

Meden School Curriculum Planning							
Subject	GCSE D&T	Year Group	10	Sequence No.	Skills Board 3	Topic	De/Reforming

Retrieval	Core Knowledge	Student Thinking
What do teachers need retrieve from students before they start teaching new content ?	What specific ambitious knowledge do teachers need teach students in this sequence of learning?	What real life examples can be applied to this sequence of learning to development of our students thinking, encouraging them to see the inequalities around them and 'do something about them!'
<input type="checkbox"/> Students will have some familiarity with the 2DDesign software and the various functions within it. <input type="checkbox"/> Students will have had some experience of using 2DDesign to trace an image on 2DDesign. <input type="checkbox"/> Use of the hot wire line bender. <input type="checkbox"/> An understanding of 'casting' from having cast concrete in Y9. <input type="checkbox"/> Some knowledge of the vacuum forming process having potentially seen it during the lamp project in Y9. <input type="checkbox"/> Make links with the students prior understanding of the concept of 'laminating' (of paper in plastic). <input type="checkbox"/> Some knowledge of the vacuum forming process having potentially seen it during the lamp project in Y9	<input type="checkbox"/> That the 2DDesign software is the software that is used to operate the laser cutter. <input type="checkbox"/> That on 2DDesign 'fine lines' cut and 'thick lines (regardless of their thickness)' engrave. <input type="checkbox"/> The functions and ability of the laser cutter. (Students should at least see how a 2dDesign drawing which includes both cutting and engraving outputs on the laser). <input type="checkbox"/> That 2DDesign can be used in conjunction with internet images to create engraved and cut out designs, and that black and white clipart images are the most successful and that these are the image types that should be used. <input type="checkbox"/> That for successful 2DDesign tracings to be made the following five rules must be understood and followed: <ul style="list-style-type: none"> - Both grid lock and step lock must be switched off. - The tracing should be drawn using a line colour that contrasts with the image colour. - That for increased accuracy it is best to zoom in closer to the part of the image being worked on. - That portions of the image that should align should be drawn using a single continuous line which can then be trimmed as required. <input type="checkbox"/> The intended outcome for the line bent name plate and the following parameters for the design: <ul style="list-style-type: none"> - Overall size of 120mm tall and 80mm wide. - That there should be a thick line across the design 20mm from the bottom to indicate the fold point. - That the students name must be added as text above the fold line. 	<input type="checkbox"/> The advantages and disadvantages of using CAD and the impact it potentially has on the workforce, (in terms of the different skills and knowledge it requires of them). <input type="checkbox"/> When carrying out a practical process we always teach or review safety procedures and provide safety equipment. Within the workplace within the UK there is the Health & Safety at Work Act 1974 – which sets out the obligations on both employer and employee in or to maintain safety in the workplace (review key contents). A lot of the products we buy though were not made in the UK. Consider: <ul style="list-style-type: none"> - How might the working conditions been different for the manufacture of some of the product we buy? - What could the impact of these conditions be? How could we as consumers act in order to try and reduce these issues?

	<ul style="list-style-type: none"> - That an image should be added, (ideally a black and white clipart image) - That the upper half of the design can be shaped/profiles to fit the image if desired. <p><input type="checkbox"/> The 2DDesign text settings including the fact that text has both a solid infill, (which will engrave), and a fine line outline that, if not changed to 'invisible', will cut the letters out.</p> <p><input type="checkbox"/> The correct and safe use of the hot wire line bender to create a fold in the laser cut acrylic name panel.</p> <p><input type="checkbox"/> A knowledge of how the pewter casting process is carried out, (via a demonstration) so that the function of the various parts of the mould are understood prior to commencing on the design element.</p> <p><input type="checkbox"/> The three parts for the pewter casting mould and what the function of each is.</p> <p><input type="checkbox"/> The intended outcome of the pewter casting process and the parameters for the design including:</p> <ul style="list-style-type: none"> - Overall mould size of 60mm tall and 50mm wide. - That the design cannot go within 5mm of the edge of the mould. - That there must be a 'funnel created for pouring the pewter in. <p><input type="checkbox"/> Students should know/be taught to follow the process as follows:</p> <ul style="list-style-type: none"> - Draw the 60x50 outline once. - Add the chosen black and white clipart type image and resize correctly, (using shift key to ensure the image is not distorted). - Use fine lines to draw the outline/funnel etc. - Add any further details desired (eg: text etc) - Copy and past the design two more times, (so there are three in total) and edit as follows: <ul style="list-style-type: none"> - The first should have the entire design etc removed to just leave the outer rectangle. This will make the 'back' of the mould. - The second should have the parts that will be cut out left, but the image for engraving removed. This will make the middle layer of the mould. - The third should have the fine (cutting) lines removed and just the image/text that is going to be engraved left. IT MUST THEN BE FLIPPED LEFT TO RIGHT to avoid mirror 	
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	<p>writing etc on the casting. This will make the front of the mould.</p> <ul style="list-style-type: none"> <input type="checkbox"/> How to pewter cast in the mould correctly and safely. <input type="checkbox"/> The need to remove the excess pewter from the 'funnel area' using a hacksaw and file. <input type="checkbox"/> To clean the casting using a wire brush <input type="checkbox"/> A knowledge of how the vacuum forming and gerbil process is carried out, (via a demonstration) so that the function the mould is understood prior to commencing on the design element. <input type="checkbox"/> What a draft angle is and how to add one (at 5°) by setting the sander bed to the appropriate angle. The fact that it is required if the mould is to come out of the plastic vac forming. <input type="checkbox"/> The use of a piece of paper glued between the block and the base of the mould to enable easy separation after casting. <input type="checkbox"/> The use of a 1mm (approx.) drill bit to avoid air being trapped in areas of the mould/forming. <input type="checkbox"/> How to vacuum form the mould correctly and safely. <input type="checkbox"/> The removal of the mould from the vac formed sheet, and the correct and safe use of the gerbil to remove the excess HIPS sheet. <input type="checkbox"/> The meaning of the term 'laminating' in relation to timber and how it relates to forms of laminating students are already familiar with. <input type="checkbox"/> Understand the process of laminating from viewing the video, looking at existing products and teacher demonstration. <input type="checkbox"/> The safe and correct use of the scroll saw to cut the laminating former. <input type="checkbox"/> The use of flexi-ply, constructional ply and PVA to create the laminated piece. 	
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