Meden School Curriculum Planning							
Subject	D&T	**Year Group**	8	**Sequence No.**	Module 2	**Topic**	2DDesign 'Sumos'

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!'
The following knowledge and understanding should be retrieved: ☐ From the Y7 Tinkercad module students should understand the term CAD and some of the advantages and disadvantages of using each. This knowledge should be retrieved. A simple retrieval in order to introduce the advantages and disadvantages of designing on screen (using CAD) could be to ask – "What are the advantages and disadvantages of word processing documents over writing them by hand?" ☐ Once underway there are retrieval opportunities to use the basic 2DDesign skills taught in achieving the more challenging tracing activities well.	The following ambitious knowledge needs to be taught: ☐ What the advantages and disadvantages are for a company in using CAD over traditional drawn designs. ☐ The layout of the standard 2DDesign screen. Specifically, that it represents an A3 piece of paper, the dots mark out a 1cm by 1cm grid, that there are two primary toolboxes as well as the control tools in the banner. ☐ That tools are selected by clicking on their icon and that by holding the mouse down on an icon further tools appear. These further tools are selected by moving the mouse onto them whilst still holding the left button and releasing it on the required tool. ☐ The use of the straight line and connected straight line tools. ☐ The use of the path tool and the closed path (closed Bezier curve) tool. ☐ The use of the circle tool, and shape tools for drawing rectangles, triangles, ellipses, and polygons. ☐ The use of the zoom in and zoom out functions. ☐ The use of, and differences between grid lock, step lock and no lock. ☐ The use of the 'Delete Any' and the 'Delete part of' tools. ☐ The use of the select arrow, how to select one object and a number of objects, (by both dragging a box around, or by clicking successive require objects whilst holding the shift key). ☐ The function of the yellow select tool handles to move, flip, rotate and copy and paste the selected objects.	☐ Look at examples of jobs and careers, (both locally and further afield) that make use of CAD and CAM. ☐ Consider in a positive way how automation, computer-controlled manufacture etc has caused changes to the workforce and the types of jobs/working conditions people now do/work in. - What has/is changing? - Who benefits from these changes? - Could there be a downside - Who may lose out from these changes? - Are there particular elements of society that are most hard hit? Development of a plan/strategy for those at risk of being 'left behind'. ☐ The need for commitment to achievement, and also 'up to date/life-long learning' in order to remain skilled for the future workforce. ☐ How the principles of computer control are being applied more and more widely in

	☐ The use of the select tool handles to change the size of an object and the importance of holding the shift key whilst using a corner handle in order to keep an image in proportion as the size is changed. ☐ The functions performed by the contour tool. ☐ The functions performed by the double path tool, the fact that a third toolbox appears when it is selected, and that the 'edit explode' tool needs to be used before parts of a double path object can be deleted. ☐ The functions performed by the fill tool. ☐ The fact that the software can be used to trace images and examples of the types of outcomes that can be achieved by this method. ☐ The five rules of 2DDesign tracing, … specifically that Grid/Step lock must be switched off, that you should zoom in on an image for accuracy, that you should always overdraw and clip lines, that you should use a contrasting line colour, and that if two part align, draw them as one piece and clip out the unwanted parts. ☐ That the images used in tracing should be 'clip art' type images, and never photographs. ☐ The constraints for the design of the sumo, (see PowerPoint). ☐ The importance of using fine lines where the laser needs to cut, and thick lines when it needs to engrave. ☐ The fact that you must not have fine lines hidden beneath thick line as the laser will know they are there and still cut them. ☐ How to correctly name their file using the "SURNAME FirstName – Colour – Cut&Engrave" format. ☐ That the laser needs to be focused before use, and how the machine outputs the design. ☐ How to use the line bender.	our daily lives. Consider/discuss the benefits (and potential pitfalls). - Companies collecting data about us and promoting products to us that we might be interested in. - Are computers always right? Do they always make the best decisions? Does this mean the technology should not be used? How can this technology be improved in the future? - Self-driving cars – how will this technology potentially benefit us in the future? The moral and legal responsibilities when something goes wrong, (e.g. the Boeing Max8 airplane crashes. Who is responsible – the pilot flying the aircraft, the airline who own the aircraft, the manufacturer of the aircraft, the passengers who chose to fly …?).