



**Year 10**

<b>Project</b>	<b>Knowledge</b>	<b>Skills</b>
<b>Core content</b>		
<b>Energy and Storage</b>	Know sources for energy generation and how it can be stored.	Select appropriate sources for products and power systems.
<b>Smart Materials</b>	Know properties, characteristics, applications, advantages and disadvantages of: Smart materials, composite materials and technical textiles.	Show selection of appropriate materials based on their working properties.
<b>Developing technologies</b>	Know how new and emerging technologies impact upon people, culture and society, and how they affect people, production systems and the environment.	Demonstrate where new technologies can be used in your work.  Show the selection of appropriate production systems in your work.  Can critically evaluate the impact of emerging technologies and how these inform design decisions for suitability of designs, processes or materials.
<b>Mechanical systems</b>	Know the functions of mechanical devices and how they are used to produce different types of movement.	Describe the application of mechanical systems used to change movement, direction, axis and magnitude using sketches and notes. Calculate gear ratios, mechanical advantage and velocity ratios.
<b>Electronic systems</b>	Know how electronic systems provide functionality to products and processes.	Describe the application of electronic systems and components, including sensors control devices to respond to



	<p>Know a range of communication techniques to present work and test systems.</p> <p>Know how new technologies inform design decisions.</p> <p>Understand Ethical and environmental perspectives when designing and making products.</p>	<p>inputs and produce different outputs.</p> <p>Develop, communicate and test ideas using appropriate media; use appropriate tools and equipment to make a product including a programmable component to enhance/customise functionality.</p> <p>Show your understanding of technological applications and issues through annotation in your work.</p>
<b>Textiles</b>	<p>Know properties, characteristics, structure, applications, advantages and disadvantages of: Natural, synthetic, blended and mixed fibres, and woven, nonwoven and knitted textiles.</p>	<p>Show selection of appropriate materials based on their working properties.</p>
<b>Specialist Material Area: Timbers</b>		
<b>Timbers</b>	<p>Know the sources and characteristics of timbers, and the social and environmental issues when using timber.</p> <p>Know the factors when selecting timbers.</p> <p>Know how timber can be strengthened</p> <p>Understand stock forms and sizes.</p> <p>Know the manufacturing processes and equipment when working with Timbers.</p>	<p>I can explain advantages and disadvantages of each timber in terms of their effectiveness in developing a successful product and discuss ecological effects of timber to then further determine product suitability.</p> <p>I can highlight properties of each timber that make them suitable for a variety of applications.</p> <p>I can analyse each timber in terms of its life cycle analysis and impact of the environment.</p>



# Fundamentals GCSE Design Technology

	Know a range of surface treatments and finishes for timber.	
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<b>Contextual challenge –NEA (investigate and design stages)</b>	<p>Can identify and fully investigate a design problem.</p> <p>Address criteria for design and user requirements.</p> <p>Communicate using a range of techniques to model, test and present proposals.</p> <p>Apply further research to support design development.</p>	<p>Research users' needs and wants, considering product form and function. Investigate existing products. Write a design brief and comprehensive specification.</p> <p>Present and analyse developing designs using 2D and 3D modelling and detailed annotation.</p> <p>Carry out on-going research to resolve choices of materials, form, function and processes.</p>
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