

Meden School Curriculum Planning							
Subject	D&T	Year Group	8	Sequence No.	Module 1	Topic	Train/Ortho

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!'
<p>The following knowledge and understanding should be retrieved:</p> <ul style="list-style-type: none"> <input type="checkbox"/> From KS2 students should have experience of 'using a range of tools and equipment to perform practical tasks (for example, cutting, shaping, joining and finishing) – and 'using a wide range of materials' and this past experience should be retrieved during the making process. <input type="checkbox"/> From the modules during Y7 students should have some important and foundational knowledge that must be retrieved. In particular this would include, the use of the pillar drill, the use of a forstner bit, the use of the vertical sander, the use of the coping saw, the materials (MDF, Dowel), the mechanism being used (CAMs) and the change in motion type that it achieves. <input type="checkbox"/> From Maths students will have encountered the term 'parallel and 	<p>The following ambitious knowledge needs to be taught:</p> <ul style="list-style-type: none"> <input type="checkbox"/> The meaning of the word orthographic – with the 'similar and more familiar words – to help students remember, (see slide 2) <input type="checkbox"/> How to construct an orthographic drawing, including the knowledge that: <ul style="list-style-type: none"> - The elements of an orthographic drawing are drawn in 2D, not 3d. - That there are typically three views but that these are three parts of ONE drawing, not three separate drawings. - That these three views must be correctly arranged, (using 3rd angle principles) and so the view from above, must be drawn above; the view from the left must be drawn to the left etc. - That the three views must be correctly aligned. <input type="checkbox"/> What is meant by drawing to scale and situations where different scales might be used. <input type="checkbox"/> The meaning of the symbol that indicates either 3rd or 1st angle, (refer to first angle here but explain to students that we always use 3rd angle). <input type="checkbox"/> The types of lines used (construction, outline, hidden detail, centre and dimension) and the application of each. <input type="checkbox"/> The use of the tri-square to mark out lines at 90 degrees. <input type="checkbox"/> The use of the tenon saw with the bench hook. <input type="checkbox"/> The concept and practice of cutting to the waste side of the line in order to achieve improved accuracy and quality. <input type="checkbox"/> The correct, skilful and safe use of the pillar drill with both a conventional twist drill and a larger forstner bit to achieve accurate openings, specifically including: <ul style="list-style-type: none"> - Wearing an apron and visor/goggles. 	<ul style="list-style-type: none"> <input type="checkbox"/> When teaching or reiterating safety precautions for the various processes link it with the requirements of "The Health & Safety at Work Act 1974" and the related responsibilities of both employees and employers. <input type="checkbox"/> Consider the merits of using timbers and manufactured boards in relation to their environmental impact/credentials – supporting the students in being able to make decisions as consumers which will enable them to consume and live more sustainably. <input type="checkbox"/> A knowledge of what the Forest Stewardship Council is and what it does in relation to sustainable timber production. <input type="checkbox"/> An understanding of how/why timber can be considered to be much closer to carbon neutral (than plastics) because the carbon released due to its use/disposal was taken out of the atmosphere as it grew.

<p>ratios and this knowledge needs retrieving as this there is an application of it in the marking out of the footplate, and in considering scale.</p> <p><input type="checkbox"/> Once delivery of the module is underway there are a number of retrieval opportunities within the module referring back to learning from previous weeks. This is seen particularly in the progression through the orthographic activities, (Slides 8 & 9), the orthographic challenges, (Slide 20), the measuring and marking out (Slide 31).</p>	<ul style="list-style-type: none"> - The location of start/stop buttons and emergency stops. - The need to tie back long hair, ensure ties/lanyards are tucked away. - The fact that it is a one person machine and only one person is allowed in/over the box area marked on the floor. - The method for fitting or removing a drill bit into/out of the chuck using the chuck key. - The need to position the chuck guard before drilling. - The need to use a piece of sacrificial material underneath the workpiece before drilling and the benefit of ensuring the drilling is done over an area of the sacrificial board that is not heavily drilled or damaged, (ie reduces splintering on the underside). - Holding the workpiece either in a machine vice, with a toggle clamp, or by hand. - Students understand that the workpiece is more likely to try and lift up than spin if not held securely and to both expect and protect against this. <p><input type="checkbox"/> The meaning of the term 'parallel.</p> <p><input type="checkbox"/> The correct/best use of PVA and clamping in order to achieve a strong and accurate join. Specifically:</p> <ul style="list-style-type: none"> - Guidance/demonstration regarding suitable quantity. - Ensuring glue is on all contacting faces, not just the largest one. - 'Rubbing' adjacent pieces as they are connected to expel air pockets. - Clamping pieces to drive the glue into the surface and create a stronger bond. <p><input type="checkbox"/> The correct, skilful and safe use of the vertical sander to make edges smooth and product pieces accurate, specifically including:</p> <ul style="list-style-type: none"> - Wearing an apron and visor/goggles. - The location of start/stop buttons and emergency stops. - The need to tie back long hair, ensure ties/lanyards are tucked away. - The fact that it is a one person machine and only one person is allowed in/over the box area marked on the floor. - The fact that the machine is only used to remove SMALL amounts of material and that if there are larger areas of waste these should be cut off before the last one or two mm are sanded away. - That the workpiece MUST ALWAYS be sat, flat on the table and that holding pieces up against the belt is never done. 	<p><input type="checkbox"/> An understanding of why 'handmade' is so much more expensive than mass produced. A consideration of how imported mass-produced products can impact locally produced and craftsperson made products. Consider:</p> <ul style="list-style-type: none"> - Off-shore manufacturing, (its meaning, benefits and wider impact). - Our responsibilities and actions in light of the potential wages/working conditions of workers in the overseas supply chains. - Apply the above to scenarios the students will be familiar with, (e.g. very low cost and/or 'fast' fashion). <p><input type="checkbox"/> Discuss why there is a need for a common standard in engineering drawing and how this supports international trade and off shore manufacturing.</p>
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	<ul style="list-style-type: none"> <input type="checkbox"/> The specific steps taken for the successful and safe use of the threaded auger in the pillar drill, specifically <ul style="list-style-type: none"> - The workpiece being in a large machine vice. - The piece of sacrificial 12mm MDF being beneath the workpiece in the machine vice. - The need for the machine vice to be secured to the drill table. <input type="checkbox"/> The reason, and benefit of using templates for marking out. <input type="checkbox"/> The correct, skilful, and safe use of the hegnar saw to cut curved shapes, specifically including: <ul style="list-style-type: none"> - Wearing an apron and visor/goggles. - The location of on/off buttons - The need to tie back long hair, ensure ties/lanyards are tucked away. - The fact that it is a one person machine and only one person is allowed in/over the box area marked on the floor. - That the workpiece MUST ALWAYS be sat, flat on the bed and that the fence needs to be in position to hold the workpiece down during cutting. <input type="checkbox"/> The correct, skilful and safe use of the bobbin sander to sand within concave shapes. Specifically: <ul style="list-style-type: none"> - The meaning of the word 'concave' and its opposite ('convex). - The reason a regular sander cannot be used on concave surfaces. - Wearing an apron and visor/goggles. - The location of on/off buttons - The need to tie back long hair, ensure ties/lanyards are tucked away. - The fact that it is a one person machine and only one person is allowed in/over the box area marked on the floor. - That the workpiece MUST ALWAYS be sat, flat on the bed and that the fence needs to be in position to hold the workpiece down during cutting. 	
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