

## Learning Aims and Curriculum Intent:

Design and Technology offers a broad and inclusive curriculum that has been meticulously designed for A-level, pupils study this course split into two, the technical principles, which is covered as part of a set of designated theoretical lessons, and the design and making principles, which is a compilation of mini projects. Pupils are expected to undergo a design process, building confidence in the use of workshop machines, tools and equipment to ultimately design and manufacture a series of high-quality product solution for a specific client. Pupils will produce electronic design portfolios, showcasing an array of skills from analysis to research, iterative designs to prototype modelling and conducting a vast number of tests with critical evaluation.

Term	Technical Principles	Design and Making Principles	Skills	A
Michaelmas	<ul> <li>Topics:</li> <li>Materials and their applications</li> <li>Performance characteristics of materials</li> <li>Enhancement of materials</li> <li>Forming redistribution and addition processes</li> <li>The use of finishes</li> <li>Modern and industrial scale of practice</li> <li>Digital design and manufacture</li> </ul>	<ol> <li>How can ergonomics influence the success of a design?         <ul> <li>Ergonomic Craft Knife</li> </ul> </li> <li>Is function or form more superior when designing?         <ul> <li>Soap Dish Holder</li> </ul> </li> </ol>	<ul> <li>Drawn design, development, and presentation.</li> <li>Primary research pages</li> <li>Prototype modelling using different materials, using workshop tools / equipment.</li> <li>Manufacturing a high-quality product solution.</li> </ul>	
Lent	<ul> <li>Requirement for product design and development</li> <li>Design methods and processes</li> <li>Design theory</li> <li>Health and safety</li> <li>Protecting designs and intellectual property</li> </ul>	<ul> <li>3) How can products encourage a spiritual mood and improve mental health?</li> <li>Incense Pod</li> </ul>	<ul> <li>Primary research pages</li> <li>Planning</li> <li>Initial concepts</li> <li>Iterative design and development</li> <li>Consumer review</li> <li>CAD drawing and technical data</li> <li>Scale modelling</li> <li>Manufacturing using a range of different materials, workshops tools and equipment.</li> </ul>	
Trinity	<ul> <li>Design for manufacturing, maintenance, repair and disposal</li> <li>Feasibility studies</li> <li>Enterprise and marketing in the development of products</li> <li>Design communication</li> <li>End of year exam and feedback</li> </ul>	<ul> <li>4) What is the benefits of using CAD / CAM to design and manufacture everyday products?</li> <li>SolidWorks, 3D Printing and Laser Cutting.</li> <li>Skills, Knowledge and Enhancement Course</li> <li>Launch of the major Year 13 NEA</li> </ul>	<ul> <li>Creating bespoke designs using SolidWorks as a computer aided design software.</li> <li>Rendering final CAD drawings to a realistic lifelike quality.</li> <li>Setting up and safely using the laser cutter and 3D printers to independently.</li> <li>Choosing a suitable contextual challenge for the major A-level project and linking this with a client that encounters a genuine problem.</li> </ul>	

Examples of Homework	Research the topic of ergonomics and relate your findings back to the focus point: ergonomics in craft knife design. Produce a QA (Quality Assurance) Table for the design and manufacture of your soap dish. Produce an evaluation that is centred on your target client taking into consideration their thoughts and ideas and making your own design recomm
Key terminology	Design Brief, Rapid Designs, CAD, CAM, 2D-Design, Communication, Mix Media, Prototype, Compliant Materials, Ergonomics, Anthropometrics, Quality Control, Client, End User, Target Market. Thermoforming, Laser Cutter, 3D Printer, Brazing Hearth,



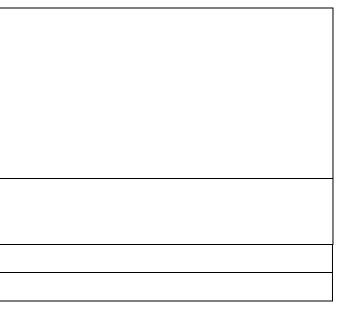
Assessment				
	Initial sketches Design development Rendering Ergonomics Research Packaging Design Jelutong model Personal and client Evaluation			
	Product analysis Anthropometrics and ergonomics research Design movement Research summary Design brief and specification Initial concepts, iterative design and development CAD/CAM Manufacturing diary Manufacturing a high-quality product solution.			
• • •	Designs created as parts, joined in assembly and technical drawings produced. Final design produced as a fully rendered CAD drawing. Operating, adjusting the speed and power settings independently. Range of small items manufactured in a workshop			

mendations based on their input.

s, Materials, Properties, Finish, Quality Assurance,

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Read: Sketching: Drawing Techniques for Product Designers by Roselien Stuer. Manufacturing Processes for Design Professionals (2007) by Rob Thompson. Watch: James Dyson Answers Design Questions from Twitter https://youtu.be/zFCFe38EIfE?feature=shared Listen: Nuts and Bolts Seven Small Invention That Changed the World (in a Big Way) – Roma Agrawal Nuts and Bolts - 99% Invisible (99percentinvisible.org) Visit: Design Museum 224-238 Kensington High Street, London, W8 6AG New Designers Exhibition (3rd – 6th July 2024) Business Design Centre, 52 Upper Street, London, N1 0QH		7) by Rob Thompson. e World (in a Big Way) – Roma Agrawal	
Useful websites	Toyota production system explains the origins and philosophy behind modern manufacturing systems such as 'Just in Time'. <u>Toyota Production System   Vision &amp; Philosophy   Company   Toyota Motor Corporation Official Global Website</u> How adhesive products work and why adhesives do not stick to the container. <u>How do adhesives and glues work?   The science of sticking (explainthatstuff.com)</u>		
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