

INTENT: Curriculum Overview (Year 10) GCSE D&T: Timbers

A learner in Year 10 will know: the EDEXCEL D&T timbers content, knowing how to critique of the outcomes of design and technology, both in historic and present day applications, as well as the impact on daily life and the wider world, and that high-quality design and technology is important to the creativity, culture, sustainability, wealth and wellbeing of the nation and the global community.		A learner in Year 10 will be able to: apply their knowledge of EDEXCEL D&T timbers content by taking design risks, helping them to become resourceful, innovative and enterprising citizens. Incorporate knowledge and understanding of different materials and manufacturing processes in order to design and make, prototypes in response to issues, needs, problems and opportunities.			
A: Core knowledge	B: Timbers knowledge	C: NEA preparation	D: NEA Coursework Unit	E: Topic/Theme	F: Topic/Theme
Term 1	1:1: Timbers knowledge	1:2: Timbers knowledge	Autumn % Assessment		
	<p>Knowledge:</p> <p>7.2 The sources, origins, physical and working properties of each natural and manufactured timber and their social and ecological footprint</p> <p>7.3 The way in which the selection of each natural and manufactured timber is influenced</p> <p>Skills:</p> <p>To apply knowledge and understanding of the advantages, disadvantages and applications of timbers, in order to be able to discriminate between them and select appropriately.</p> <p>The influence of various factors when selecting materials for a specific application.</p> <p>Formative Assessment:</p> <p>Bi-weekly pit stop to assess understanding of knowledge covered.</p> <p>Pit 1 – 7.2 (10 marks)</p> <p>Pit 2 – 7.3 (10 marks)</p> <p>Pit 3 – Maths 1 – bar charts (10 marks)</p> <p>End point:</p> <p>Students can understand, analyse and respond to exam style questions based on the topics covered.</p>	<p>Knowledge:</p> <p>7.4 The impact of forces and stresses on each natural and manufactured timber and how they can be reinforced and stiffened</p> <p>7.5 Typical stock forms, types and sizes used in order to calculate and determine the required quantity of each natural and manufactured timber</p> <p>Skills:</p> <p>An awareness of the influence of forces and stresses that act on materials and the methods that can be employed to resist them.</p> <p>To apply knowledge and understanding of the advantages, disadvantages and applications of the forms/sizes of materials, in order to be able to discriminate between them and select appropriately.</p> <p>Formative Assessment:</p> <p>Bi-weekly pit stop to assess understanding of knowledge covered.</p> <p>Pit 1 – 7.4 (10 marks)</p> <p>Pit 2 – 7.5 (10 marks)</p> <p>Pit 3 – Maths 2 – area &amp; volume (10 marks)</p> <p>End point:</p> <p>Students can understand, analyse and respond to exam style questions based on the topics covered.</p>	<p>Knowledge coverage:</p> <p>7.2 to 7.5 of timbers knowledge <b>(Dept. written paper)</b></p> <p>Skills tested:</p> <p>Using notes and/or sketches, calculate, explain, analyse, discuss, state, select, justify, describe, compare.</p> <p>Assessment style/questions:</p>		
Term 2	2:1 Timbers knowledge	2:2: Timbers knowledge	Spring % Assessment		
	<p>Knowledge:</p> <p>7.6 Alternative processes that can be used to manufacture typical products of each natural and manufactured timber to different scales of production</p>	<p>Knowledge:</p> <p>7.8 Appropriate surface treatments and finishes that can be applied to each natural and manufactured timber for functional and aesthetic purposes</p>	<p>Knowledge coverage:</p> <p>7.2 to 7.8 of timbers knowledge <b>(Sample paper 1 – section 2 )</b></p>		

	<p>7.7 Specialist techniques, tools, equipment and processes that can be used on each natural and manufactured timber to shape, fabricate, construct and assemble a high-quality prototype</p> <p>Skills:</p> <p>Application, advantages and disadvantages, of the processes, scales of production and techniques when manufacturing products, in order to be able to discriminate between them and select appropriately for use.</p> <p>Application, advantages and disadvantages, of specialist techniques when manufacturing products, in order to be able to discriminate between them and select appropriately for use.</p> <p>Formative Assessment:</p> <p>Bi-weekly pit stop to assess understanding of knowledge covered. Pit 1 – 7.6 (10 marks) Pit 2 – 7.7(10 marks) Pit 3 – Maths 3 – area of circles (10 marks)</p> <p>End point:</p> <p>Students can understand, analyse and respond to exam style questions based on the topics covered.</p>	<p>7.1 Applying timbers knowledge to a design context</p> <p>Skills:</p> <p>Application, advantages and disadvantages of the finishing techniques and methods of preservation, in order to be able to discriminate between them and select appropriately for use. When designing or modifying a product, students should be able to apply their knowledge and understanding of timbers, components and manufacturing processes.</p> <p>Formative Assessment:</p> <p>Bi-weekly pit stop to assess understanding of knowledge covered. Pit 1 – 7.8 (10 marks) Pit 2 – Maths 4 – area of compound shapes (10 marks) Pit 3 – Maths 5 – surface area (10 marks)</p> <p>End point:</p> <p>Students can understand, analyse and respond to exam style questions based on the topics covered. Students can apply their knowledge and understanding of the timbers Design &amp; Technology content to a real world design and make challenge.</p>	<p>Skills tested: Using notes and/or sketches, calculate, explain, analyse, discuss, state, select, justify, describe, compare.</p> <p>Assessment style/questions:</p> <p>Explain two ways in which the stand meets or fails to meet the criteria of holding the tablet in different positions. Use notes and/or sketches to show the process of preparing the wood ready to turn on the lathe. Name two methods that can be used to mass produce the head of the swing. For each method, explain one advantage to the manufacturer of using this method. Calculate how much wood is wasted from the whole piece, in cm<sup>2</sup>.</p>
Term 3	3:1: <b>NEA preparation</b>	3:2: <b>NEA Coursework Unit</b>	<b>Summer % Assessment</b>
	<p>Knowledge:</p> <p>Mini contextual challenge – Educating primary school children Applying the timbers knowledge content (3.1 to 3.8) when designing within a context.</p> <p>Skills:</p> <p>The project will test students’ skills in investigating, designing, making and evaluating a prototype of a product that will allow them to apply the skills they have acquired and developed throughout their study of the core content.</p> <p>Formative Assessment:</p> <p>Bi-weekly pit stop to assess understanding of knowledge covered. Pit 1 – Maths 6 – Ratio (10 marks) Pit 2 – Maths 7 - Fractions (10 marks) Pit 3 – Maths 8 - Percentages (10 marks)</p>	<p>Knowledge:</p> <p>Contextual challenge – Investigation of challenge &amp; stakeholders Contextual challenge – Investigation of existing products &amp; relevant research Contextual challenge – Design brief &amp; specification Contextual challenge – Initial design ideas</p> <p>Skills:</p> <p>1.1a Identify the needs of the end user. 1.1b Outline a design problem from the context provided and identify a need for a product that could solve the problem. 1.1c Investigate existing products to inform the product specification for the prototype, from past and present designers. 1.1d Carry out a range of research strategies to gather relevant information, to inform the design specification for the prototype, including: a market research, b research into the context in which the prototype will be used, c research into other possible materials, d</p>	<p>Knowledge coverage:</p> <p>1.1 to 1.17 of core knowledge and to 7.1 to 7.8 of timbers knowledge <b>(Sample paper 2 – full paper)</b></p> <p>Skills tested: Using notes and/or sketches, calculate, explain, analyse, discuss, State, select, justify, describe, compare.</p> <p>Assessment style/questions:</p> <p>Give one property of denim that makes it an appropriate material from which to make the jeans. Explain one reason for manufacturing the mobile phone pocket hangers in small batches. The aluminium used was sourced from recycled and new aluminium in the ratio of 18:38. Calculate how</p>

	<p>End point:</p> <p>Students can apply their knowledge and understanding of the timbers content to a real world design and make challenge.</p>	<p>any sustainability issues that will be considered relevant to the intended prototype.</p> <p>1.2a Production of a design brief, that addresses all needs previously identified.</p> <p>1.2b Production of a product specification that includes statements that are technical, measurable and justified, and include consideration of: a form, b function, c user requirements, d performance requirements, e material and component requirements, f scale of production, g cost, h sustainability, i performance requirements.</p> <p>1.2c Identification of criteria, which will be used to evaluate the success of the prototype.</p> <p>2.1a Production of a range of design ideas that address the criteria in the design brief and product specification.</p> <p>2.1b Consideration of a range of issues when producing the design ideas, including: a budget, b aesthetics, c cultural issues, d sustainability issues.</p> <p>2.1c Exploration of different design approaches, including: a materials, b components, c processes, d techniques.</p> <p>Formative Assessment:</p> <p>Bi-weekly pit stop to assess understanding of knowledge covered. Pit 1 – Maths 9 – Bar charts (10 marks) Pit 2 – Maths 10 – solving equations (10 marks)</p> <p>End point:</p> <p>Students will undertake a project based on a contextual challenge released by EDEXCEL a year before certification. This will be released on 1st June and will be available on their website. The project will test students’ skills in investigating, designing, making and evaluating a prototype of a product. The task will be internally assessed and externally moderated.</p>	<p>much recycled aluminium was used in the packaging industry. Give your answer to two decimal places.</p>
--	-------------------------------------------------------------------------------------------------------------------------------------------------	------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	------------------------------------------------------------------------------------------------------------