

## Key Stage 3 Curriculum Progress Map: Year 9 Design Technology

Topic Titles	Project 1: CONTAINER				Project 2: MECHANISMS				Project 3: SOLIDWORKS				
	Container				Fun Grabber				SOS Device				
	Knowledge and Understanding	Skills	Literacy	Numeracy	Knowledge and Application	Skills	Literacy	Numeracy	Knowledge & Understanding	Skills	Literacy	Numeracy & ICT	
<b>ASSESSMENT CRITERIA</b>	<b>1</b>	<ul style="list-style-type: none"> <li>Understand the terms 'Design Brief' and 'Specification'</li> <li>Learn about four design movements: DeStijl, Art Deco, Bauhaus and Pop Art.</li> </ul>	<ul style="list-style-type: none"> <li>Select the relevant personal protective equipment (PPE) for task.</li> <li>Work safely in a practical classroom, following the 'Passport to Safety' document.</li> </ul>	<ul style="list-style-type: none"> <li>Spelling, punctuation and grammar is used accurately to improve sentence structure.</li> </ul>	<ul style="list-style-type: none"> <li>To be able to measure accurately in both CM and MM.</li> </ul>	<ul style="list-style-type: none"> <li>Explain using everyday examples what a mechanism is and why they are used.</li> <li>Recognise a range of simple mechanisms, levers, cams and gears.</li> </ul>	<ul style="list-style-type: none"> <li>Select the relevant personal protective equipment (PPE) for task.</li> <li>Identify Hazards in a practical classroom and assess the risks.</li> </ul>	<ul style="list-style-type: none"> <li>Spelling, punctuation and grammar is used accurately to improve sentence structure.</li> </ul>	<ul style="list-style-type: none"> <li>To be able to measure accurately in both CM and MM.</li> </ul>	<ul style="list-style-type: none"> <li>Understand the terms 'Design Brief' and 'Specification'</li> <li>Learn the difference between a consumer and a manufacturer.</li> </ul>	<ul style="list-style-type: none"> <li>Develop skills in opening, saving, creating new pages in Solidworks</li> <li>Learn how to draw design ideas using isometric drawing techniques.</li> </ul>	<ul style="list-style-type: none"> <li>Spelling, punctuation and grammar is used accurately to improve sentence structure.</li> </ul>	<ul style="list-style-type: none"> <li>To be able to measure accurately in MM using Dimensioning tool in Solidworks.</li> </ul>
	<b>2</b>	<ul style="list-style-type: none"> <li>Learn and describe the function of a range of woodworking equipment and tools.</li> <li>Describe the aesthetic and working properties of manufactured boards.</li> <li>Describe the aesthetic and working properties of softwoods and hardwoods.</li> </ul>	<ul style="list-style-type: none"> <li>Learn and describe the function of a range of woodworking equipment and tools.</li> <li>Describe the aesthetic and working properties of manufactured boards.</li> <li>Describe the aesthetic and working properties of softwoods and hardwoods.</li> </ul>	<ul style="list-style-type: none"> <li>Use subject specific key words and language appropriate to both written and oracy tasks.</li> </ul>	<ul style="list-style-type: none"> <li>Be able to understand and apply the principle of radius, diameter and circumference.</li> </ul>	<ul style="list-style-type: none"> <li>Learn the four types of motion: oscillating, reciprocating, linear and rotary.</li> <li>Identify a range of hand tools and explain their functions: coping saw, file, and countersink.</li> <li>Learn and describe the properties of acrylic.</li> </ul>	<ul style="list-style-type: none"> <li>Use a coping saw accurately with precision. Demonstrate an ability to change the coping saw blade.</li> <li>Use a range of hand tools with confidence and accuracy, file, wet &amp; dry paper, hand drill, etc.</li> </ul>	<ul style="list-style-type: none"> <li>Use subject specific key words and language appropriate to both written and Oracy tasks.</li> </ul>	<ul style="list-style-type: none"> <li>Be able to draw and make templates to aid batch manufacture.</li> </ul>	<ul style="list-style-type: none"> <li>Learn the term CAFEQUE and use it when analysing the design brief.</li> <li>Learn the novice commands in Solidworks 'Sketch' 'Dimension' and 'Extrude'.</li> <li>Learn the novice commands in Solidworks 'Extrude cut' 'Fillet'.</li> </ul>	<ul style="list-style-type: none"> <li>Learn how to render design ideas using texture and tone.</li> <li>Learn the advantages where 3D models/ prototypes using CAD are better than physical models.</li> <li>Understand the advantages and disadvantages of using CAD/CAM.</li> </ul>	<ul style="list-style-type: none"> <li>Use subject specific key words and language appropriate to both written and Oracy tasks.</li> </ul>	<ul style="list-style-type: none"> <li>Be able to understand and apply the principle of radius, diameter and circumference.</li> </ul>
	<b>3</b>	<ul style="list-style-type: none"> <li>Learn and describe a butt and lap joint used in woodworking.</li> <li>Learn and describe a finger joint and housing joint used in woodworking.</li> </ul>	<ul style="list-style-type: none"> <li>Design ideas are clearly labelled showing function, material and parts.</li> <li>Understand the working characteristics of MDF and plywood.</li> </ul>	<ul style="list-style-type: none"> <li>Write coherent paragraphs using a range of discourse markers (linking words).</li> </ul>	<ul style="list-style-type: none"> <li>Determine angular measures in degrees using a range of measurement tools.</li> </ul>	<ul style="list-style-type: none"> <li>Learn and describe the properties of HIPS</li> <li>Learn and describe the properties of PVC.</li> </ul>	<ul style="list-style-type: none"> <li>Understand the working characteristics of PVC, Acrylic HIPS.</li> <li>Apply knowledge of mechanisms to the world around you.</li> </ul>	<ul style="list-style-type: none"> <li>Write coherent paragraphs using a range of discourse markers (linking words).</li> </ul>	<ul style="list-style-type: none"> <li>Calculate percentages of anthropometric data using the 5th to 95th rule.</li> </ul>	<ul style="list-style-type: none"> <li>Learn the intermediate commands in Solidworks 'Linear Pattern'</li> <li>Learn the intermediate commands in Solidworks 'Revolve Boss/Base' 'Dome'.</li> </ul>	<ul style="list-style-type: none"> <li>Understand how modern industries use CAD/CAM and can give examples.</li> <li>Quality control check your work identifying areas for development, suggesting improvements.</li> </ul>	<ul style="list-style-type: none"> <li>Write coherent paragraphs using a range of discourse markers (linking words).</li> </ul>	<ul style="list-style-type: none"> <li>Determine angular measures in degrees using a range of measurement tools.</li> </ul>
	<b>4</b>	<ul style="list-style-type: none"> <li>Learn and describe the different stages of production: wastage, assembly and finishing.</li> <li>Learn and describe the different stages of production: wastage, assembly and finishing.</li> <li>Learn and describe the term 'Sustainability' and why it is important to the environment.</li> </ul>	<ul style="list-style-type: none"> <li>Quality control check your work identifying areas for development, suggesting improvements.</li> <li>Use tools and equipment with high levels of accuracy and care.</li> </ul>	<ul style="list-style-type: none"> <li>Write in full sentences giving reasons and justifications for your answers (explaining why).</li> <li>Retrieve information and meaning from written texts to understand what's being read.</li> </ul>	<ul style="list-style-type: none"> <li>Be able to calculate quantities of materials, costs and sizes.</li> <li>Create scaled drawings from dimensions given including working drawings.</li> </ul>	<ul style="list-style-type: none"> <li>Learn how to draw to scale including dimension lines and measurements.</li> <li>Understand and explain the term Ergonomics and identify products that have been designed ergonomically.</li> <li>Understand and explain the term anthropometrics and identify data that needs to be collected for different products.</li> </ul>	<ul style="list-style-type: none"> <li>Quality control check your work identifying areas for development, suggesting improvements.</li> <li>Use anthropometric data to design a handle to be ergonomically designed.</li> <li>Use the 5<sup>th</sup> to the 95<sup>th</sup> percentile rule when collecting anthropometric data.</li> </ul>	<ul style="list-style-type: none"> <li>Write in full sentences giving reasons and justifications for your answers (explaining why).</li> <li>Retrieve information and meaning from written texts to understand what's being read.</li> </ul>	<ul style="list-style-type: none"> <li>Present data in the form of graphs including pie charts.</li> <li>Be able to calculate simple moments of force and equilibrium, including gear ratio.</li> </ul>	<ul style="list-style-type: none"> <li>Learn how to render using Solidworks.</li> <li>Learn the process of 3D printing and its application.</li> <li>Learn the impact of new and emerging technologies.</li> </ul>	<ul style="list-style-type: none"> <li>Create a 3D prototype that meets the need of the consumer and the Design Brief.</li> <li>Work using the Iterative design process.</li> <li>Develop an understanding of how new technology can impact economies of sale.</li> </ul>	<ul style="list-style-type: none"> <li>Write in full sentences giving reasons and justifications for your answers (using PEEL).</li> <li>Retrieve information and meaning from written texts to understand what's being read.</li> </ul>	<ul style="list-style-type: none"> <li>Be able to calculate quantities of materials, costs and sizes from CAD Models.</li> <li>Create scaled drawings from dimensions given including working drawings.</li> </ul>