

Year 7- Design and Technology

Topic	Rationale	Knowledge acquisition. To Know.... ...that (Declarative)how (Procedural)	Tasks - notes	Key Vocab	Core Skills and enrichment opportunities
Materials and Processes: Pewter Casting	<p>This topic gives students the opportunity to acquire the required knowledge regarding specific materials (plastic and metal) and processes to manufacture a product. Categories, sources and origins will be investigated. Metal will be the focus of manufacture where students will be given the opportunity to use CAD/CAM in the development of an outcome.</p> <p>Links to..... KS2. Possible material and practical investigations. KS3. Material properties and categories in moneybox.</p> <p>Ladders towards....</p>	<p>Lesson 1: To know that Metals and Plastics can be categorised according to their properties.</p>	<p>Recap properties Categories of materials Metals Plastics Worksheet Raw materials</p>	<p>Ferrous Non Ferrous Alloy Thermoforming Thermosetting</p>	<p>Subject specific Skills.</p> <ul style="list-style-type: none"> • Analysis - Name, Explain, Justify Evaluate (NEJE) • Generation of ideas • Idea analysis and evaluation • Graphical communication • CAD/CAM • Pewter casting <p>Numeracy</p> <ul style="list-style-type: none"> • Measuring in MM for former • Use of grid in MM on CAD software • Scale <p>Literacy</p> <ul style="list-style-type: none"> • Key vocab, meanings and context • Comprehension of instructions for casting process. <p>Cultural Capital</p> <ul style="list-style-type: none"> • Sources and origins of materials -impact (Social, moral, environmental. economical) <p>Links to National Curriculum</p> <p>Design:</p> <ul style="list-style-type: none"> • use a variety of approaches [for example, biomimicry and user-centred design], to generate creative ideas and avoid stereotypical responses • develop and communicate design ideas using annotated sketches, detailed plans, 3-D and
		<p>Lesson 2: To know how the process of pewter casting is carried out.</p>	<p>Worksheet. Reading task on pewter- extract the facts. Teacher demo on casting-optional Laser cutter video Casting homework 1</p>	<p>Pewter Cast Kiln CAD/CAM</p>	
		<p>Lesson 3: To know how to create a range of ideas that are suitable shapes for the casting process.</p>	<p>Homework misconceptions Fast 5. Generate design ideas Assessment and feedback on design ideas. Live marking opportunity</p>	<p>Sketch Communicate Annotate</p>	
		<p>Lesson 4: To know that Bitmaps can be converted into vectors to create an outline using 2D design (CAD).</p>	<p>Computers – search for bitmaps-convert to vectors Create a mould with sprue. Assessment and feedback on CAD files. Live marking opportunity</p>	<p>Vector Vectorise 2D design</p>	

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	<p>Material properties, selection and processing.</p>	<p>Lesson 5: To know how to carry out the process of pewter casting safely and correctly.</p>	<p>Use moulds to create keyrings. Finish and drill Assessment and feedback on casting process. Live marking opportunity Assessment: Show you know 1. Assessment and feedback on show you know. Live marking opportunity</p>	<p>Kiln Carrier Sprue</p>	<p>mathematical modelling, oral and digital presentations and computer-based tools</p> <p>Make:</p> <ul style="list-style-type: none"> select from and use specialist tools, techniques, processes, equipment and machinery precisely, including computer-aided manufacture select from and use a wider, more complex range of materials, components and ingredients, taking into account their properties <p>Evaluate:</p> <ul style="list-style-type: none"> test, evaluate and refine their ideas and products against a specification, taking into account the views of intended users and other interested groups <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