in the environment.</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>Evaluate</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>• Compare the final product to the original design specification.</li> <li>• Investigate and analyse books and, where available, other products with lever and linkage mechanisms.</li> <li>• Carry out sensory evaluations of a variety of ingredients and products. Record the evaluations using e.g. tables and simple graphs.</li> <li>• Test products with intended user and critically evaluate the quality of the design, manufacture, functionality and fitness for purpose.</li> <li>• Investigate famous manufacturing and engineering companies relevant to the project.</li> <li>• Test products with intended user and critically evaluate the quality of the design, manufacture, functionality and fitness for purpose.</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>• Investigate famous inventors who developed ground-breaking electrical systems and components.</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>• Investigate and analyse textile products linked to their final product.</li> <li>• Compare the final product to the original design specification.</li> </ul>
<p><b>Technical Knowledge</b></p> <ul style="list-style-type: none"> <li>• Understand and use electrical systems in their products.</li> <li>• Apply their understanding of computing to program, monitor and control their products.</li> <li>• Know and use technical vocabulary relevant to the project.</li> </ul>	<ul style="list-style-type: none"> <li>• A 3-D textile product can be made from a combination of accurately made pattern pieces, fabric shapes and different fabrics.</li> <li>• Fabrics can be strengthened, stiffened and reinforced where appropriate.</li> </ul>



**UKS2 Year 6 – End points**

<p><b>Electrical Systems</b> <b>(More Complex Switches and Circuits)</b></p>	<ul style="list-style-type: none"> <li>- Children know how to design an electrical circuit for a product. For example: a night light</li> <li>- Children know how to draw an annotated sketch of an electrical circuit and can label it with materials and components. They should also consider time restraints and the resources required.</li> <li>- Children know how to select from batteries, switches, foil, paper clips, buzzers, bulbs to create their product.</li> <li>- Children know how to name products that use electrical circuits and respond to the environment– automatic nightlights, alarm systems, security lighting</li> <li>- Children know if their electrical circuit and final product is suitable for the intended user and purpose. They can offer a way to improve their product.</li> <li>- Children know how to use a crumble to control their electrical system.</li> <li>- Children understand and use electrical systems in their products, such as series circuits incorporating switches, bulbs and buzzers.</li> </ul>
<p><b>CAMS</b></p>	<ul style="list-style-type: none"> <li>- Children know how to use research and develop design criteria to inform the design of innovative, functional, appealing children’s toys</li> <li>- Children know how to generate, develop, model and communicate their ideas through discussion, annotated sketches and exploded diagrams.</li> <li>- Children know how to select from and use a wider range of tools and equipment to perform practical tasks accurately – wood, glue, glue gun, cardboard, scissors,</li> <li>- Children know how to select from and use a wider range of materials and components, including construction materials, according to their functional properties and aesthetic qualities</li> <li>- Children know how to investigate and analyse a range of existing products</li> <li>- Children know how to evaluate their ideas and products against their own design criteria and consider the views of others to improve their work</li> <li>- Children know how to apply their understanding of how to strengthen, stiffen and reinforce more complex structures</li> <li>- Children know how to understand and use mechanical systems in their products.</li> </ul>
<p><b>Textiles (Combining different fabrics)</b></p>	<ul style="list-style-type: none"> <li>- Children know how to design a textiles product and can explain the user and purpose.</li> <li>- Children know how to draw an annotated sketch and can label it with materials and strengthening solutions.</li> <li>- Children know how to make a pattern-pieces using paper.</li> <li>- Children know how to select from a range of stitches to join fabrics.</li> <li>- Children know how to select from a range of fabrics to complete their product.</li> <li>- Children know how to evaluate existing products and analyse their appeal and function and offer suggestions for improvements.</li> <li>- Children know if their product is suitable for the intended user and purpose. They can offer a way to improve their product.</li> </ul>

<p>Additional food unit – South American stew - Locro</p>	<ul style="list-style-type: none"> <li>- Children know how to research and design a healthy dish that is innovative, functional and appealing</li> <li>- Children know how to generate, develop, model and communicate their ideas through discussion and annotated sketches</li> <li>- Children know how to select from and use a wider range of utensils to perform practical tasks accurately</li> <li>- Children know how to select from and use a wider range of ingredients, according to their functional properties and aesthetic qualities.</li> <li>- Children know how to investigate and analyse a range of existing food products</li> <li>- Children know how to evaluate their ideas and products against their own design criteria and consider the views of others to improve their work</li> <li>- Children know how to understand and apply the principles of a healthy and varied diet</li> <li>- Children know how to cook a repertoire of predominantly savoury dishes so that they are able to feed themselves and others a healthy and varied diet</li> <li>- Children become competent in a range of cooking techniques [for example, selecting and preparing ingredients; using utensils and electrical equipment; applying heat in different ways; using awareness of taste, texture and smell to decide how to season dishes and combine ingredients; adapting and using their own recipes]</li> <li>- Children understand the source, seasonality and characteristics of a broad range of ingredients</li> </ul>
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<p><b>Experiences</b> We have a DT consultant work with us on our CAMS unit to offer high quality resources and teaching.</p>	<p><b>SMSC</b> Moral – during the textiles unit children are taught about vegan fabrics.</p>	<p><b>British values</b> Individual liberty – children are encouraged to make their products different and unique.</p>	<p><b>WPAT/school values</b> Resilience – during the entire making process, we discuss keeping on trying and never giving up even if the task gets tricky. Honesty – during the evaluation stages we discuss being honest with ourselves (self-reflection) and others to ensure we can improve ourselves and our work.</p>
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