

## Designing and Technology Progression Map

	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Autumn 1 Structures	<p><b>3D modelling</b></p> <ul style="list-style-type: none"> <li>• Use scissors with correct grip and posture to cut</li> <li>• Use glue and tape and begin to understand that it can be used to join materials together</li> </ul> <p><b>Bridges</b></p>	<p><b>3D modelling</b></p> <ul style="list-style-type: none"> <li>• Use scissors to cut correctly moving the paper and card</li> <li>• Join materials with tape and glue</li> <li>• Talk with their peers and teacher about how a model would look (a 3D design) and create it using cardboard boxes and paper</li> </ul> <p><b>Clay structures (fish, tiles)</b></p>	<p><b>Zoo Enclosure</b></p> <ul style="list-style-type: none"> <li>• Experiment with additions to structures to make them more stable using supports.</li> <li>• Create and follow a design criteria for their own ideas. This will be completed through talking with peers and sketches of ideas.</li> <li>• Select and use appropriate tools and materials by knowing how each one will support their design idea.</li> <li>• Use simple finishing techniques suitable for the structure they are creating.</li> <li>• Evaluate their product against the original design criteria and the intended user and purpose.</li> </ul>	<p><b>Bridge</b></p> <ul style="list-style-type: none"> <li>• Use triangular supports or thicker materials to help make freestanding structures stonger.</li> <li>• Generate ideas based on their own experiences and design criteria and communicate their ideas through talking, drawings and modelling.</li> <li>• Select and use appropriate tools and materials for tasks and ideas.</li> <li>• Use simple finishing techniques suitable for the structure they are creating.</li> <li>• Evaluate their product against the original design criteria and the intended user and purpose.</li> </ul>	<p><b>Keepsake box</b></p> <ul style="list-style-type: none"> <li>• Use nets of cubes and cuboids to construct shell structures by understanding how to join flat faces with tape. Experiment with the layout of the net and how this changes it stability.</li> <li>• Generate ideas and a design criteria collaboratively through discussion, analysing existing products, focusing on the needs of the user and the purpose for their idea.</li> <li>• Develop ideas through analysing existing shell structures and use computer-aided design to create 3D visualisations of their own nets.</li> <li>• Evaluate their own products against design criteria and purpose.</li> </ul>	<p><b>Food packaging</b></p> <ul style="list-style-type: none"> <li>• Use the nets of more complex 3D shapes to construct shell structures.</li> <li>• Develop their knowledge of how to construct strong, stiff shell structures using a range of materials using techniques such as, laminating, corrugating and ribbing.</li> <li>• Generate realistic ideas and design criteria collaboratively through discussion, focusing on the needs of the user, the purpose, and the functionality.</li> <li>• Select and use appropriate tools and software shape and assemble with some accuracy.</li> <li>• Use computer-generated finishing techniques suitable for the product they are creating.</li> <li>• Evaluate their own products against</li> </ul>	<p><b>A shelter</b></p> <ul style="list-style-type: none"> <li>• Understand how to strengthen 3-D frameworks.</li> <li>• Know the user's needs by carrying out research into existing products, using web-based resources.</li> <li>• Generate, develop and model innovative ideas, through discussion, prototypes and annotated sketches.</li> <li>• Choose tools that are appropriate to accurately measure, mark out, cut, shape and join materials.</li> <li>• Decide which finishing and decorative techniques are suitable for their product.</li> <li>• Evaluate their products against their design specification, intended user and purpose, identifying strengths and areas for development,</li> </ul>	<p><b>Adventure playground equipment</b></p> <ul style="list-style-type: none"> <li>• Understand how to strengthen, stiffen and reinforce 3-D frameworks.</li> <li>• Carry out research into user needs and existing products, using interviews, questionnaires and web-based resources.</li> <li>• Develop a design specification to guide the development of their ideas and products, taking account of constraints including time, resources and cost.</li> <li>• Competently select from and understand the use of appropriate tools to accurately measure, mark out, cut, shape and join construction materials to make frameworks.</li> <li>• Critically evaluate their products against their design specification, intended user and</li> </ul>

						design criteria and the intended user and purpose.	and carrying out appropriate tests.	purpose, identifying strengths and areas for development, and carrying out appropriate tests.
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**Fruit Tasting**

- start to use tools correctly to cut with support

**Fruit sticks and fruit faces**

- Develop use of tools, including plastic knives, to cut and manipulate playdough
- Design a fruit stick and face and then cut and arrange soft fruit to match their design.

**Fruit kebabs**

- Use simple utensils and equipment to e.g. peel, cut, slice, squeeze, grate and chop safely.
- Select from a range of fruit and vegetables according to their characteristics e.g. colour, texture and taste.
- Understand which foods are healthy choice and prepare a healthy dish, including fruit.
- Use sensory vocabulary relevant to the project (e.g. Taste, smell).

**Fruit smoothies**

- Generate ideas and design criteria through investigating a variety of fruit and vegetables.
- Use simple utensils and equipment to e.g. peel, cut, slice, squeeze, grate and chop safely.
- Select from a range of fruit and vegetables according to their characteristics e.g. colour, texture and taste to create a chosen product.
- Taste and evaluate a range of fruit and vegetables to determine the intended user's preferences.
- Evaluate ideas and finished products against design criteria, including intended user and purpose.

**Healthy sandwiches**

- Plan the main stages of a recipe, listing ingredients, utensils and equipment.
- Select from a range of ingredients to make appropriate food products, thinking about sensory characteristics.
- Use the bridge knife technique – Harder food (e.g. carrots) and peeling soft vegetables (e.g. courgettes).
- Carry out sensory evaluations of a variety of ingredients and products. Record the evaluations using e.g. tables and simple graphs.
- Use relevant technical and sensory vocabulary appropriately when designing and making their creations.

**Healthy pizzas**

- Generate and clarify ideas through discussion with peers and adults to develop a design criteria including appearance, taste, texture and aroma for an appealing product for a particular user and purpose.
- Plan the main stages of a recipe, listing ingredients, utensils and equipment.
- Know how to use the Claw knife technique – Soft food (e.g. cucumber) and grating soft foods (e.g. cheese).
- Select and use appropriate utensils and equipment to prepare and combine ingredients.
- Evaluate the ongoing work and the final product with reference to the design criteria.

**Rainbow salad wraps**

- Use words, annotated sketches and information and communication technology as appropriate to develop and communicate ideas.
- Write a step-by-step recipe, including a list of ingredients, equipment and utensils
- Use the Claw knife technique – Hard food (e.g. apples) and grating hard foods (e.g. carrots).
- Make, decorate and present the food product appropriately for the intended user and purpose.
- Understand how key chefs have influenced eating habits to promote varied and healthy diets.

**Dosa Pancakes with Masala Dal**

- Write a step-by-step recipe, including a list of ingredients, equipment and utensils
- Select and use appropriate utensils and equipment accurately to measure and combine appropriate ingredients.
- Know how to finely chop herbs, peel (e.g. carrot) and finer grating (e.g. Parmesan cheese, nutmeg).
- Evaluate the final product with reference back to the design brief and design specification, taking into account the views of others when identifying improvements.
- Understand how key chefs have influenced eating habits to promote varied and healthy diets.

**Exploring materials and threading**

- Opportunities to investigate different materials
- Threading objects e.g. shapes on necklaces

**Sewing**

- Paper weaving to make baskets
  - Use plastic needles to make grass fields using binka and wool.
- Understand how to push a needle into something and pull the thread through.

**Finger Puppet**

- Understand how simple 3-D textile products are made, using a template to create two identical shapes.
- Understand how to join fabrics using different techniques e.g. running stitch, glue.
- Use different finishing techniques such as adding sequins, wool or eyes to their puppets.
- Design a functional and appealing product for a chosen user and purpose based on simple design criteria and communicate their idea through talking and drawing.
- Choose appropriate tools and textiles for their product.
- Evaluate their final products against original design criteria.

**Soft Toy**

- Understand how simple 3-D textile products are made, using a template to create two identical shapes.
- Understand how to join fabrics using different techniques e.g. running stitch, glue, over stitch, stapling.
- Know how to use different finishing techniques such as adding sequins, wool, eyes, buttons, ribbons and fabric crayons
- Design a functional and appealing product for a chosen user and purpose based on simple design criteria and communicate their idea through talking and drawing.
- Choose appropriate tools and textiles for their product.
- Evaluate their ideas throughout and final products

**Pouch to Hold a Precious Item**

- Understand how to securely join two pieces of fabric together including the need for patterns and seam allowances.
- Add fastenings and reinforce fabric to support them.
- Generate realistic ideas through discussion and design criteria for an appealing, functional product fit for purpose and specific user/s.
- Produce annotated sketches, prototypes, final product sketches and pattern pieces in order to plan the main stages of making.
- Understand the functional characteristics of appropriate tools, fabrics and fastenings in order to choose and use them with some accuracy e.g. cutting, joining and finishing.

**Embroidered cushion**

- Understand how to securely join two pieces of fabric together, include seam allowances and know how to strengthen, stiffen and reinforce fabrics.
- Know which fabrics and tools will be best for the functionality of their product and use them with greater accuracy.
- Generate realistic ideas and design criteria collaboratively through discussion, focusing on the needs of the user, the purpose, and the functionality.
- Evaluate their own products against design criteria and the intended user and purpose.

**Product that can hold an electrical device**

- Understand how fabrics can be strengthened and reinforced after securely joining two pieces of fabric together.
- Design purposeful, functional, appealing products for the intended user that are fit for purpose based on a simple design specification.
- Select fabrics, tools and fastenings that will be best for the functionality of their product and use them with greater accuracy.
- Test and evaluate their product against the original design criteria and with the intended user and consider others' views.

**A bag**

- Know that a 3-D textile product can be made from a combination of accurately made pattern pieces, fabric shapes and different fabrics.
- Understand how fabrics can be strengthened, stiffened and reinforced where appropriate.
- Generate innovative ideas by carrying out research including surveys, interviews and questionnaires.
- Design purposeful, functional, appealing products for the intended user that are fit for purpose based on a simple design specification.
- Use a range of tools and equipment to make products that are accurately assembled and well finished.
- Test and evaluate their product against the original design criteria and with the intended user and consider others' views.

				<p>against original design criteria.</p>	<ul style="list-style-type: none"> <li>• Test their product against the original design criteria and with the intended user and consider others' views.</li> </ul>			
<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Spring 2 Cooking</p>	<p><b>Fairy Cakes</b></p> <ul style="list-style-type: none"> <li>• Mix ingredients using a spoon</li> <li>• Look at raw and cooked eggs and the differences between them.</li> </ul>	<p><b>Ginger biscuits</b></p> <ul style="list-style-type: none"> <li>• Mix ingredients and shape biscuits.</li> <li>• Look at changes when food is cooked / boiled sweets put in oven.</li> </ul>	<p><b>Mini pancakes</b></p> <ul style="list-style-type: none"> <li>• Generate initial ideas and design criteria through investigating fruit toppings.</li> <li>• Use simple utensils and equipment to mix and combine ingredients.</li> <li>• Prepare food for baking and frying such as adding oil to frying pans/saucepans.</li> <li>• Evaluate ideas and finished products against design criteria, including intended user and purpose.</li> <li>• Use sensory vocabulary relevant to the project (e.g. Taste, smell.</li> </ul>	<p><b>Fruit hot cross buns</b></p> <ul style="list-style-type: none"> <li>• Design appealing products for a particular user based on simple design criteria.</li> <li>• Communicate these ideas through talk and drawings.</li> <li>• Shape and assemble dough and use hands to rub fat into flour.</li> <li>• Prepare food for baking and frying such as greasing baking tins.</li> <li>• Select from a range of fruit according to their characteristics e.g. colour, texture and taste to create a chosen product.</li> <li>• Evaluate ideas and finished products against</li> </ul>	<p><b>Scrummy scones</b></p> <ul style="list-style-type: none"> <li>• Select and use appropriate utensils and equipment to prepare and combine ingredients.</li> <li>• Combine ingredients using a sieve, flour, raising agents and spices together in to a bowl and mix, stir and combine wet and dry ingredients uniformly.</li> <li>• Evaluate the ongoing work and the final product with reference to the design criteria and the views of others.</li> <li>• Use appropriate equipment and utensils to prepare and combine food.</li> </ul>	<p><b>Fantastic fish cakes</b></p> <ul style="list-style-type: none"> <li>• Use annotated sketches and appropriate information and communication technology, such as web-based recipes, to develop and communicate ideas.</li> <li>• Plan the main stages of a recipe, listing ingredients, utensils and equipment.</li> <li>• Coat food with ingredients such as beaten egg and breadcrumbs and independently spread ingredients accurately onto foods.</li> <li>• Select from a range of ingredients to make appropriate food products,</li> </ul>	<p><b>Mexican food</b></p> <ul style="list-style-type: none"> <li>• Explore a range of initial ideas, and make design decisions to develop a final product linked to user and purpose.</li> <li>• Carry out sensory evaluations of a range of relevant products and ingredients.</li> <li>• Use the hob or electric saucepan to cook simple dishes.</li> <li>• Make, decorate and present the food product appropriately for the intended user and purpose.</li> <li>• Evaluate the final product with reference back to the design brief and design specification, taking into account</li> </ul>	<p><b>Food using 5 war time ingredients</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>• Use words, annotated sketches and information and communication technology as appropriate to develop and communicate ideas.</li> <li>• Write a step-by-step recipe, including a list of ingredients, equipment and utensils</li> <li>• Use hands to shape mixtures in to evenly sized pieces and handle hot food</li> </ul>

				design criteria, including intended user and purpose.		thinking about sensory characteristics. <ul style="list-style-type: none"> <li>• Use relevant technical and sensory vocabulary appropriately.</li> </ul>	the views of others when identifying improvements.	safely using oven gloves. <ul style="list-style-type: none"> <li>• Select and use appropriate utensils and equipment accurately to measure and combine appropriate ingredients.</li> </ul>
Summer 1 Mechanism	<b>Construction</b> <ul style="list-style-type: none"> <li>• Exploring how parts work together through play</li> </ul>	<b>Axels and wheels</b> <ul style="list-style-type: none"> <li>• Make own vehicles with wheels</li> </ul>	<b>Moving greeting card</b> <ul style="list-style-type: none"> <li>• Use basic sliders and levers to move card.</li> <li>• Understand that different mechanisms produce different types of movement.</li> <li>• Generate ideas based on simple design criteria and their own experiences, and communicate their ideas through drawings</li> <li>• Choose 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>	<b>Vehicle</b> <ul style="list-style-type: none"> <li>• Explore and use wheels, axles and axle holders.</li> <li>• Know the difference between fixed and freely moving axles.</li> <li>• Generate ideas based on simple design criteria and their own experiences, and communicate their ideas through drawings</li> <li>• Choose and use tools, explaining their choices, to cut, shape and join cardboard and wood.</li> <li>• Use simple finishing techniques suitable for the product they are creating.</li> <li>• Evaluate their product against the</li> </ul>	<b>Moving page from a class book</b> <ul style="list-style-type: none"> <li>• Understand and use lever and linkage mechanisms.</li> <li>• Know the difference between fixed and loose pivots.</li> <li>• Generate realistic ideas and their own design criteria through discussion, focusing on the needs of the user.</li> <li>• Use annotated sketches develop and communicate ideas.</li> <li>• Choose and use appropriate tools with some accuracy to cut, shape and join paper and card.</li> <li>• Evaluate their own products and ideas against criteria and user needs, as they design and make.</li> </ul>	<b>A moving book</b> <ul style="list-style-type: none"> <li>• Understand and use lever and linkage mechanisms with fixed and loose pivots.</li> <li>• Investigate, analyse and evaluate books and, where available, other products which have a range of lever and linkage mechanisms.</li> <li>• Demonstrate the correct and accurate use of measuring, marking out, cutting, joining and finishing skills and techniques.</li> <li>• Evaluate the final products against the intended purpose and with the intended user, drawing on the design criteria previously agreed.</li> </ul>	<b>A moving object or character</b> <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>• Use the equipment needed to make a product that is accurately assembled and well finished.</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>	<b>A moving vehicle with a motor</b> <ul style="list-style-type: none"> <li>• Understand that mechanical and electrical systems have an input, process and an output.</li> <li>• Understand and use electrical systems in their products, such as series circuits incorporating switches, bulbs and motors.</li> <li>• Understand how gears and pulleys can be used to speed up, slow down or change the direction of movement.</li> <li>• Select from and use a range of tools and equipment to make products that that are accurately assembled and well finished.</li> <li>• Evaluate throughout and the</li> </ul>

			<ul style="list-style-type: none"> <li>Evaluate their product against the purpose and the user and whether it meets design criteria.</li> </ul>	purpose and the user and whether it meets design criteria.				final product in use, comparing it to the original design specification. Analyse the quality of the design, the manufacture, functionality and innovation shown for the intended user and purpose.
<b>Summer 2 Cooking (KS1)</b> <b>Electrical Systems (KS2)</b>	<b>Scones</b> <ul style="list-style-type: none"> <li>Mix ingredients using rubbing method</li> </ul>	<b>Vegetarian sushi</b> <ul style="list-style-type: none"> <li>Mix, prepare, cut and combine ingredients</li> </ul>	<b>Stuffed jacket potatoes</b> <ul style="list-style-type: none"> <li>Generate initial ideas and design criteria through investigating toppings.</li> <li>Communicate these ideas through talk and drawings.</li> <li>Use simple utensils and equipment to e.g. peel, cut, slice, squeeze, grate and chop safely.</li> <li>Know how to lightly garnish foods.</li> <li>Evaluate ideas and finished products against design criteria, including intended user and purpose.</li> <li>Prepare healthy and varied dishes,</li> </ul>	<b>Soup using vegetables grown in Science</b> <ul style="list-style-type: none"> <li>Design appealing products for a particular user based on simple design criteria.</li> <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>Taste and evaluate a range of fruit and vegetables</li> </ul>	<b>A product with a light</b> <ul style="list-style-type: none"> <li>Use a simple electrical system in their products, such as bulbs, batteries and wires.</li> <li>Connect simple electrical components and a battery in a series circuit to achieve a functional outcome</li> <li>Investigate and analyse a range of existing battery-powered products.</li> <li>Use annotated sketches develop and communicate ideas.</li> <li>Test their product against the original design criteria and with the intended user.</li> </ul>	<b>A noise making product</b> <ul style="list-style-type: none"> <li>Use electrical systems in their products, such as series circuits incorporating switches, bulbs and buzzers.</li> <li>Gather information about users' needs and wants, and develop design criteria to inform the design of products that are fit for purpose.</li> <li>Develop ideas through analysing existing electrical systems.</li> <li>Evaluate their ideas and products against their own design criteria and identify the</li> </ul>	<b>A product with different brightness</b> <ul style="list-style-type: none"> <li>Use electrical systems in their products.</li> <li>Generate realistic ideas and design criteria collaboratively through discussion, focusing on the needs of the user, the purpose, and the functionality.</li> <li>Select from and use materials and components, including construction materials and electrical components according to their functional</li> </ul>	<b>A product to protect a valuable item</b> <ul style="list-style-type: none"> <li>Generate, develop, model and communicate realistic ideas through discussion and exploded diagrams.</li> <li>Investigate electrical sensors such as light dependent resistors (LDRs) and a range of switches to understand how they are operated by the user and how they work.</li> <li>Competently select and accurately assemble materials, and securely connect electrical components to</li> </ul>



			<p>including vegetables using prior knowledge of healthy foods.</p>	<p>to determine the intended user's preferences.</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>• Prepare healthy and varied dishes, including vegetables using prior knowledge of healthy foods.</li></ul>		<p>strengths and areas for improvement in their work.</p>	<p>properties and aesthetic qualities.</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></ul>	<p>produce a reliable, functional product.</p> <ul style="list-style-type: none"><li>• Test the system to demonstrate its effectiveness for the intended user and purpose.</li></ul>
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