

## Year 13

## Theory

Timing	Unit Title	Knowledge	Assessing Understanding
Autumn term (Two lessons /week)	Technical principles 2	<p><b>Materials: Performance characteristics</b></p> <ul style="list-style-type: none"> <li>● Elastomers</li> <li>● Polymer based sheet and film</li> <li>● Smart materials</li> <li>● Modern materials</li> <li>● Composites including: GRP, CFRP, glulam, concrete and fibre cement</li> </ul> <p><b>Digital design and manufacture</b></p> <ul style="list-style-type: none"> <li>● Computer aided design</li> <li>● Computer aided manufacture</li> <li>● Virtual modelling</li> <li>● Rapid prototyping</li> <li>● Electronic data interchange</li> <li>● Production planning and control</li> </ul> <p><b>Modern industrial and commercial practice</b></p> <ul style="list-style-type: none"> <li>● Scales of production</li> <li>● Efficient use of materials</li> <li>● The use of computer systems</li> <li>● Sub-assembly</li> </ul> <p><b>Health and Safety</b></p> <ul style="list-style-type: none"> <li>● Safe working practice</li> <li>● Safety in products and services to the customer</li> </ul> <p><b>Designing for manufacturing, maintenance, repair &amp; disposal</b></p>	End of unit tests
	Design and making principles 2	<p><b>Critical analysis and evaluation</b></p> <p><b>Selecting appropriate tools, equipment and processes</b></p> <p><b>Accuracy in design and manufacture</b></p> <p><b>Responsible design</b></p> <ul style="list-style-type: none"> <li>● Environmental issues</li> <li>● Conservation of energy and resources</li> </ul> <p><b>Design for manufacture and project management</b></p> <ul style="list-style-type: none"> <li>● Quality control</li> </ul>	

		<ul style="list-style-type: none"><li>• Quality assurance</li><li>• Planning for accuracy and efficiency</li></ul> <b>National and international standards in product design</b>	
Spring term 1 (One lesson /week)	Technical principles 3	<b>Protecting intellectual property</b> <b>Product lifecycle</b> <b>Feasibility studies</b> <b>Design communication</b>	Mock exam
Summer term 1	Revision	Paper 1: Technical principles Paper 2: Designing and making principles	

**Non-Exam Assessment (NEA)**

Autumn term: Two lessons per week	Non-exam assessment	<ul style="list-style-type: none"> <li>• Students must undertake a small-scale design and make task. Students must produce a final prototype based on a context identified and explored by them.</li> <li>• With reference to the context, students will develop a design brief that meets the needs of a user, client or market.</li> <li>• The brief must be of an appropriate level of complexity and contain a degree of uncertainty so that students can engage in an iterative process of designing, making, testing and evaluating.</li> <li>• Students must produce a final practical prototype based on the design brief they have developed, along with a supporting digital design portfolio.</li> </ul>	Assessment against AQA marking criteria
Spring term 1: Three lessons per week			
Spring term 2: Four lessons per week			