

Yr10 DT Learning Intentions – Half Term 1

	Lesson 1	Lesson 2	Lesson 3
Week 1	<p>Core technical principles To be able to identify common timbers such as pine, mahogany, teak, ash and beech used in the manufacture of products.</p> <ul style="list-style-type: none"> • to be able to identify common manufactured boards i.e., MDF, plywood, chipboard, blockboard and hardboard. 	<p>Core technical principles To be able to understand the different properties and uses of MMB's within commercial products.</p> <ul style="list-style-type: none"> • to be able to understand that many timber-based materials are manufactured therefore the composition can be adjusted to create different properties for specific purposes. 	<p>Technical and Practical Skills:</p> <p>Woods - Measurement and Marking:</p> <ul style="list-style-type: none"> • Be able to use rulers, try squares and marking gauges to measure and mark materials accurately and safely prior to cutting and shaping. • Be able to mark out 4 different joints prior to cutting • Be aware of common errors when using marking and measuring tools
Important events	<p>Academic reading - Voll Arkitekter's Mjøstårne in Norway becomes world's tallest timber building (dezeen.com)</p> <p>HW – Describe the work of the FSC and the importance of choosing FSC products.</p>		

Week 2	<p>Core technical principles</p> <p>To be able to understand the stock forms for timber-based materials i.e., rough sawn, PSE, sheet sizes and mouldings.</p> <ul style="list-style-type: none"> • to have a basic understanding of the source of timber and the primary processes involved in conversion to workable materials • to understand the environmental issues concerning wooden products 	<p>Core technical principles</p> <p>To be able to identify common metals i.e. silver, stainless steel, mild steel, cast iron, brass, copper, zinc, aluminium, pewter;</p> <ul style="list-style-type: none"> • to understand the different properties and uses of such materials within engineering and domestic products. • to understand that many metals are alloys or have coated finishes therefore the composition can be adjusted. 	
Important events	HW – Timbers - Timber-based materials - AQA - GCSE Design and Technology Revision - AQA - BBC Bitesize	Formal assessment – Environmental issues	
Week 3	<p>Core technical principles</p> <p>To understand that the properties of metal can be changed by heat treatment.</p> <ul style="list-style-type: none"> • to understand the stock forms for metals i.e., sheet, rod, bar, tube. • to have a basic understanding of the source of metals and the primary processes involved in conversion to workable materials. 	<p>Core technical principles</p> <p>To be able to identify common thermoplastics i.e., high impact polystyrene, expanded polystyrene, acrylic, acetate, HDPE, PVC, PET.</p> <ul style="list-style-type: none"> • to be able to identify common thermosetting plastics i.e., GRP, Epoxy resin and MF. 	<p>Technical and Practical Skills:</p> <p>Woods - Cutting and Shaping:</p> <ul style="list-style-type: none"> • Be able to use tools such as tenon saws, coping saws, files and raps to shape and cut wood. • Be able to demonstrate correct techniques when using cutting tools • Be aware of common errors when using cutting tools
Important events	HW - Metal-based materials - Metal-based materials - AQA - GCSE Design and Technology Revision - AQA - BBC Bitesize		

Week 4	<p>Core technical principles</p> <p>To understand the ways in which plastics can be formed, especially about consumer products, i.e., vacuum forming, injection moulding, blow moulding, line bending, compression moulding and extrusion.</p>	<p>Core technical principles</p> <p>To understand that most plastics are synthetic, and that the composition can be adjusted to create different properties for specific purposes e.g., increase rigidity, reduce weight and increase insulation;</p>	
Important events	HW – Polymers - Polymers - AQA - GCSE Design and Technology Revision - AQA - BBC Bitesize		
Week 5	<p>Core technical principles</p> <p>To understand the stock forms for plastic materials i.e., sheet, rod, powder, granule and foam;</p> <ul style="list-style-type: none"> • to have a basic understanding of the source of plastics and the primary processes involved in conversion to workable materials. 	<p>Core technical principles</p> <p>To have a knowledge and understanding that the development of new and smart materials is allowing designers to meet a variety of user needs in new and exciting ways e.g. – Precious Metal Clays (PMC) used in jewellery manufacture</p>	<p>Practical realisation</p> <p>Focus - Measuring and marking</p> <ul style="list-style-type: none"> • Be able to recognise and choose measuring and marking tools. • Be able to measure accurately using the metric system. • Be able to use appropriate marking techniques
Important events	Academic Reading - Ten different and everyday uses for bioplastics (dezeen.com)	Formal assessment – Manufacturing in quantity	

	HW – Identify ways to promote recycling and waste disposal in school environments		
Week 6	<p>Core technical principles</p> <p>To have a knowledge and understanding that the development of new and smart materials is allowing designers to meet a variety of user needs in new and exciting ways e.g. – Photochromic inks and lenses and SMAs</p>	<p>Core technical principles</p> <p>To have an awareness of the importance of the development of nanomaterials and integrated electronics in Design and Technology</p>	
Important events	HW – Smart, modern and composite materials - Developments in new materials - AQA - GCSE Design and Technology Revision - AQA - BBC Bitesize		
Week 7	<p>Core technical principles</p> <p>To understand how materials can be combined and processed to create more useful or desirable properties.</p>	<p>Core technical principles</p> <p>To understand how a range of materials are prepared for manufacture, allowing for waste and fine finishing.</p> <ul style="list-style-type: none"> • be aware of a variety of self-finishing and applied finishing processes and appreciate their importance for aesthetic and functional reasons. 	<p>Practical phase.</p> <p>Focus - Health and safety</p> <ul style="list-style-type: none"> • Be able to select appropriate PPE • Be able to use machinery in a safe manner <p>Be able to show appropriate behaviour and attitudes in the workshop</p>
Important events	HW – 100% Real Carbon Fibre (Fiber) KTM Brake Pump Cover - YouTube – Composite materials		

Week 8	Smart Materials <ul style="list-style-type: none">• Be able to recognise a range of smart materials Understand how the functional properties of smart materials can be changed by external stimuli	Smart Materials <ul style="list-style-type: none">• Be able to name and describe 3 specific smart materials• Be able to describe the benefits and applications of those smart materials	
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