

# Long Term Plan – GCSE RM

Date: July 2016

Year Group: 10

Content/Topic: Trophy Project Making

Assessments: At the end of each unit of the project [five units] and at week 7 of the school assessment cycle.

Homework: Weekly

Subject Aim:

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- To engage students in a rewarding practical subject that is concerned with all aspects of how we live and is linked to our intellectual, emotional and physical needs.
- To offer opportunities which are fun, practical, challenging and rewarding
- To develop a range of designing and making skills which are readily transferable to higher level study, apprenticeships or the world of work.
- To achieve as high a grade as possible at GCSE.

Learning:

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In y10 students will be engaged in the first year of the OCR Design & Technology Resistant Materials.

The first year embeds a range of theoretical elements and engages students in designing and making the first project a prototype trophy [worth 30% of the final overall mark.] and producing a portfolio of supporting research and design work.

Module	Theory	Project Design & Make
Module 1	<ul style="list-style-type: none"> <li>• Commonly used hardwoods.</li> <li>• Commonly used softwoods.</li> <li>• Commonly used manufactured boards.</li> <li>• Commonly used ferrous metals.</li> <li>• Commonly used non-ferrous metals.</li> <li>Thermoplastics</li> <li>• Thermosetting plastics –</li> <li>• Trends and innovations in design and manufacture, labelling and packaging</li> <li>• social, moral, cultural, economics, environmental and sustainability issues inherent in Design and Technology</li> <li>• product life cycle and life cycle analysis</li> </ul>	<ul style="list-style-type: none"> <li>• Trophy Project</li> <li>• <b>Section 1</b></li> <li>• Research</li> <li>• Use needs</li> <li>• Surveys</li> <li>• Analysing existing Projects</li> </ul>
Module 2	<ul style="list-style-type: none"> <li>• performance characteristics of different materials including 'smart' and 'modern'</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Section 3</b></li> <li>• Design Brief and research</li> </ul>

	<ul style="list-style-type: none"> <li>• tools and equipment</li> <li>• The 6Rs</li> </ul>	<ul style="list-style-type: none"> <li>• Design drawing and development</li> <li>• Modelling</li> <li>• Orthographic drawing</li> <li>• Final design</li> </ul>
Module 3	<p>Characteristics of resistant materials</p> <ul style="list-style-type: none"> <li>• The use of heat treatment to alter the properties of metals, including annealing and hardening.</li> <li>• Composite materials including GRP, carbon fibre and Kevlar.</li> </ul> <p>Finishing processes</p> <p>'Smart' and modern materials</p> <ul style="list-style-type: none"> <li>• Market forms of materials, sizes, shapes and comparative costs.</li> <li>• Components needed in the manufacture of a product.</li> </ul> <p>Tools and equipment</p> <ul style="list-style-type: none"> <li>• Preparing, marking out, measuring and testing; using: a rule, try square, dividers, scribe, punches and templates.</li> <li>• Wasting: using hand methods such as sawing, drilling, chiselling, planing, or using machines such as a router, jigsaw, centre lathe or milling machine.</li> <li>• Deforming: by means of laminating, bending, press moulding, vacuum forming, blow moulding and line bending.</li> <li>• Fabricating:-- using temporary methods such as screws, nuts and bolts and knock-down fittings</li> <li>-- using permanent methods such as adhesive, with nail, dowel,</li> <li>• halving, comb, butt, rebate, mortise and tenon, housing and mitre joint, braze, solder, pop rivet and weld.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Section 3</b></li> <li>• Making</li> <li>• Recording of key Stages</li> <li>• Overcoming technical issues</li> </ul>
Module 4	<ul style="list-style-type: none"> <li>• Product analysis ACCESS FM</li> <li>• Social issues and the design of products</li> <li>• Signs and symbols giving valuable information about materials,</li> <li>• products and safety issues. COSHH &amp; BSI Kite Mark CE mark etc.</li> <li>• Moral issues</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Section 4</b></li> <li>• Key Stages of Making write up</li> <li>• Critical Evaluation</li> <li>• Testing</li> <li>• Modifications Changes and adaptations to project</li> <li>• Additional pieces</li> </ul>
Module 5	<ul style="list-style-type: none"> <li>• Carbon footprint - transportation of materials and goods, energy usage in manufacture.</li> <li>• Carbon offsetting.</li> <li>• Eco-design. The whole system of looking at a product from design to finished article, its use of materials and energy.</li> </ul> <p>The globalisation of products.</p>	<ul style="list-style-type: none"> <li>• Small Storage Project</li> <li>• <b>Section 1</b></li> <li>• Initial research</li> <li>• Design ideas</li> <li>• Design Brief</li> <li>• Research into similar products</li> </ul>