



# Design Technology at Orchard Academy – YEAR 4

<p style="writing-mode: vertical-rl; transform: rotate(180deg);"><b>Autumn Term</b></p>	<p><b>Shell Structures</b></p> <p><b>Design:</b></p> <ul style="list-style-type: none"> <li>• Generate realistic ideas and design criteria collaboratively through discussion, focusing on the needs of the user and purpose of the product.</li> <li>• Develop ideas through the analysis of existing products and use annotated sketches and prototypes to model and communicate ideas.</li> </ul> <p><b>Make:</b></p> <ul style="list-style-type: none"> <li>• Order the main stages of making.</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> </ul> <p><b>Evaluate:</b></p> <ul style="list-style-type: none"> <li>• Investigate and evaluate a range of existing shell structures including the materials, components and techniques that have been used.</li> <li>• Test and evaluate their own products against design criteria and the intended user and purpose</li> </ul> <p><b>Technical Knowledge:</b></p> <ul style="list-style-type: none"> <li>• Develop and use knowledge of how to construct strong, stiff shell structures.</li> <li>• Develop and use knowledge of nets of cubes and cuboids and, where appropriate, more complex 3D shapes.</li> <li>• Know and use technical vocabulary relevant to the project.</li> </ul>	<p>Structures</p>
<p style="writing-mode: vertical-rl; transform: rotate(180deg);"><b>Spring Term</b></p>	<p><b>2-D shape to 3-D product – Reusable products</b></p> <p><b>Design:</b></p> <ul style="list-style-type: none"> <li>• Generate realistic ideas through discussion and design criteria for an appealing, functional product fit for purpose and specific user/s.</li> <li>• Produce annotated sketches, prototypes, final product sketches and pattern pieces</li> </ul> <p><b>Make:</b></p> <ul style="list-style-type: none"> <li>• Plan the main stages of making.</li> <li>• Select and use a range of appropriate tools with some accuracy e.g. cutting, joining and finishing.</li> <li>• Select fabrics and fastenings according to their functional characteristics e.g. strength, and aesthetic qualities e.g. pattern.</li> </ul> <p><b>Evaluate:</b></p> <ul style="list-style-type: none"> <li>• Investigate a range of 3-D textile products relevant to the project.</li> <li>• Test their product against the original design criteria and with the intended user.</li> <li>• Take into account others' views.</li> <li>• Understand how a key event/individual has influenced the development of the chosen product and/or fabric.</li> </ul> <p><b>Technical Knowledge:</b></p> <ul style="list-style-type: none"> <li>• Know how to strengthen, stiffen and reinforce existing fabrics.</li> <li>• Understand how to securely join two pieces of fabric together.</li> <li>• Understand the need for patterns and seam allowances.</li> <li>• Know and use technical vocabulary relevant to the project.</li> </ul>	<p>Textiles</p>
<p style="writing-mode: vertical-rl; transform: rotate(180deg);"><b>Summer Term</b></p>	<p><b>Simple Circuits and Switches – Light</b></p> <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>• 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>• Order the main stages of making.</li> <li>• Select from and use tools and equipment to cut, shape, join and finish with some accuracy.</li> <li>• Select from and use materials and components, including construction materials and electrical components according to their functional properties and aesthetic qualities</li> </ul> <p><b>Evaluate:</b></p> <ul style="list-style-type: none"> <li>• Investigate and analyse a range of existing battery-powered products.</li> <li>• Evaluate their ideas and products against their own design criteria and identify the strengths and areas for improvement in their work.</li> </ul> <p><b>Technical Knowledge:</b></p> <ul style="list-style-type: none"> <li>• Understand and use electrical systems in their products, such as series circuits incorporating switches, bulbs and buzzers.</li> <li>• Apply their understanding of computing to program and control their products.</li> <li>• Know and use technical vocabulary relevant to the project.</li> </ul>	<p>Electrical Systems</p>