

Year 7- Design and Technology

Topic	Rationale	Knowledge acquisition	Tasks - notes	Key vocab	Skills and enrichment
Timbers: Money Box	<p>This topic gives students the opportunity to acquire the required knowledge regarding specific materials and processes to manufacture a product. Timber will be the focus, covering categories, properties, sources and origins. Students will be given the opportunity to design a product (moneybox) and use workshop tools and equipment to manufacture their design.</p> <p>Links to..... KS2. Possible material and practical investigations. KS3. Working safely in a workshop. Using</p>	<p>Lesson 1: Product Analysis. To know that products are designed and manufactured to meet a need, Which is communicated through a design specification</p>	<p>Product Analysis. Design Brief. Formulate a specification. Assessment and feedback on product analysis. Live marking opportunity</p>	<p>Analysis Justify Specification</p>	<p>Subject specific Skills.</p> <ul style="list-style-type: none"> Analysis - Name, Explain, Justify Evaluate (NEJE) Ideas development Graphical communication Using workshop tools and equipment <p>Numeracy</p> <ul style="list-style-type: none"> Measuring in MM Use of grid in MM for isometric Scale <p>Literacy</p> <ul style="list-style-type: none"> Key vocab, meanings and context Comprehension of instructions for processes <p>Cultural Capital</p> <ul style="list-style-type: none"> Sources and origins of materials -impact (Social, moral, environmental. economical) James Dyson Designing for purpose <p>Links to National Curriculum</p> <p>Design:</p> <ul style="list-style-type: none"> use research and exploration to identify and understand user needs identify and solve their own design problems and develop specifications to inform the use a variety of approaches to generate creative ideas develop and communicate design ideas using annotated sketches
		<p>Lesson 2: Timbers To know that timber is identified into three categories and has a number of commonly used types</p>	<p>Where does timber come from discussion? Categories of timber diagram. Reading task & worksheet.</p>	<p>Hardwood (oak) Softwood (pine) Manufactured (MDF)</p>	
		<p>Lesson 3: Properties of materials. To know that materials are selected for a product or use according to their properties.</p>	<p>Describing materials. Definitions of properties. Properties worksheet Illustrating properties and meanings</p>	<p>Hardness Toughness Conductivity Elasticity Strength Malleability</p>	
		<p>Lesson 4: To know the names and uses of common workshop tools for marking out and how to use them accurately and safely.</p>	<p>Identify & name tools Measuring and marking out frame for a money box Help guides for practical available Moneybox homework 1</p>	<p>Steel Ruler Try square Millimetres</p>	
		<p>Lesson 5: Manufacturing the frame To know how to use a Tenon saw and bench hook to cut timber in straight lines accurately and safely.</p>	<p>Homework misconceptions Identify & name tools Cut pieces for frame Sand on disc / belt sander</p>	<p>Bench hook Tenon saw Disc / belt sander Risk Assessment</p>	

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<p>inspiration for design ideas. The relevance of DT - Where materials come from</p> <p>Ladders towards.... Material properties, selection and processing. Independent working in the workshop. Design development process.</p>	<p>Lesson 6: Lap Joints To know that are different wood joints used for different reasons and to know how to mark out and cut a lap joint accurately.</p>	<p>Identifying different wood joints Measuring and marking out lap joint Assessment: Show you know 1. Assessment and feedback on Show you Know 1. Live marking opportunity</p>	<p>Lap Joint Marking Gauge Vice Hand File</p>	<p>Make:</p> <ul style="list-style-type: none"> select from and use specialist tools, techniques, processes, equipment and machinery precisely select from and use a wider, more complex range of material, taking into account their properties <p>Evaluate:</p> <ul style="list-style-type: none"> analyse the work of past and present professionals and others to develop and broaden their understanding test, evaluate and refine their ideas and products against a specification, taking into account the views of intended users understand developments in design and technology, its impact on individuals, society and the environment, and the responsibilities of designers, engineers and technologists <p>Technical knowledge:</p> <ul style="list-style-type: none"> Understand and use the properties of materials and the performance of structural elements to achieve functioning solutions
	<p>Lesson 7: Slots and Holes To know that there are different methods to achieve a slot in timbers and to know how to use a specific technique with a mortise machine and forstner bit.</p>	<p>Discuss how slots and holes can be achieved. Measure and mark out slot / hole Use machines to create slot / hole Assessment and feedback on practical so far. Live marking opportunity.</p>	<p>Mortise machine Forstner bit</p>	
	<p>Lesson 8: Design Ideas To know that inspiration can be used to create a range of ideas suitable for your client / user.</p>	<p>Inspiration starter. Spider diagram and discussion on ideas – give one get one. Create at least 4 design ideas – to scale. Assessment and feedback on design ideas. Live marking opportunity. Moneybox homework 2</p>	<p>Inspiration Range Scale</p>	
	<p>Lesson 9: Modelling To know that testing an idea though the use of modelling can help with modifications to improve outcomes.</p>	<p>Homework misconceptions Create a full scale card model of chosen design – check and modify to sure it is suitable for the outline shape. Create a template for the MDF</p>	<p>Modelling Testing Evaluating Modify</p>	

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	<p>Lesson 10: Shaping To know that a coping saw is used to cut curves into timber and to be able to use a coping saw to create a shape for the moneybox.</p>	<p>Use a coping saw to create the outline shape of money box.</p>	<p>Template Coping saw Vice</p>
	<p>Lesson 11: Decorating To know how to use a mix of media and finishes to create a well finished product.</p>	<p>Use a range of paints, pens and craft items to decorate and finish money box. Assessment and feedback final product. Live marking opportunity.</p>	<p>Acrylic Aesthetics Finishes</p>
	<p>Lesson 12: Basic Sketching To know how to use basic sketching techniques as a valuable communication tool.</p>	<p>Use basic shape to create sketches, building up to crating for 3D</p>	<p>Sketch Freehand 2D/3D</p>
	<p>Lesson 13: Isometric & Oblique To Know how to use isometric techniques to create 3D designs</p>	<p>Differences between oblique& isometric. Isometric drawing with grid paper. Draw the money box</p>	<p>Isometric Oblique</p>
	<p>Lesson 14: Enhancement & Rendering To know how to use simple techniques to enhance drawings.</p>	<p>Thick and Thin Techniques Rendering techniques Assessment and feedback isometric drawing. Live marking opportunity Moneybox homework 3</p>	<p>Enhance Thick/Thin Render</p>
	<p>Lesson 15: Manufacture Diary (optional) To be able to recall the names of tools, processes and materials used to manufacture the money box.</p>	<p>Homework misconceptions Annotate isometric drawing with the stages involved in making the money box. Assessment: Show you know 2.</p>	<p>Steel Ruler Try square Millimetres Bench hook Tenon saw Disc / belt sander</p>

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			<p>Assessment and feedback on Show you Know 2. Live marking opportunity</p>	<p>Risk Assessment Lap Joint Marking Gauge Vice Hand File Mortise machine Forstner bit</p>	
		<p>Lesson 16: Evaluating To know that an evaluation is used to improve work and outcomes.</p>	<p>Evaluation worksheet Group evaluation Final written evaluation Assessment and feedback on Project summary. Live marking opportunity</p>	<p>Evaluate Reflect Summarise</p>	