

DT Intent - Developing students to be informed consumers, provide life skills for adulthood, including leisure and mental health, and for a wide range of careers

<b>Design Technology: Materials exploration– Year 7 - 9 lessons</b>	
<b>Investigate and explore material properties and processes (MDF, acrylic, pewter and resin) through practical exploration so that reasoned decisions can be made for material choices in later work.</b>	
<b>Substantive knowledge: Practical</b> (knowing what) Woods, metals and plastics are available in a variety of forms with different properties that are useful for different purposes	<b>Substantive knowledge: Theoretical</b> <b>Design/Designers</b> SMART materials in products – exploiting the materials properties
<b>Disciplinary knowledge</b> (knowing how to) Marking out, cutting and finishing MDF Smoothing, forming, drilling acrylic Casting and finishing pewter	
<b>Specialisms</b>	Resistant materials
<b>Materials</b>	MDF, Acrylic plastic, Pewter, Resin
<b>Tools to create the product</b>	Pencil, ruler, coping saw, file, sandpaper, mini oven or straighteners, vice, pliers, brazing hearth, ladle, casting blocks, centre punch, hacksaw
<b>Key vocabulary</b>	Safety, MDF, Acrylic, Pewter, sprue, smooth, rough, tough, sharp, dull, colour, shiny, hard, soft, pliable, malleable, evaluate, opinion,
<b>Reading</b>	Encourage the ability to read instructions quickly and accurately – Keep instructions concise and ensure students understand the vocabulary
<b>Golden threads – Health and safety, research, design, make, evaluate</b>	Research through trialling materials, safely make a multi-purpose product with MDF, Acrylic and pewter and evaluate the final outcome
<b>Cultural capital</b>	Many year 7 students have not experienced using a workshop and making using hard skills rather than crafting. The task aims to build experiences, curiosity and confidence prior to moving on to more challenging content.
<b>What prior knowledge needs to be revisited to underpin the learning of new content</b>	Practical experiences in KS2 vary. The project aims to consolidate prior learning and establish a base level through observation in practical tasks and a short baseline test on previous knowledge
<b>Common misconceptions</b>	<ul style="list-style-type: none"> <li>• Students misunderstand which bit of the pewter casting mould they need to use</li> <li>• Students cut the wrong direction on the MDF section and don't achieve a quality finish</li> <li>• Students struggle to pull up and twist the acrylic at the same time causing it to slump</li> <li>• Students fail to use full sentences or justify their opinions in the evaluation</li> </ul>
<b>How can the content be extended for HPA?</b>	<ol style="list-style-type: none"> <li>1. More independence in practical tasks encouraged with the aid of instructions</li> <li>2. Higher level of technical terminology and greater descriptive detail expected in evaluation</li> </ol>
<b>How can the content be adapted for SEND</b>	<ol style="list-style-type: none"> <li>1. Instructions/ tasks chunked on yellow paper with wide spaces between words</li> <li>2. More support in practical work may need to be given depending on the nature of the need.</li> </ol>

	3. Some may produce a weaker outcome in practical work depending on the nature of the need
<b>What is the homework?</b>	<ol style="list-style-type: none"> <li>1. Edpuzzle video and quiz on safety in DT</li> <li>2. Edpuzzle video and quiz on material properties</li> <li>3. Edpuzzle video and quiz on evaluation</li> </ol>
<p><i>Lesson objectives and misconceptions</i></p> <ol style="list-style-type: none"> <li>1. Understand safety expectations in DT lessons.</li> <li>2. Safely cut and smooth MDF part. <i>Students often cut the MDF the wrong way and rush smoothing the wood</i></li> <li>3. Neatly decorate MDF section. <i>Students need to aim for a neat, quality finish</i></li> <li>4. Safely smooth and twist acrylic strip. <i>Students fail to pull up as they twist so it collapses</i></li> <li>5. Safely cast pewter shape. <i>students often get confused as to which part of the mould they need</i></li> <li>6. Safely cut and smooth pewter shape and resin. <i>Emphasise quality in this part</i></li> <li>7. Safely drill holes and assemble hanger components. <i>Holes need to be close enough to the edge to connect components with jump rings</i></li> <li>8. (Introduce SMART materials). Write an evaluation on the material properties. <i>Provide key describing words as students struggle to write what they want to say on this</i></li> <li>9. Write an evaluation on your personal experiences with the material and manufacturing processes and improvements. <i>Insist on qualifying statements e.g. I like the colour because...</i></li> </ol>	<p><i>Assessment and success criteria</i></p> <ol style="list-style-type: none"> <li>1. Exit quiz to assess safety knowledge. <i>All students must pass safety test. Repeat at the start of lesson 2 as there is 2 weeks between lessons</i></li> <li>2. Self-assessment questionnaire in books <i>MDF part should be cut and smooth</i></li> <li>3. Self-assessment questionnaire in books <i>Cut MDF should be neatly decorated on all edges</i></li> <li>4. Self-assessment questionnaire in books <i>Acrylic should be smooth with an even twist</i></li> <li>5. Self-assessment questionnaire in books <i>All parts of the mould should be filled</i></li> <li>6. Self-assessment questionnaire in books <i>Sprue and rough edges should be taken off</i></li> <li>7. Self-assessment questionnaire in books <i>All parts should be attached with jump rings</i></li> <li>8. Peer assessment using success grid <i>Students should have selected between 5-10 words to describe each material.</i></li> <li>9. Teacher final grade on SIMs. <i>Students should show an understanding that materials have different properties that make them useful for different purposes and should be able to describe their own experiences</i></li> </ol>