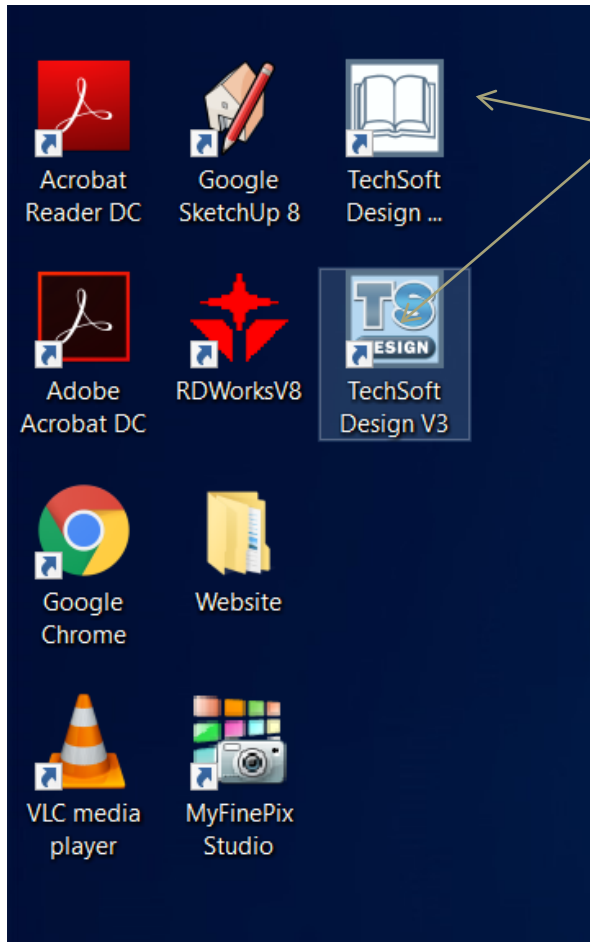# Making a model using TS/2D Design

Go through this tutorial - You will need to create your own shapes and have your 2D design files for your 'contoured stained glass windows' available (you can get this off your google drive).
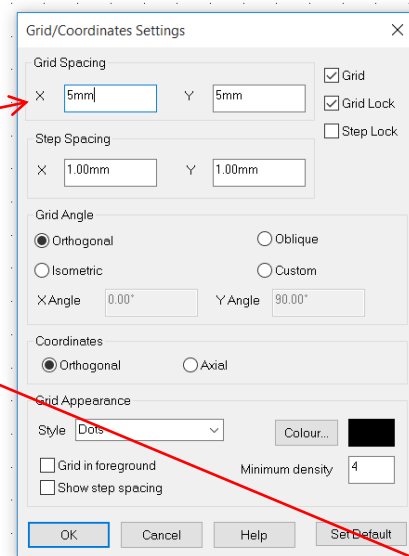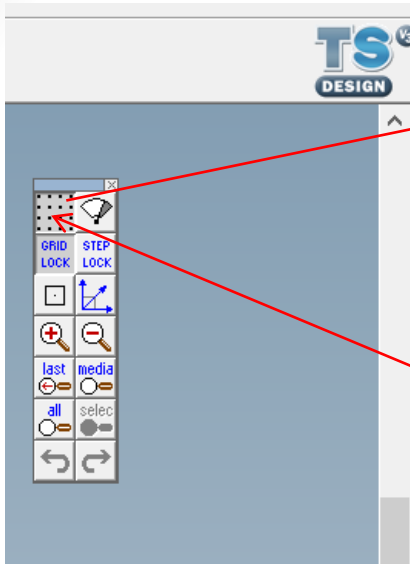
Step 1

If you have successfully managed to download TS Design it should appear on your desktop of your computer/laptop. You will need to double click to open. You will notice there is a TechSoft Design Tutorial as well, you may want to click on this first to go through.

TS Design is basically 2D, it is just the updated version. The new program allows you to undo mistakes unlimited times (if you remember this was a problem with 2D you could only undo once).

Try this by drawing a few shapes then delete them all and the either Edit - Undo or Keyboard shortcut - Ctrl - Z.
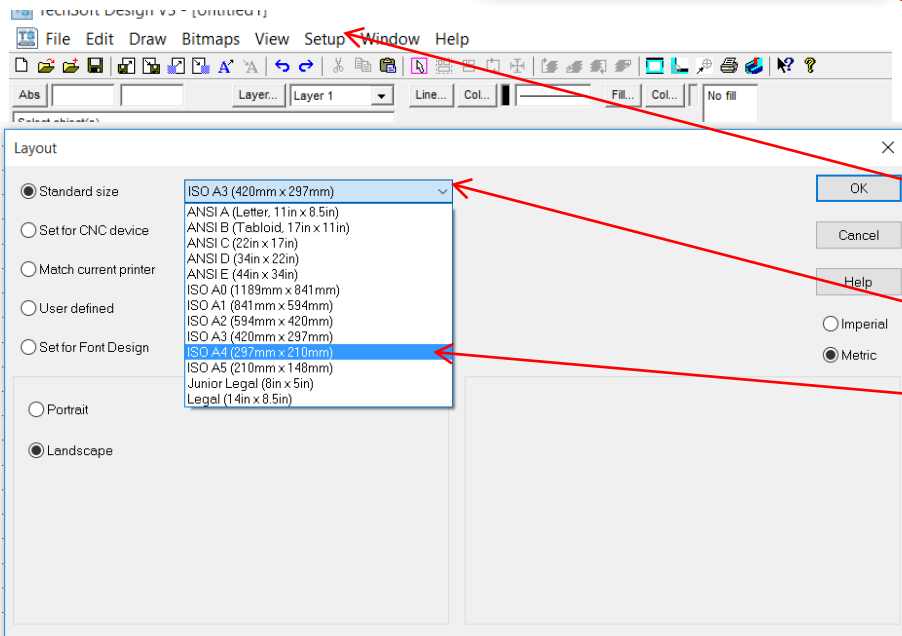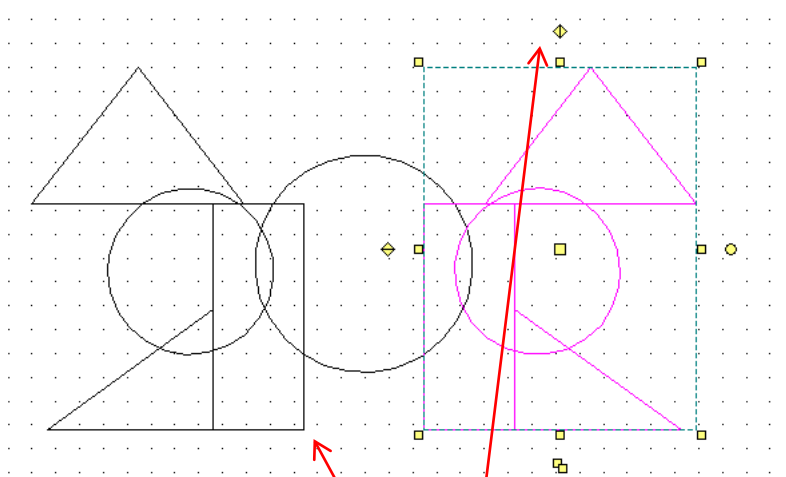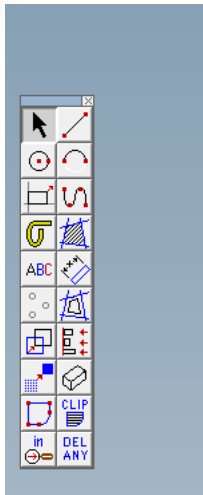
Step 2 - Set up your Artboard.

If you do not have your folders, don't worry you can still do this! You will make up your own shapes then draw these onto an A6 piece of paper (if you do not have any paper we can do this as catch up work during intervention sessions when we return to school.
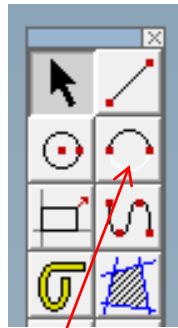
Follow these steps:

1. Switch 'Grid Lock on' (top right tool box)
2. Double click on 'grid' (icon with dots), change grid spacing 'x' and 'y' to 5mm.
3. Go to Top Tab Bar (top of program) and click on 'Setup' - 'Drawing' - 'Layout'. Change 'Standard Size' to ISO A4. Click OK.
4. Now go to File - Save - Save your model as 'Art Deco Model.V1'. Remember to save down regularly

Step 3 - Draw out your shapes

If you do not have your folder with your 6 ideas, don't worry at his stage you can just make these up and then if you can copy them out onto good quality paper.

Follow these steps:

1. Choose a variety of shapes and layer them out to create a Dupres inspired design. Draw simple geometric shapes to start with. Again double check your 'Grid Lock' is switched on!
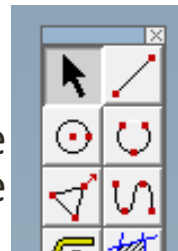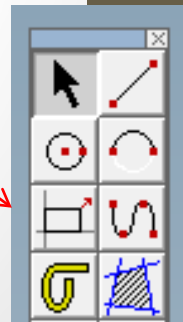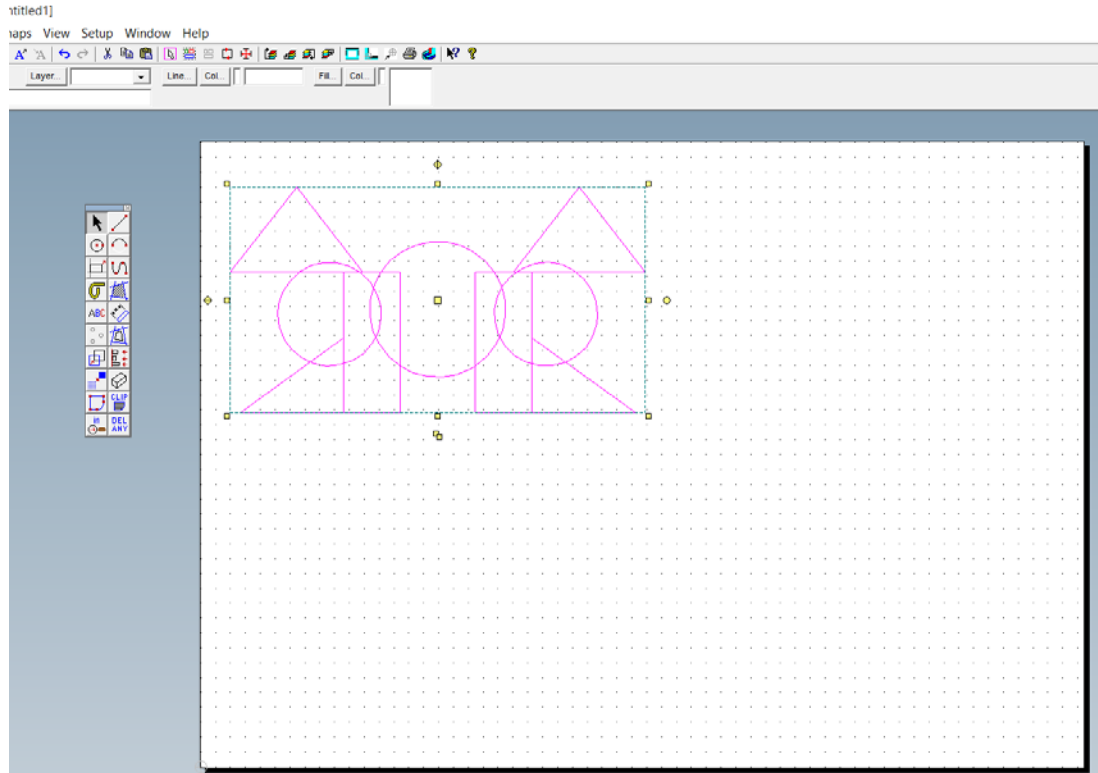
You may want to create a bookend effect for your clock. To do this you draw one side, select all the shapes together, copy/paste and then mirror it with the yellow diamond at the top.

Arc

Remember, there are more geometric shapes hidden. If you hover over a shape, hold right clicker on mouse down and more shapes will appear. Also remember some of the shapes that initially show when you open the program are not always the best to use, e.g. I always change the arc tool to the one shown as it is easier to work with.

Select   Line
Circle   Arc
Triangle

2. If you are drawing a square/rectangle make sure you use the correct tool! It is not the Line tool!
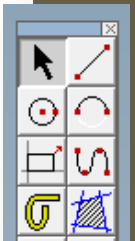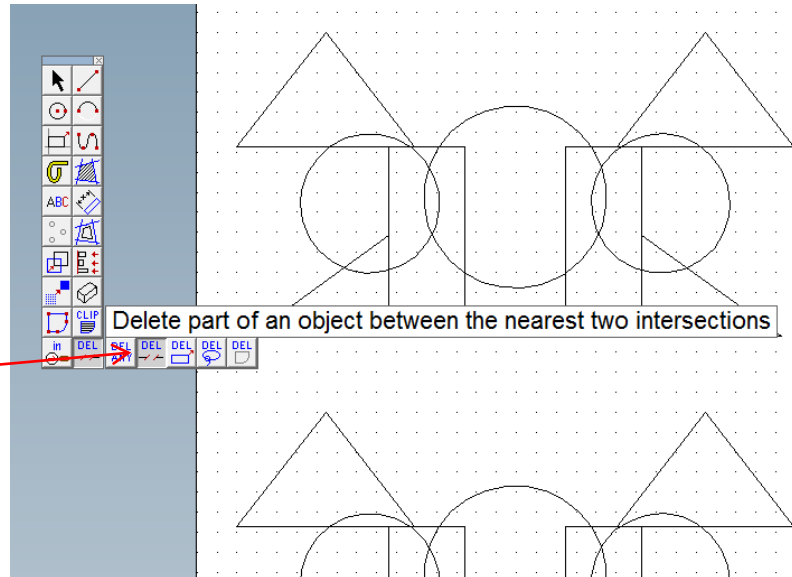
Step 4 - Resize to a quarter page.

Follow these steps:

1. Select the whole of your clock shape.
2. Hold the 'Shift key' down on your keyboard (this is above the Ctrl key on your keyboard - arrow facing upwards).
3. Make sure you have the black arrow selected.
4. Using the bottom left/right corner scale down to approximately a quarter of the page.

Step 5 - Turing your clock into jigsaw pieces

To delete inside lines hold you mouse click button down over '**DEL ANY**' then select one show.

Delete part of an object between the nearest two intersections

Delete inside lines off one only, you should be left with a second with all shapes still intact.
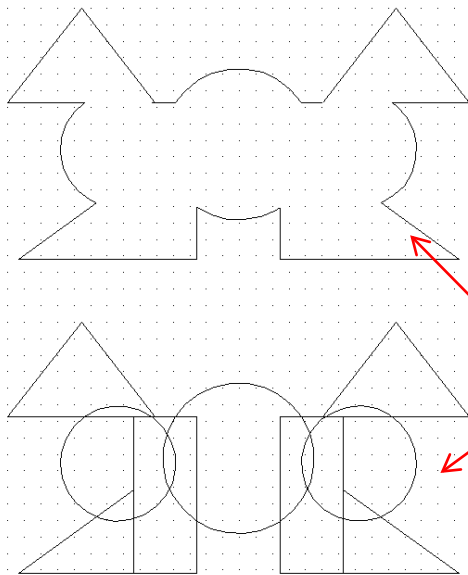
This is now where it starts to get tricky but now having multiple undo's this will help you! You now need to think of your clock as a jigsaw and turn each shape into individual pieces. How to do this is to keep copying and pasting your whole clock and deleting crossover lines to make individual pieces.

Follow these steps:

1. Copy and paste your shape. You will need to keep doing this depending on how many jigsaw pieces you can see.
2. One of the clocks you will need to delete all of the inside lines to make a solid outline shape. This will become your back plate.
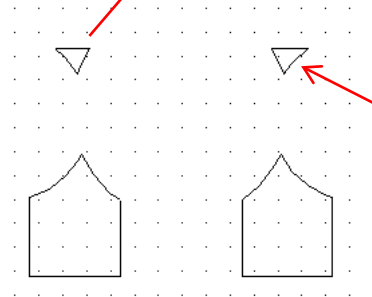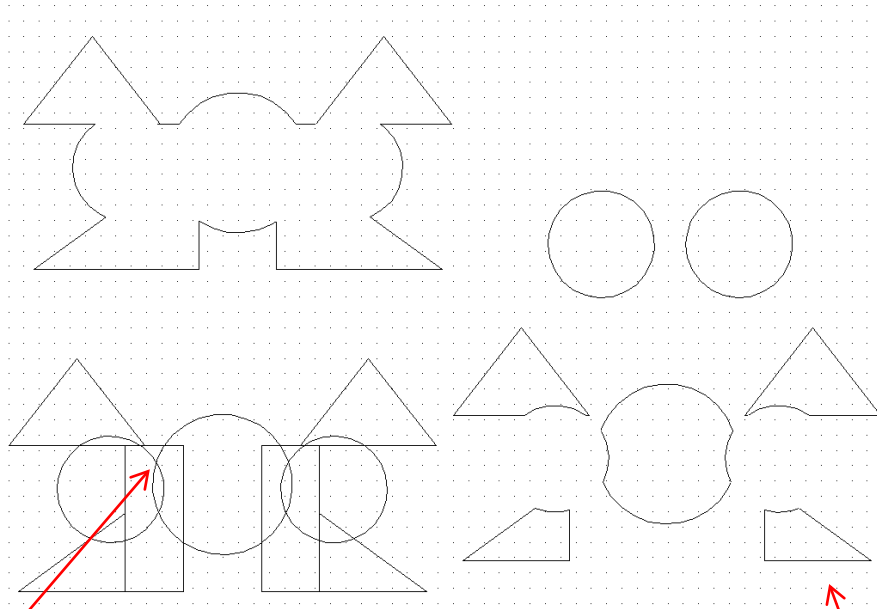
Step 6 - Delete lines into jigsaw pieces

Follow these steps:

1. You now need to keep copying and pasting your full shape in order to create jigsaw pieces. You need to calculate first how many individual pieces you have before you start to delete!
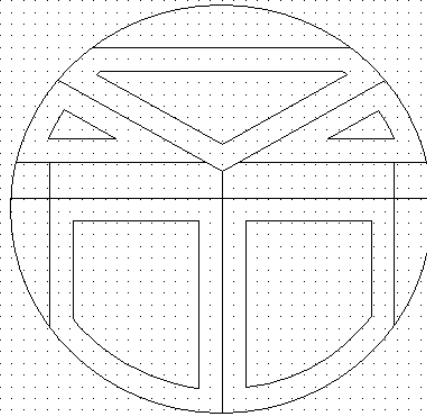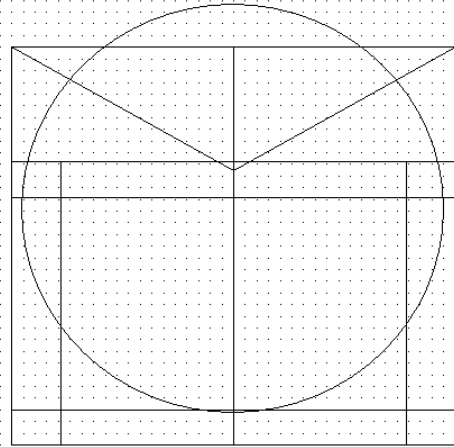2. Remember always have one full clock available!

In some cases when you have done this stage you may find some of your pieces are to small to cut. You may then need to rethink how to delete your pieces.

If you plan correctly you can create a few shapes in one go. All shapes at the end must fit together to make a full shape! Notice also how some shapes have curves/corners missing This is so the circles above will fit in. See if you can visualise how I am putting the pieces back together!

Step 7 - Adding Frank Lloyd Wright/Patterns

Follow these steps:

1. You now need to add patterns. You can either do this by just copying and pasting your Frank Lloyd Wright window patterns you did in 2D design or by drawing out some art deco patterns you did in your sketchbook.

2. To do this copy and past your pattern in and delete the cross over lines so the pattern fits into your shape.

I copied and pasted my Frank Lloyd Wight lined drawing window and not the contoured version. Instead I deleted the cross over lines to make the circle and then added contour lines separately on a couple of the bigger shapes. See above.
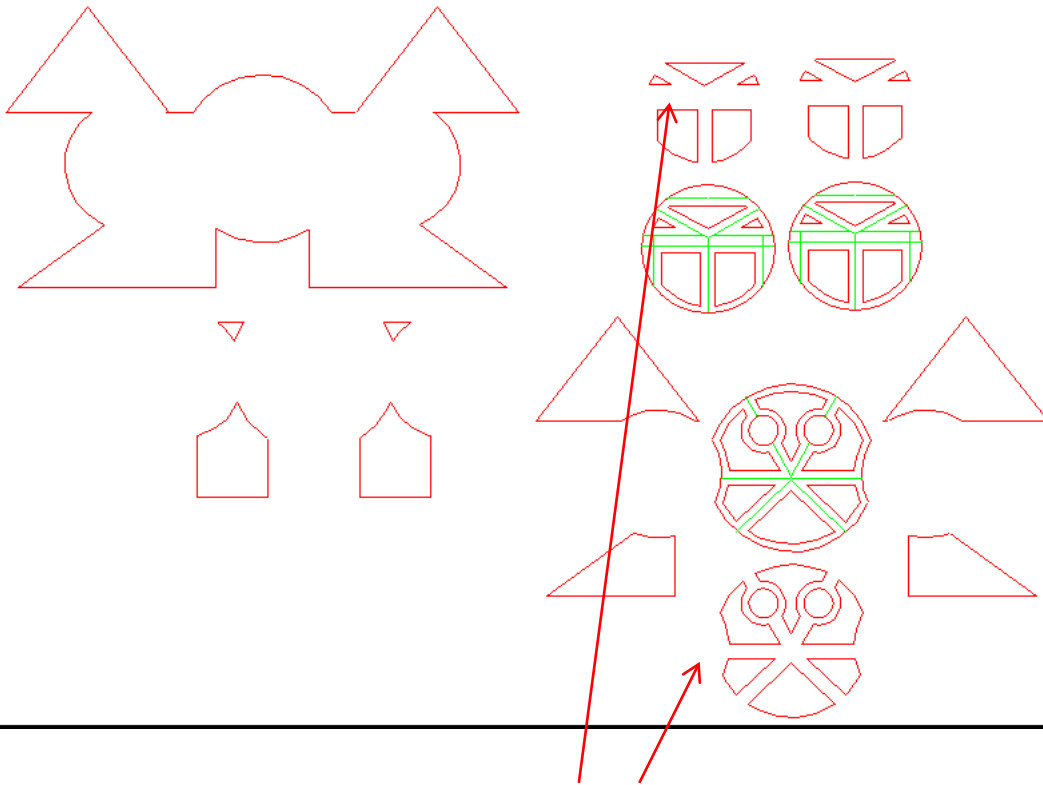
You may wish to draw a pattern out yourself if you are confident with the program.
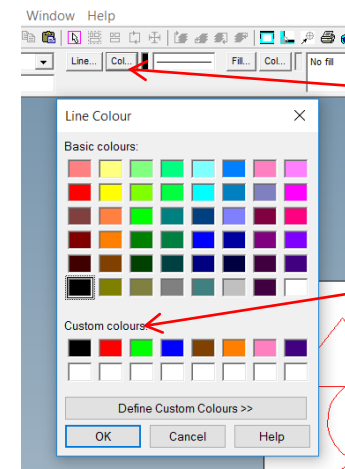
Step 8 - Colour lines ready for laser cutting.

Follow these steps:

1. Decide which lines you will be cutting out and which will be engraved.
2. Red is a cut line and Green is an engrave.
3. Notice I cut out some of the contours on the circle. I have done this as I want to cut these out of a different colour.
4. Do not put patterns on the smaller shapes.

Click on Col next to Line along top bar. Choose Red/green from custom colours.

If you are going to contour shapes for cutting out, you need to copy and paste extra as these will then be cut our of a different colour.

Step 9 - Print screen your model and upload to google drive.

Follow these steps:

1. When you are happy with your model. Print screen and create a PowerPoint slide.
2. Crop it down to just show the artboard then scale to fit the PowerPoint slide.
3. Copy and paste all your models onto three separate slides.
4. Save the PowerPoint files and also TS/2D files then upload your PowerPoint doc and three finished TS/2D model files to google drive.
5. You need to complete three model in total!