

St Jude's CofE Primary School Design and Technology - Knowledge and Skills Progression



	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Autumn 1	Seasonal: Autumn Hibernation Boxes	Wheels & Mechanisms		Electrical Systems		Mechanical Systems	
Autumn 2	Seasonal: Sliding Santa Chimneys		Mechanisms				Digital World
Spring 1	Structures: Junk Modelling	Textiles			Electrical Systems		
Spring 2	Structures: Boats		Structures	Structures	Textiles		
Summer 1	Cooking & Nutrition: Soup	Structures				Textiles	Electrical Systems
Summer 2	Textiles: Book Marks		Textiles	Mechanical Systems	Structures	Digital World	Structures

*Food taught in every year group – 1 lesson per half term

** Art and D&T lessons alternated over the year. EYFS are the exception to this as art and D&T available through CP.

	Early Years	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Cooking & Nutrition	<p>Know and talk about the different factors that support their overall health and wellbeing such as regular physical activity, healthy eating, tooth brushing, sensible amounts of 'screen time', having a good sleep routine, being a safe pedestrian.</p> <p>Develop small motor skills so that they can use a range of tools competently, safely and confidently.</p> <p>Create collaboratively, sharing ideas, resources and skills.</p>	<p>Talk about what I eat at home and begin to discuss what healthy foods are.</p> <p>Say where some food comes from and give examples of food that is grown.</p> <p>Use simple tools with help to prepare food safely.</p>	<p>Understand the need for a variety of food in a diet.</p> <p>Understand that all food has to be farmed, grown or caught.</p> <p>Use a wider range of cookery techniques to prepare food safely.</p>	<p>Talk about the different food groups and name food from each group.</p> <p>Understand that food has to be grown, farmed or caught in Europe and the wider world.</p> <p>Use a wider variety of ingredients and techniques to prepare and combine ingredients safely.</p>	<p>Understand what makes a healthy and balanced diet, and that different foods and drinks provide different substances the body needs to be healthy and active.</p> <p>Understand seasonality and the advantages of eating seasonal and locally produced food.</p> <p>Read and follow recipes which involve several processes, skills and techniques.</p>	<p>Understand the main food groups and the different nutrients that are important for health.</p> <p>Understand how a variety of ingredients are grown, reared, caught and processed to make them safe and palatable / tasty to eat.</p> <p>Select appropriate ingredients and use a wide range of techniques to combine them.</p>	<p>Confidently plan a series of healthy meals based on the principles of a healthy and varied diet.</p> <p>Use information on food labels to inform choice.</p> <p>Research, plan and prepare and cook a savoury dish, applying my knowledge of ingredients and my technical skills.</p>

Mechanisms/Mechanical Systems

<p>Create collaboratively, sharing ideas, resources and skills.</p> <p>Develop their small motor skills so that they can use a range of tools competently, safely and confidently.</p> <p>Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.</p> <p>Develop small motor skills so that they can use a range of tools competently, safely and confidently.</p> <p>Use a range of small tools, including scissors, paint brushes and cutlery.</p> <p>Return to and build on their previous learning, refining ideas and developing their ability to represent them.</p>	<p>Create a simple design for my product.</p> <p>Use pictures and words to describe what I want to do,</p> <p>Select from and use a range of tools and equipment to perform practical tasks e.g. cutting, shaping, joining and finishing.</p> <p>Use a range of simple tools to cut, join and combine materials and components safely.</p> <p>Ask simple questions about existing products and those that I have made.</p> <p>Use wheels and axles in a product.</p>	<p>Design useful, pleasing products for myself and other users based on a design brief.</p> <p>Generate, develop, model and communicate my ideas through talking, drawing, templates, mock-ups and IT.</p> <p>Choose tools I would like to use and select materials based on my knowledge of their properties.</p> <p>Safely measure, mark out, cut and shape materials and components using a range of tools.</p> <p>Evaluate and assess existing products and those that I have made using a design criteria.</p> <p>Explore and use mechanisms such as levers, sliders, wheels and axles in products.</p>	<p>Use my knowledge of existing products to design my own functional product.</p> <p>Create designs using annotated sketches, cross-sectional diagrams and simple computer programmes.</p> <p>Safely measure, mark out, cut, assemble and join with some accuracy.</p> <p>Make suitable choices from a wider range of tools and unfamiliar materials and plan out the main stages of using them.</p> <p>Investigate and analyse existing products and those I have made, considering a wide range of factors.</p> <p>Understand how mechanical systems such as levers and linkages or pneumatic systems create movement.</p>		<p>Use my research into existing products and my market research to inform the design of my own innovative product.</p> <p>Create prototypes to show my ideas.</p> <p>Make careful and precise measurements so that joins, holes and openings are in exactly the right place.</p> <p>Produce step by step plans to guide my making, demonstrating that I can apply my knowledge of different materials, tools and techniques. Make detailed evaluations about existing products and my own considering the views of others to improve my work.</p> <p>Understand how to use more complex mechanical and electrical systems.</p>	
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Structures

Explore, use and refine a variety of artistic effects to express their ideas and feelings.

Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.

Develop small motor skills so that they can use a range of tools competently, safely and confidently.

Use a range of small tools, including scissors, paint brushes and cutlery.

Create collaboratively, sharing ideas, resources and skills.

Return to and build on their previous learning, refining ideas and developing their ability to represent them.

Create a simple design for my product.

Use pictures and words to describe what I want to do.

Select from and use a range of tools and equipment to perform practical tasks e.g. cutting, shaping, joining and finishing.

Use a range of simple tools to cut, join and combine materials and components safely.

Ask simple questions about existing products and those that I have made.

Build structures, exploring how they can be made stronger, stiffer and more stable.

Use wheels and axles in a product.

Design useful, pleasing products for myself and other users based on a design brief.

Generate, develop, model and communicate my ideas through talking, drawing, templates, mock-ups and IT.

Choose tools I would like to use and select materials based on my knowledge of their properties.

Safely measure, mark out, cut and shape materials and components using a range of tools.

Evaluate and assess existing products and those that I have made using a design criteria.

Investigate different techniques for stiffening a variety of materials and explore different methods of enabling structures to remain stable.

Use my knowledge of existing products to design my own functional product.

Create designs using annotated sketches, cross-sectional diagrams and simple computer programmes.

Safely measure, mark out, cut, assemble and join with some accuracy.

Make suitable choices from a wider range of tools and unfamiliar materials and plan out the main stages of using them.

Investigate and analyse existing products and those I have made, considering a wide range of factors.

Strengthen frames with diagonal struts.

Generate, develop, model and communicate my ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design.

Apply my knowledge of materials and techniques to refine and rework my product to improve its functional properties and aesthetic qualities.

Use my technical knowledge and accurate skills to problem solve during the making process.

Use a wide range of methods to strengthen, stiffen and reinforce complex structures and can use them accurately and appropriately.

Textiles

Explore, use and refine a variety of artistic effects to express their ideas and feelings.

Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.

Develop small motor skills so that they can use a range of tools competently, safely and confidently.

Use a range of small tools, including scissors, paint brushes and cutlery.

Create collaboratively, sharing ideas, resources and skills.

Return to and build on their previous learning, refining ideas and developing their ability to represent them.

Create a simple design for my product.

Use pictures and words to describe what I want to do.

Select from and use a range of tools and equipment to perform practical tasks e.g. cutting, shaping, joining and finishing.

Use a range of simple tools to cut, join and combine materials and components safely.

Design useful, pleasing products for myself and other users based on a design brief.

Generate, develop, model and communicate my ideas through talking, drawing, templates, mock-ups and IT.

Choose tools I would like to use and select materials based on my knowledge of their properties.

Safely measure, mark out, cut and shape materials and components using a range of tools.

Evaluate and assess existing products and those that I have made using a design criteria.



Use my knowledge of existing products to design a functional and appealing product for a particular purpose and audience.

Use techniques which require more accuracy to cut, shape, join and finish my work e.g. Cutting internal shapes, slots

Use my knowledge of techniques and the functional and aesthetic qualities of a wide range of materials to plan how to use them.

Consider how existing products and my own finished products might be improved and how well they meet the needs of the intended user.

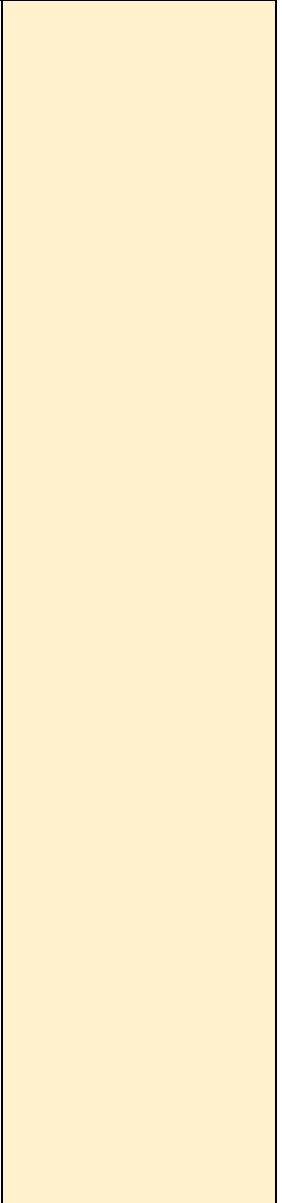
Use my research into existing products and my market research to inform the design of my own innovative product.

Create prototypes to show my ideas.

Make careful and precise measurements so that joins, holes and openings are in exactly the right place.

Produce step by step plans to guide my making, demonstrating that I can apply my knowledge of different materials, tools and techniques.

Make detailed evaluations about existing products and my own considering the views of others to improve my work.



	Early Years	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Electrical Systems				<p>Use my knowledge of existing products to design my own functional product.</p> <p>Create designs using annotated sketches, cross-sectional diagrams and simple computer programmes.</p> <p>Safely measure, mark out, cut, assemble and join with some accuracy.</p> <p>Make suitable choices from a wider range of tools and unfamiliar materials and plan out the main stages of using them.</p> <p>Investigate and analyse existing products and those I have made, considering a wide range of factors.</p>	<p>Use my knowledge of existing products to design a functional and appealing product for a particular purpose and audience.</p> <p>Use techniques which require more accuracy to cut, shape, join and finish my work e.g. Cutting internal shapes, slots</p> <p>Use my knowledge of techniques and the functional and aesthetic qualities of a wide range of materials to plan how to use them.</p> <p>Consider how existing products and my own finished products might be improved and how well they meet the needs of the intended user.</p> <p>Understand and use electrical systems in my products.</p>		<p>Use research I have done into famous designers and inventors to inform my designs.</p> <p>Generate, develop, model and communicate my ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design.</p> <p>Apply my knowledge of materials and techniques to refine and rework my product to improve its functional properties and aesthetic qualities.</p> <p>Use my technical knowledge and accurate skills to problem solve during the making process.</p> <p>Use my knowledge of famous designs to further explain the effectiveness of existing products and products I have made.</p>

Digital World

Use my research into existing products and my market research to inform the design of my own innovative product.

Create prototypes to show my ideas.

Make careful and precise measurements so that joins, holes and openings are in exactly the right place.

Produce step by step plans to guide my making, demonstrating that I can apply my knowledge of different materials, tools and techniques.

Build more complex 3D structures and apply my knowledge of strengthening techniques to make them stronger or more stable.

Generate, develop, model and communicate my ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design.

Apply my knowledge of materials and techniques to refine and rework my product to improve its functional properties and aesthetic qualities.

Use my technical knowledge and accurate skills to problem solve during the making process

Apply my understanding of computing to program, monitor and control my products.