

Succeeding together - fostering a love of learning, within a nurturing Christian community, to bring out 'the best in everyone'.

## Design Technology Long Term Overview

<b>EYFS</b>	<p><b>Expressive Arts and Design</b>          Creating with Materials</p> <ul style="list-style-type: none"> <li>• Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.</li> <li>• Share their creations, explaining the process they have used.</li> </ul> <p><b>Physical Development</b>          Fine Motor Skills</p> <ul style="list-style-type: none"> <li>• Hold a pencil effectively in preparation for fluent writing – using the tripod grip in almost all cases.</li> <li>• Use a range of small tools, including scissors, paintbrushes and cutlery.</li> <li>• Begin to show accuracy and care when drawing</li> </ul> <p><b>Personal, Social and Emotional Development</b>          Managing Self</p> <ul style="list-style-type: none"> <li>• Manage their own basic hygiene and personal needs, including dressing, going to the toilet and understanding the importance of healthy food choices.</li> </ul>		
		<b>Autumn Cycle A – On the Move</b>	<b>Spring Cycle A – Healthy Heroes</b>
<b>Year 1 &amp; 2</b>	<p><b>Design a boat that floats</b></p> <ul style="list-style-type: none"> <li>• Design purposeful, appealing products based on design criteria.</li> <li>• Generate, develop, model and communicate their ideas through talk and drawings.</li> <li>• Select from and use a range of tools and equipment to perform practical tasks.</li> <li>• Select from a wide range of materials according to their characteristics.</li> <li>• Evaluate their designs.</li> <li>• Build structures, exploring how they can be made stronger, stiffer and more stable.</li> </ul> <p>Visit to Transport museum and links to history.</p> <ul style="list-style-type: none"> <li>• Compare first car (Benz) at museum and visit from Alpine F1 to discuss design today.</li> <li>• Explore how boats, cars and trains have changed over time</li> </ul>	<p><b>Design, prepare and evaluate soup and bread rolls</b> for a Parents event to link with English text and Science.</p> <ul style="list-style-type: none"> <li>• Select from a range of tools and equipment to perform practical tasks.</li> <li>• Safety in the kitchen (the claw grip.)</li> <li>• Explore and evaluate a range of existing products.</li> <li>• Evaluate their products against design criteria.</li> <li>• Apply the principals of nutrition and healthy eating to prepare dishes (Eatwell plate.)</li> <li>• Understand where food comes from.</li> <li>• Hygiene principals</li> </ul>	

**Autumn Cycle B – Around the world****Textiles – Design a Christmas Decoration**

- Design purposeful, functional, appealing products based on design criteria.
- Develop, communicate ideas through talking, sketches and drawings.
- Select tools and techniques explaining choices.
- Join fabrics using different joining techniques e.g. running stitch, over stitch, gluing, stapling.
- Know how simple textile products are made, use a template to create two identical shapes.
- Explore finishing techniques (embellishments etc.)
- Evaluate against the design criteria.

**Spring Cycle B – Fire! Fire!****Make a vehicle (wheels and axels)**

- Know what wheels and axels are and the purpose.
- Distinguish between fixed and freely moving axles.
- Design purposeful products based on design criteria.
- Generate, develop, model and communicate their ideas through talk mock- ups and drawings.
- Select from and use a range of tools and equipment to perform practical tasks.
- Select from a wide range of materials according to their characteristics.
- Evaluate their designs.
- History link – changes to fire engines.

**Summer Cycle B – Roald Dahl****Freestanding Structures**

- Generate ideas based on simple design criteria and my own experiences.
- Develop, model and communicate ideas through talking, mock-ups and drawings.
- Select tools and techniques explaining choices.
- Know how to make freestanding structures stiffer and stronger and more stable.
- Apply knowledge gained about how to make structures stronger in own work. For example, by using a triangle shape or struts.
- Know what an architect is.
- Explore the work of Gaudi, Hundertwasser, Frank Gehry, Norman Foster.

Year	Autumn Cycle A – The Groovy Greeks	Spring Cycle A – Our World	Summer Cycle A – The Brave & the Bold
3 & 4	<p><b>Electrical Systems (Taught in Science)</b></p> <ul style="list-style-type: none"> <li>• <i>Know the key features of electrical safety.</i></li> <li>• <i>Know how to create an electrical circuit.</i></li> </ul>	<p><b>Shell Structures</b></p> <ul style="list-style-type: none"> <li>• Generate, develop, model and communicate ideas through discussion, annotated sketches, exploded diagrams and prototypes.</li> <li>• Identify shell structures.</li> <li>• Explore real life examples of buildings using a shell structure such as The Shard and O2.</li> <li>• Understand how key events and individuals in design and technology have helped shape the world.</li> <li>• Explain how a shell structure is formed and give examples of ways in which the structure can be reinforced and strengthened.</li> <li>• Know and use technical vocabulary relating to structures.</li> <li>• Create simple 3D shell structures from 2D nets and designs and explore the different ways these can be assembled.</li> <li>• Evaluate how effective their shell structures are in terms of stability/strength and structure.</li> <li>• Use CAD to design nets.</li> </ul>	<p><b>Cooking and Nutrition</b></p> <ul style="list-style-type: none"> <li>• Plan a meal according to a design criteria.</li> <li>• Understand and apply the principals of a healthy and varied diet (Eatwell plate, food groups.)</li> <li>• Plan the main stages of a recipe, listing ingredients, utensils and equipment.</li> <li>• Understand the source, seasonality and characteristics of a broad range of ingredients.</li> <li>• Cook savoury dishes.</li> <li>• Understand cooking techniques, selecting ingredients, preparing ingredients safely and hygienically, using utensils and some electric equipment.</li> <li>• Claw grip and bridge hold.</li> <li>• Learn about seasoning and adapting recipes.</li> <li>• Research and analyse existing products.</li> <li>• Evaluate their ideas and products against design criteria and consider the views of others to improve work.</li> </ul>

**Mechanisms (levers and linkages)**

- Explore and used mechanisms such as flaps, sliders and levers.
- Explore every day levers (such as a can ring pull or a spade as well as linkages, window hinge, fold up clothes airer etc.)
- Understand use lever and linkage mechanisms.
- Distinguish between fixed and loose pivots.
- Generate, develop, model and communicate ideas through discussion, annotated sketches, prototypes.
- Investigate and analyse a range of existing books and, where available, other products with lever and linkage mechanisms
- Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work.
- Order the main stages of making.
- Select from and use appropriate tools with some accuracy to cut, shape and join paper and card.
- Use finishing techniques suitable for the product they are creating.

**Textiles**

- 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,
- Generate, develop, model and communicate ideas through discussion, annotated sketches, prototypes samples and pattern pieces.
- Select materials and components based on functional and aesthetic properties.
- Select tools and techniques explaining choices.
- Join fabrics using different joining techniques e.g. running stitch, over stitch, gluing, stapling.
- Explore finishing techniques (embellishments etc.)
- Know the need for a pattern and seam allowance.
- Evaluate against the design criteria, taking the views of others into account.

Years	Autumn Cycle A – Whose War?	Spring Cycle A – Evolution & Inheritance	Summer Cycle A - Shakespeare
5 & 6	<p><b>Frame structures</b></p> <ul style="list-style-type: none"> <li>• Use carpentry equipment appropriately and safely.</li> <li>• Saw lengths of wood to create a frame Know how frames are strengthened, reinforced and made rigid.</li> <li>• Explore real life examples where a truss, gussets mitres and braces have been used such as Iron Bridge constructed by Abraham Darby.</li> <li>• Recognise that triangles are the most suitable shape to create gussets and braces to reinforce joins in a frame.</li> <li>• Explore Anderson and Morrison shelters used in World War II and consider what was needed in these structures to ensure stability.</li> <li>• Generate, develop, model and communicate ideas through discussion, annotated sketches, cross sectional diagrams and prototypes.</li> <li>• Evaluate their designs against design criteria and make modifications after evaluation if necessary.</li> </ul>		<p><b>Cooking and Nutrition</b></p> <ul style="list-style-type: none"> <li>• Plan a meal according to a design criteria.</li> <li>• Understand and apply the principals of a healthy and varied diet (Eatwell plate, food groups.)</li> <li>• Plan a recipe, listing ingredients, utensils and equipment.</li> <li>• Understand the source, seasonality and characteristics of a broad range of ingredients.</li> <li>• Research packaging design and evaluate existing examples, considering choice of colour, font, materials, size and functionality.</li> <li>• Understand cooking techniques, selecting ingredients, preparing ingredients safely and hygienically, using utensils, electric equipment including heat sources to cook food.</li> <li>• Claw grip and bridge hold.</li> <li>• Learn about seasoning and adapting recipes.</li> <li>• Carry out sensory evaluations of a range of existing relevant products and ingredients. Record the evaluations (using tables graphs, charts and computing where appropriate.)</li> <li>• Evaluate their ideas and products against design criteria and consider the views of others to improve work.</li> <li>• Understand how key chefs have influences eating habits to promote varied and healthy diets.</li> </ul>

	<b>Autumn Cycle B – Super Settlers</b>	<b>Spring Cycle B – We are Astronomers</b>	<b>Summer Cycle B – Ancient Civilizations</b>
	<p>Mechanisms (Pulleys and Gears)</p> <ul style="list-style-type: none"> <li>• Know that mechanical and electrical systems have an input, process and an output.</li> <li>• Know that gears and pulleys can be used to speed up, slow down or change the direction of movement.</li> <li>• Select from a range of tools, materials and equipment to make products that are accurately assembled and well finished. Work within the restraints of time, resources and cost.</li> <li>• Generate, develop, model and communicate ideas through discussion, annotated sketches, cross sectional diagrams and prototypes.</li> <li>• Evaluate their designs against design criteria and make modifications after evaluation if necessary.</li> </ul>		<p><b>Textiles</b></p> <ul style="list-style-type: none"> <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 ideas through discussion, annotated sketches, prototypes samples and pattern pieces.</li> <li>• Know how technological advancements have changed and influences the textile industry.</li> <li>• Consider the environmental impact of the textile industry and sustainability.</li> <li>• Select materials and components based on functional and aesthetic properties.</li> <li>• Know that a 3-D textile product can be made from a combination of pattern pieces, fabric shapes and different fabrics.</li> <li>• Select tools and techniques explaining choices.</li> <li>• Join fabrics using different joining techniques e.g. running stitch, over stitch, gluing, stapling.</li> <li>• Explore finishing techniques (embellishments etc.)</li> <li>• Know the need for a pattern and seam allowance.</li> <li>• Evaluate against the design criteria, taking the views of others into account.</li> </ul>

**'I can do everything through Him who gives me strength.' Philippians 4:13**