



## Curriculum Overview 2019-20: Design and Technology – Materials Technology: GCSE Ed-Excel

Year Group	Autumn Term	Spring Term	Summer Term	Useful information / websites
Year 9 Materials Technology	<p>Development of basic drawing skills needed for non-examined assessment</p> <p>Understanding the different categories of wood, metal and plastic</p> <ul style="list-style-type: none"> <li>• Isometric projection</li> <li>• Orthographic projection</li> <li>• Zoom in/technical features</li> <li>• Wood – ferrous / non-ferrous</li> <li>• Thermoplastic/Thermoset</li> <li>• Hardwood/ Softwood / Man-made board</li> </ul>	<p>Design and make a small, wooden storage box incorporating various wooden joints</p> <ul style="list-style-type: none"> <li>• Research into wooden joints and their mechanical properties</li> <li>• Wooden joints covered; Dowel, finger/comb, dovetail, butt and cross halving.</li> <li>• Fixtures and fittings – permanent and semi-permanent</li> <li>• Finishing techniques – wax, paint and varnish.</li> <li>• CAD/CAM design for lid/cover</li> </ul>	<p>Design and make a metal, balancing toy, with a unique design.</p> <ul style="list-style-type: none"> <li>• Design development</li> <li>• Working with various metals</li> <li>• Brazing</li> <li>• Riveting</li> <li>• Joining using industrial processes</li> <li>• Use of CAD/CAM</li> <li>• Sustainability and eco-friendly use of materials.</li> </ul>	<p><a href="http://www.technologystudent.com">www.technologystudent.com</a></p> <p><a href="http://www.BBCbitesize.com">www.BBCbitesize.com</a></p> <p><a href="http://www.designtechnology.info/home">www.designtechnology.info/home</a></p> <p><a href="http://www.design-technology.org">www.design-technology.org</a></p> <p><a href="http://www.mr-dt.com">www.mr-dt.com</a></p> <p><a href="http://www.edexcel.com/designandtechnology.com">www.edexcel.com/designandtechnology.com</a></p>
Year 10 Materials Technology	<p>Design and Technology core content: Learning key areas that are required for the GCSE exam and the non-examined assessment (project).</p> <ul style="list-style-type: none"> <li>• The impact of new and emerging technologies</li> <li>• How the critical evaluation of new and emerging technologies</li> </ul>	<p>Core content is continued thorough the spring term.</p> <ul style="list-style-type: none"> <li>• The functions of mechanical devices used to produce different sorts of movements, including the changing of magnitude and the direction of forces</li> </ul>	<p>Core content is continued through the summer term.</p> <ul style="list-style-type: none"> <li>• The categorisation of the types, properties and structure of papers and boards</li> <li>• The categorisation of the types, properties and</li> </ul>	<p><a href="http://www.technologystudent.com">www.technologystudent.com</a></p> <p><a href="http://www.BBCbitesize.com">www.BBCbitesize.com</a></p> <p><a href="http://www.designtechnology.info/home">www.designtechnology.info/home</a></p> <p><a href="http://www.design-technology.org">www.design-technology.org</a></p> <p><a href="http://www.mr-dt.com">www.mr-dt.com</a></p> <p><a href="http://www.edexcel.com/designandtechnology.com">www.edexcel.com/designandtechnology.com</a></p>



	<p>informs design decisions; considering contemporary and potential future scenarios from different perspectives, such as ethics and the environment</p> <ul style="list-style-type: none"> <li>• How energy is generated and stored in order to choose and use appropriate sources to make products and power systems</li> <li>• Developments in modern and smart materials, composite materials and technical textiles</li> </ul>	<ul style="list-style-type: none"> <li>• How electronic systems provide functionality to products and processes, including sensors and control devices to respond to a variety of inputs, and devices to produce a range of outputs</li> <li>• The use of programmable components to embed functionality into products in order to enhance and customise their operation</li> <li>• The categorisation of the types, properties and structure of ferrous and non-ferrous metals</li> </ul>	<p>structure of thermoforming and thermosetting polymers</p> <ul style="list-style-type: none"> <li>• 2 The categorisation of the types, properties and structure of natural and manufactured timbers</li> <li>• Investigate and analyse the work of past and present professionals and companies in order to inform design</li> </ul>	
Year 11 Materials Technology	<p><b>Design &amp; make project – 50% of qualification.</b> Students pick a contextual challenge provided by the exam board. Students will produce a project, based on their specialism, which consists of a portfolio and prototype.</p> <p>Part 1 – Investigate Part 2 – Design Part 3- Make Part 4 - Evaluate</p>	<p>Design &amp; Make project completed, moderated and submitted. Revision on core content is revisited from year 10. Revision is more focused on exam style questions.</p>	<p><b>Examination – 50% of qualification.</b> Core content is revisited and implemented into the teaching. Subject specific content is covered for the exam.</p> <p><b>Section A:</b> Core This section is 40 marks and contains a mixture of different question styles, including open-response, graphical, calculation and extended-</p>	<p><a href="http://www.technologystudent.com">www.technologystudent.com</a></p> <p><a href="http://www.BBCbitesize.com">www.BBCbitesize.com</a></p> <p><a href="http://www.designtechnology.info/home">www.designtechnology.info/home</a></p> <p><a href="http://www.design-technology.org">www.design-technology.org</a></p> <p><a href="http://www.mr-dt.com">www.mr-dt.com</a></p> <p><a href="http://www.edexcel.com/designandtechnology.com">www.edexcel.com/designandtechnology.com</a></p>



# ASTON MANOR ACADEMY



			<p>open-response questions. There will be 10 marks of calculation questions in Section A. <b>Section B:</b> Material categories This section is 60 marks and contains a mixture of different question styles, including open-response, graphical, calculation and extended-open-response questions. There will be 5 marks of calculation questions in Section B</p>	
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