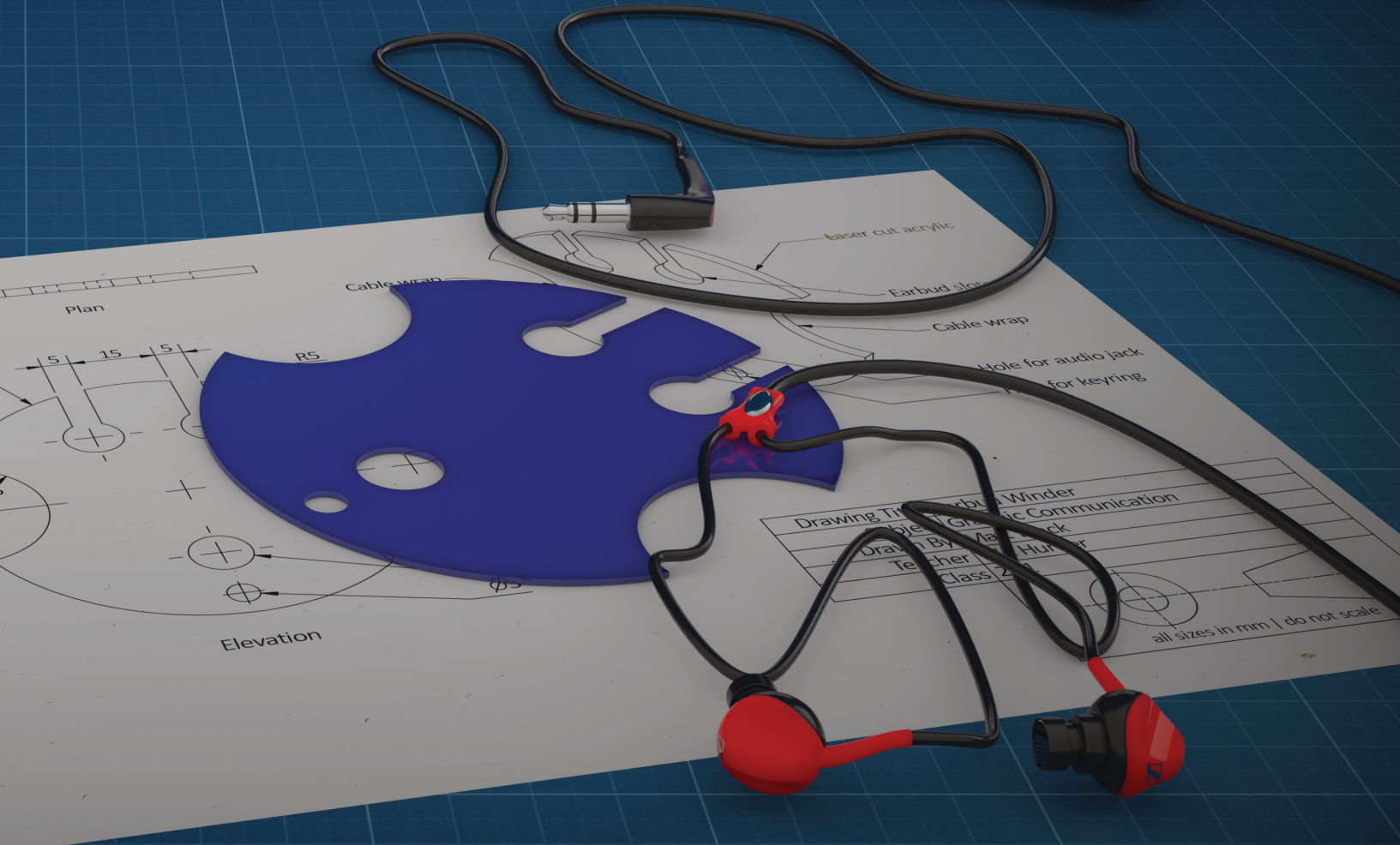
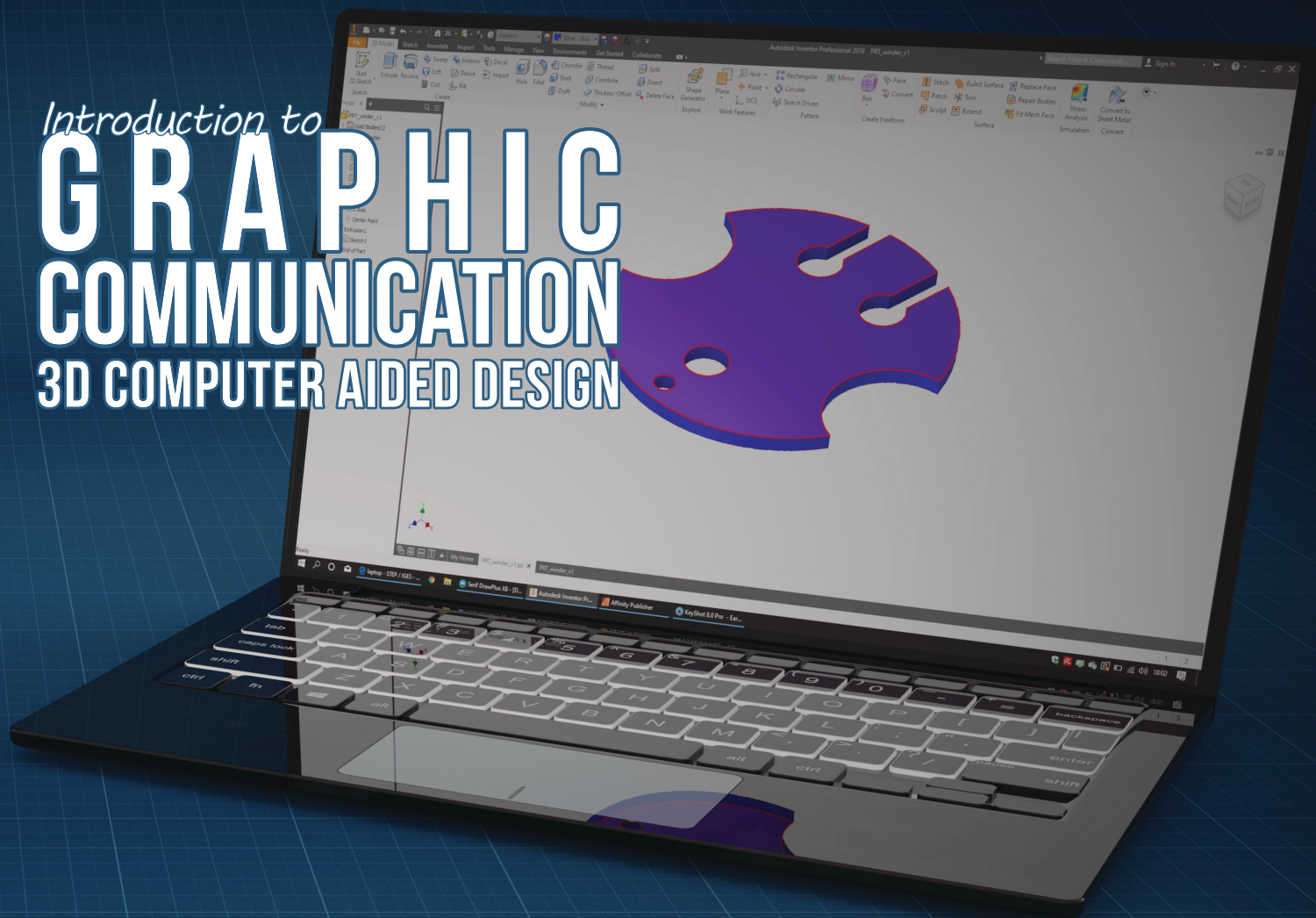
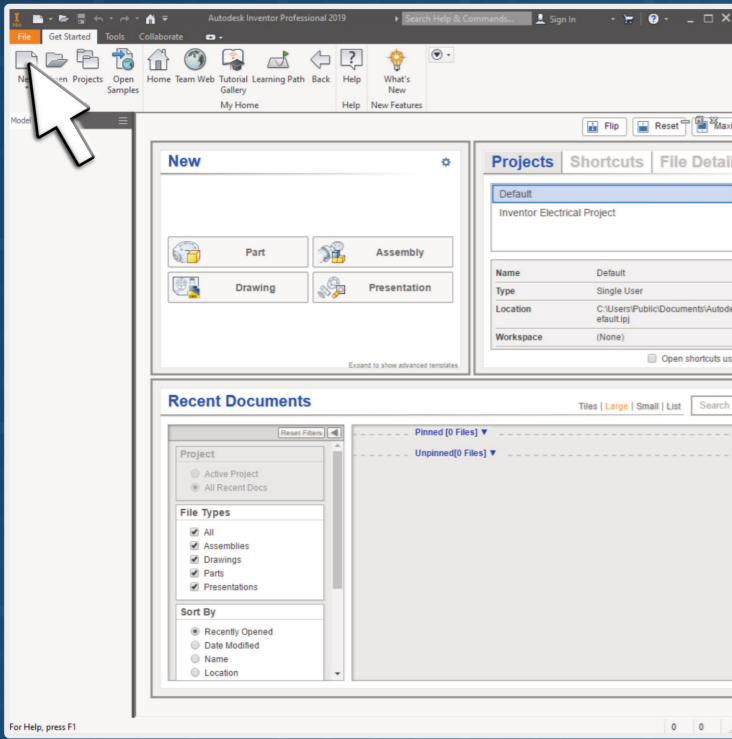


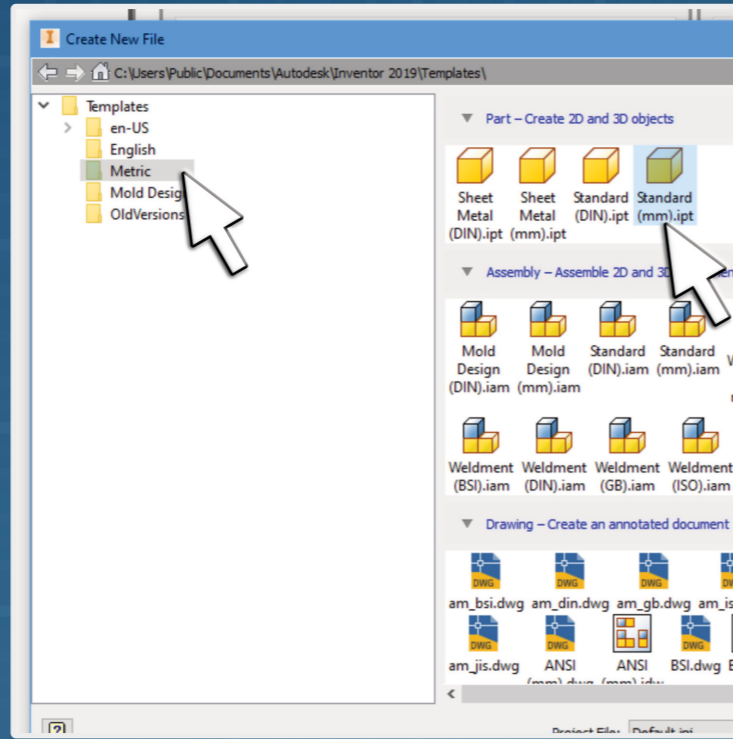
Introduction to
**GRAPHIC
COMMUNICATION**
3D COMPUTER AIDED DESIGN



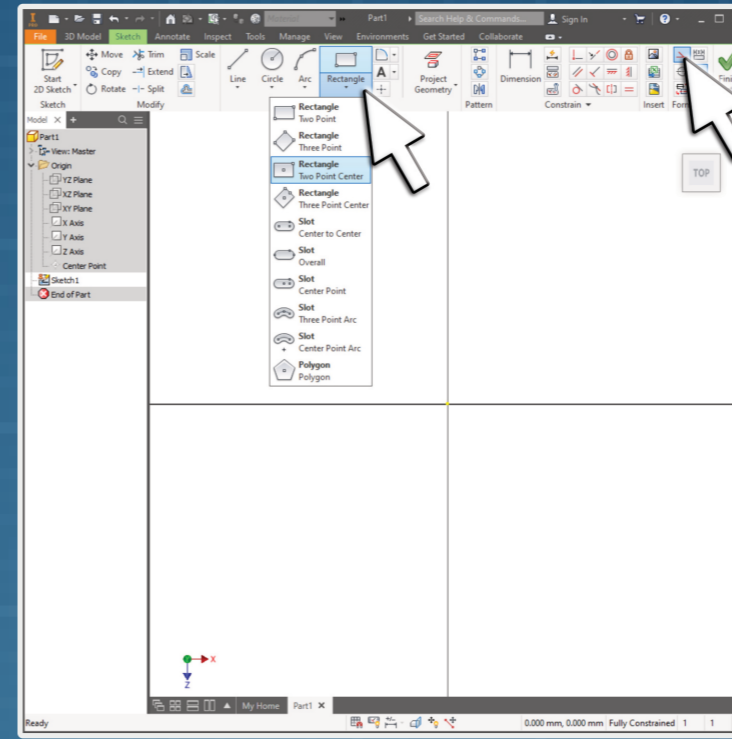
STEP-BY-STEP TUTORIAL | AUTODESK INVENTOR GUIDE



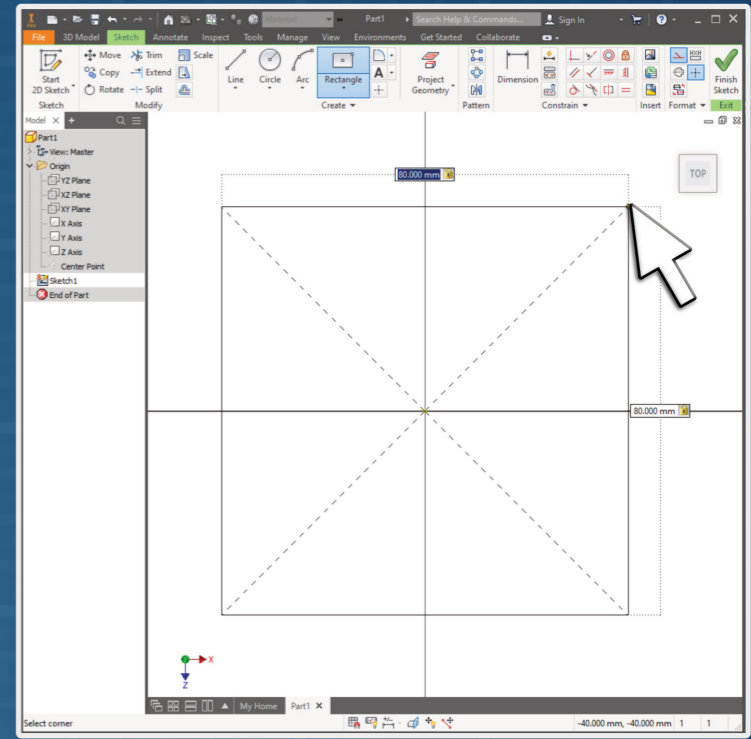
1. We are going to create a new 3D component. This will become our earbud winder.



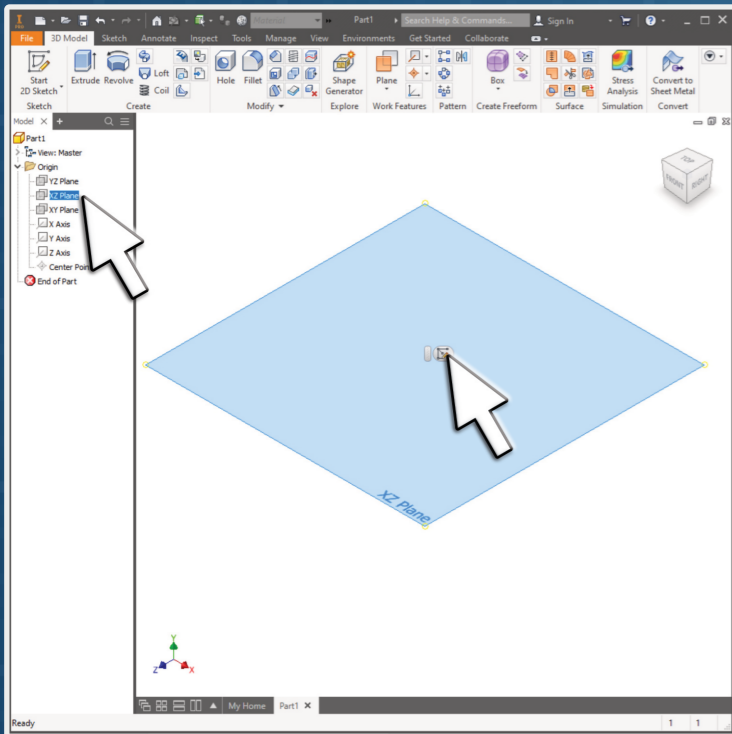
2. We need to make sure the 3D CAD software is set to use millimetres (mm).
Select 'metric' and 'Standard (mm).ipt', to create a new file.



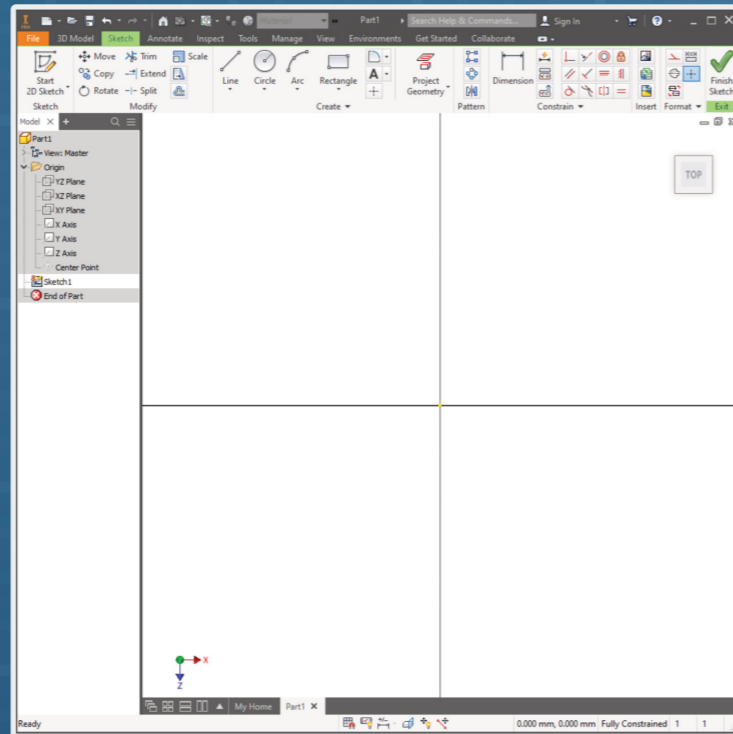
5. We need to set a boundary for our earbud winder, so we don't make something too big.
Select the 'Two Point Rectangle' and set to construction mode.



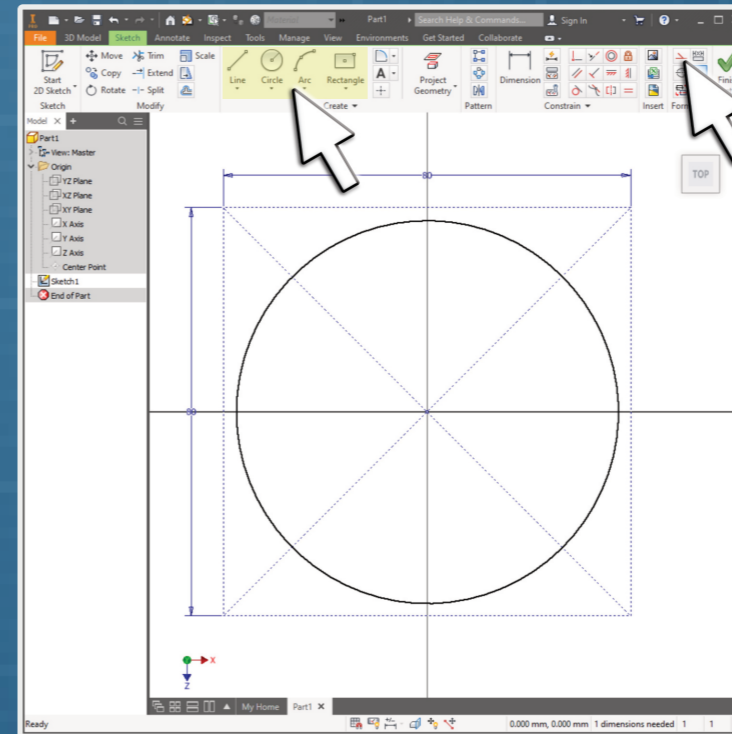
6. From the centre (the origin), draw a rectangle 80mm x 80mm.



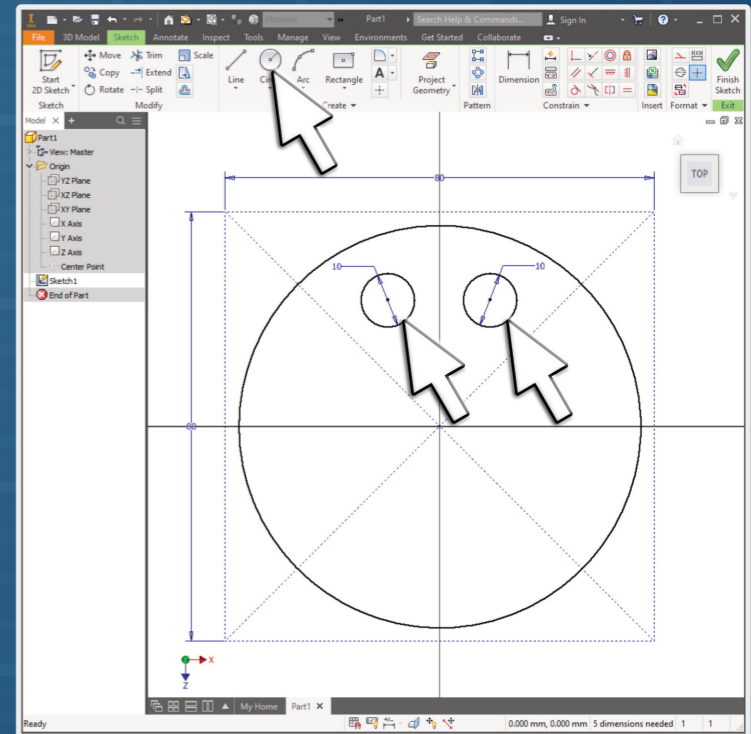
3. We need to sketch our shape for the earbud winder.
Select the 'XZ plane' from the Origin folder.
Select the 'new sketch' icon from the centre of the plane.



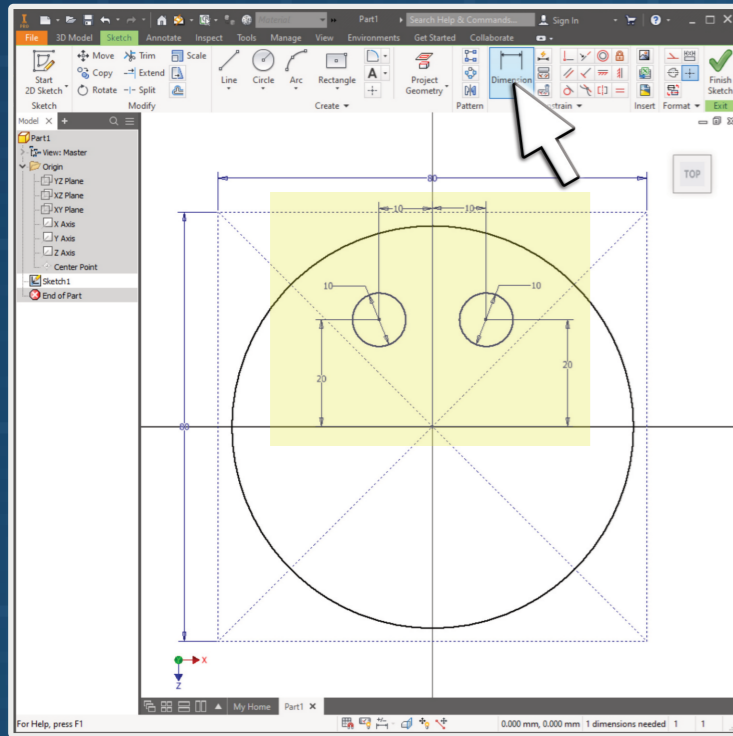
4. If you have done this correctly, you should notice the ribbon has changed and you are now looking straight down on the 'top' or plan view.
Well done!



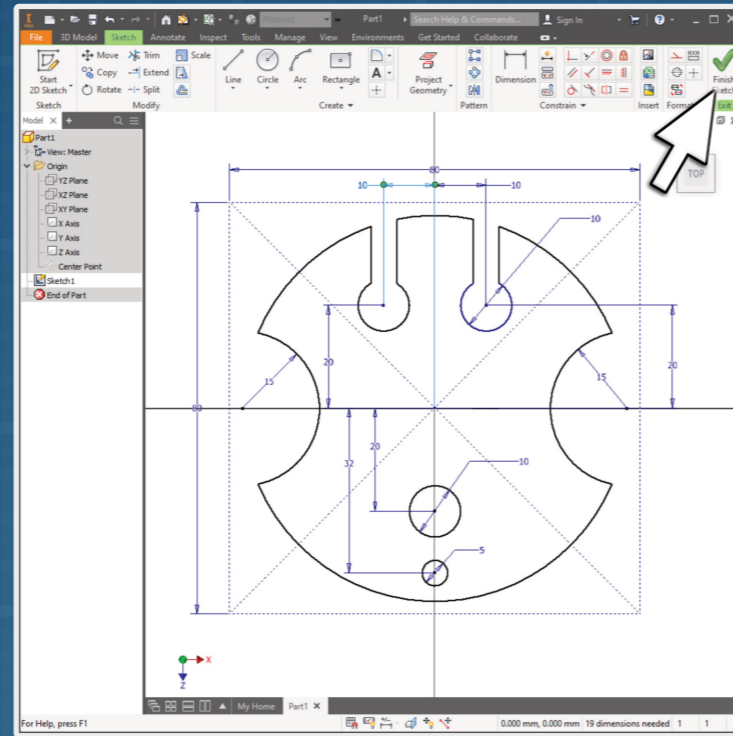
7. De-select construction mode.
Now you can use the 'Line', 'Circle', 'Arc' and 'Rectangle' tool to draw your own earbud winder as you wish, or follow next few steps to copy our design.



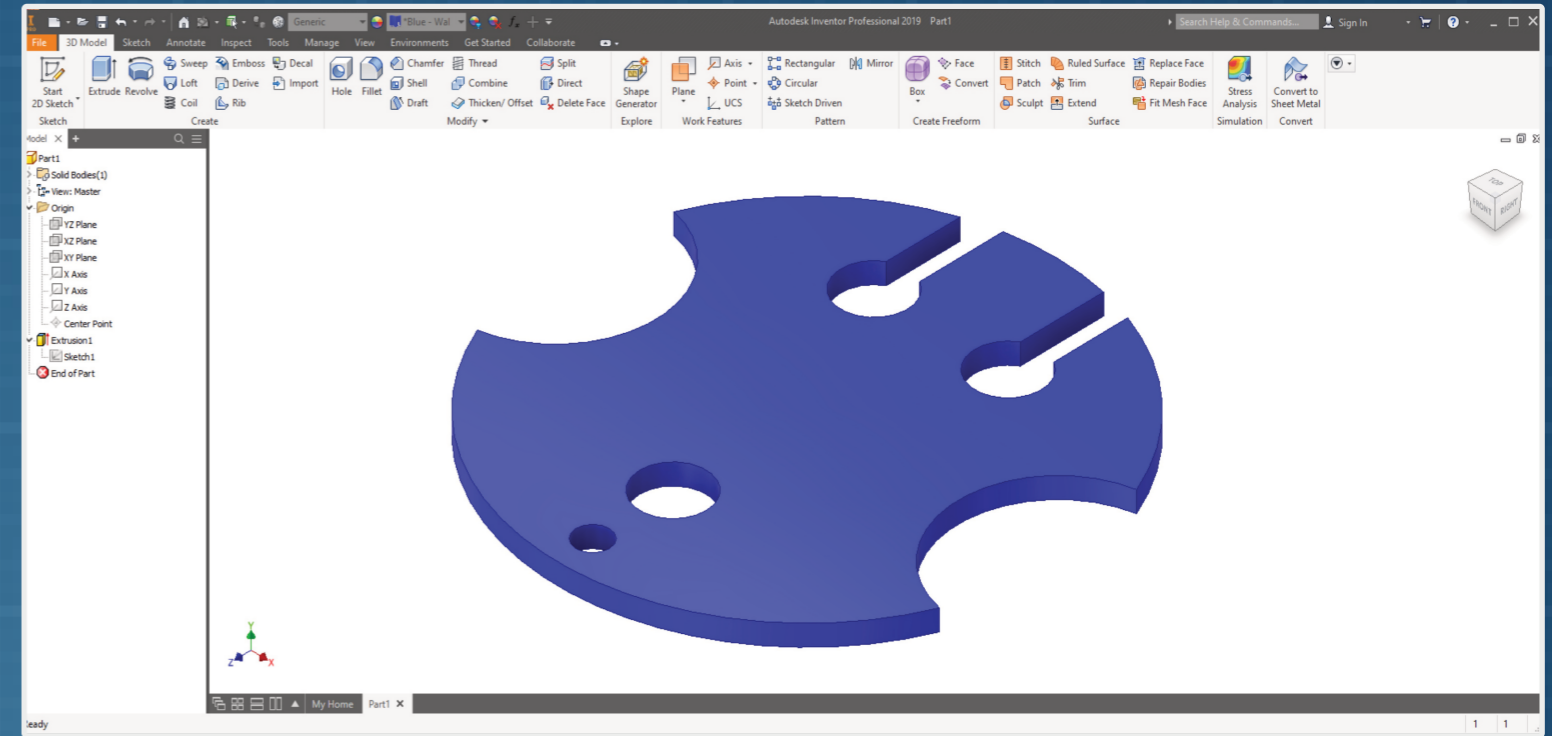
8. Use the circle tool to create holes for the actual earbuds.
About 10mm is a good size, but you are welcome to use your own sizes.



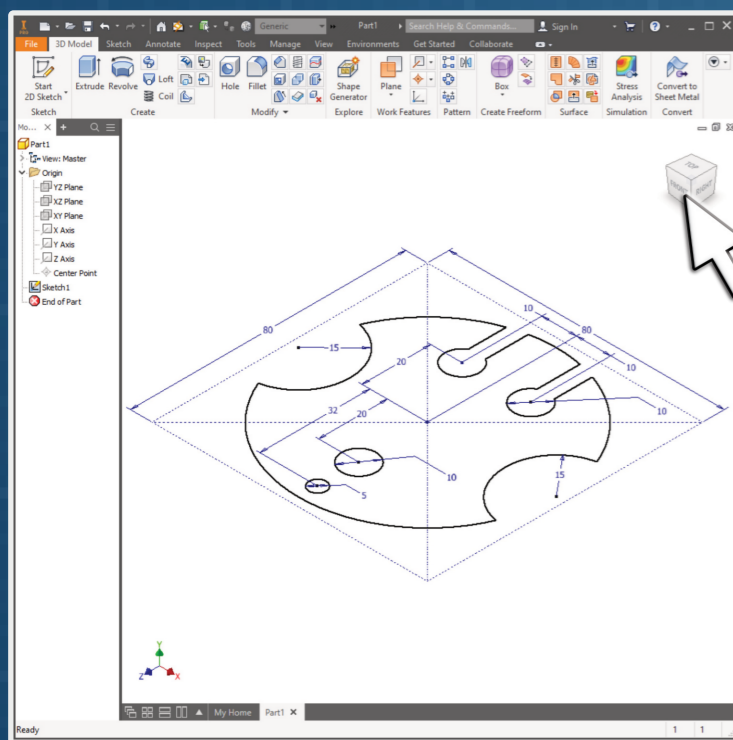
9. Make sure you use the 'Dimension' tool to set sizes to specific shape.
You can also measure the distance between shapes to keep things neat.



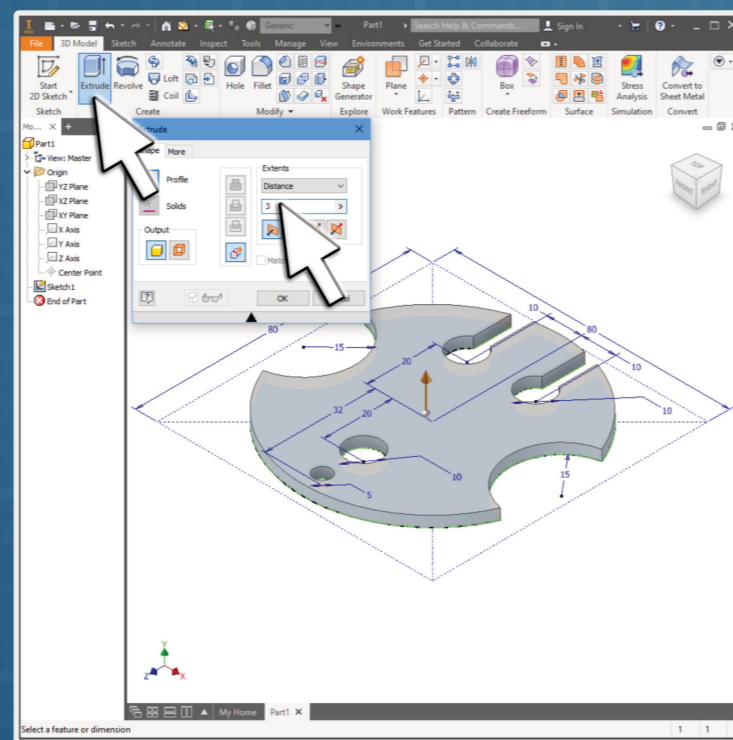
10. Once you have made your shape and you are happy to make it 3D, select 'Finish Sketch'.



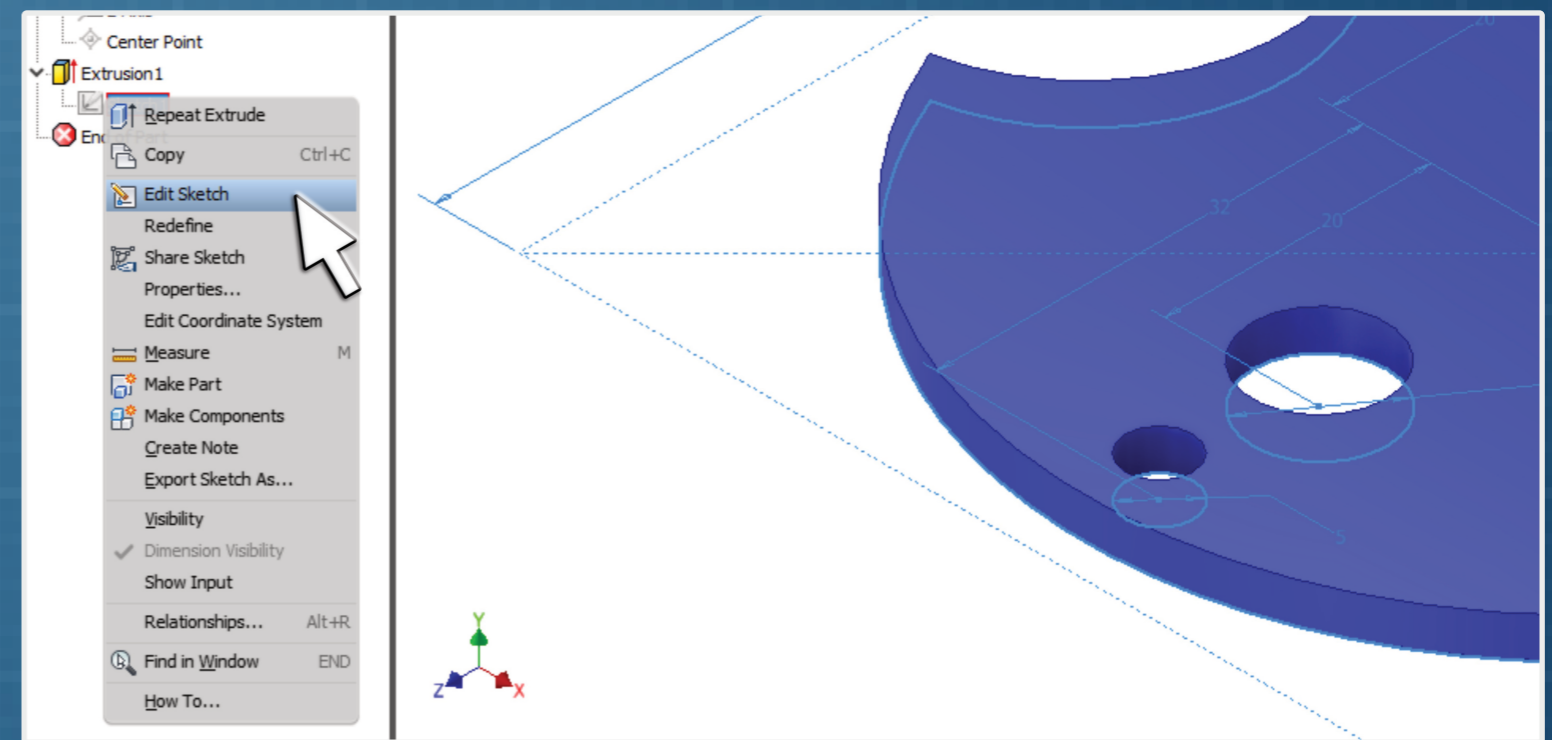
13. Hey, well done! You now have a 3D CAD model of an item you designed yourself.
This 3D model can now be used for different things: manufacture, testing or making photo-realistic pictures and animations.
You now need to give this file to your teacher. They will then show you how it is laser cut or 3D printed! Make sure you are happy with it before it is manufactured!



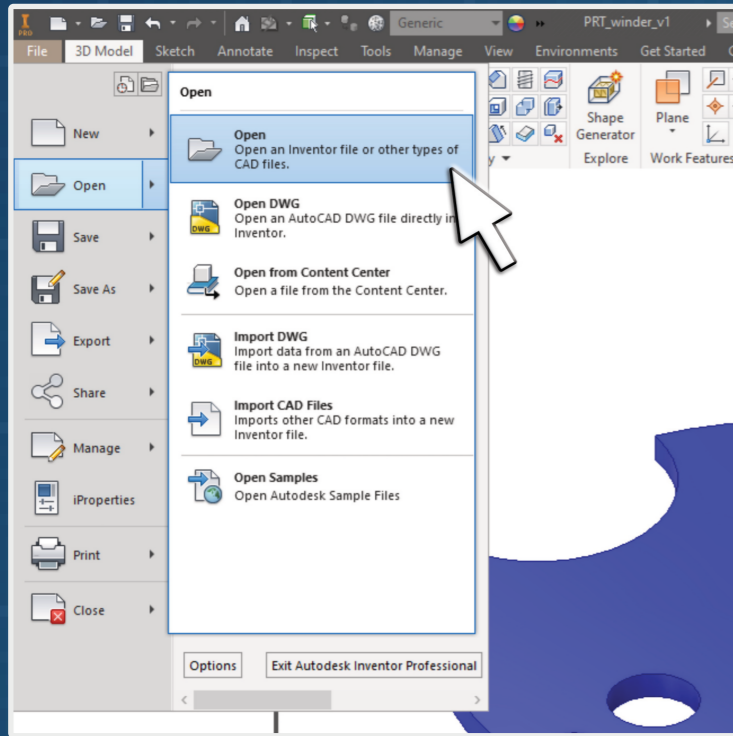
11. Click on the corner of the cube to see the sketch in a pictorial view.
Time to make this simple sketch become 3D!



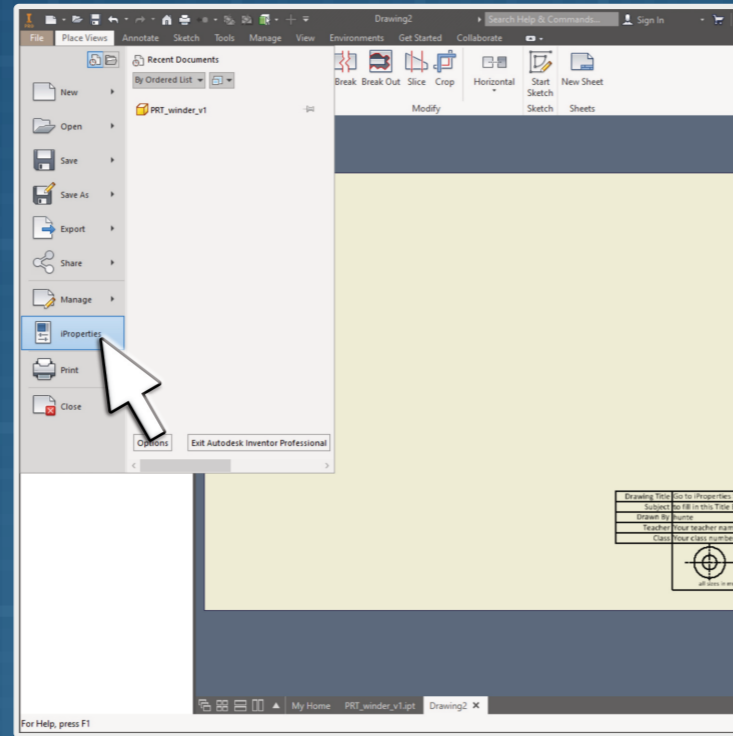
12. Select the 'Extrude' tool from the top ribbon.
We will be using 3mm acrylic, so type in '3' for a distance.
Your sketch will now spring out to become a 3D CAD model.



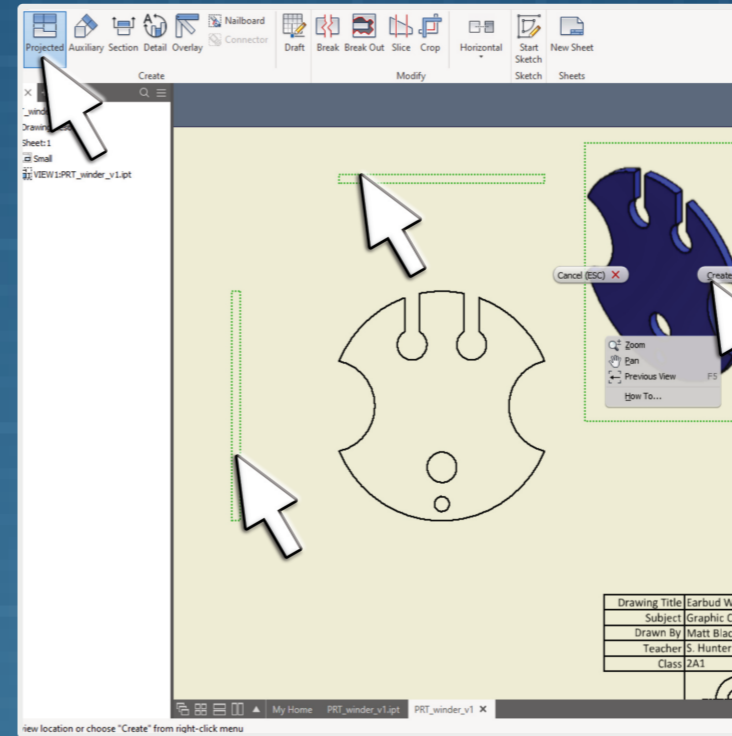
14. Not happy with your 3D CAD model? Not a problem! You can edit it.
Click on 'Extrusion1', then Right-Click on 'Sketch1' (or whatever number it is).
Select 'Edit Sketch' and you can now change the initial sketch used to create the 3D feature.
If you really screw-up, just select 'Delete Sketch' and start again.



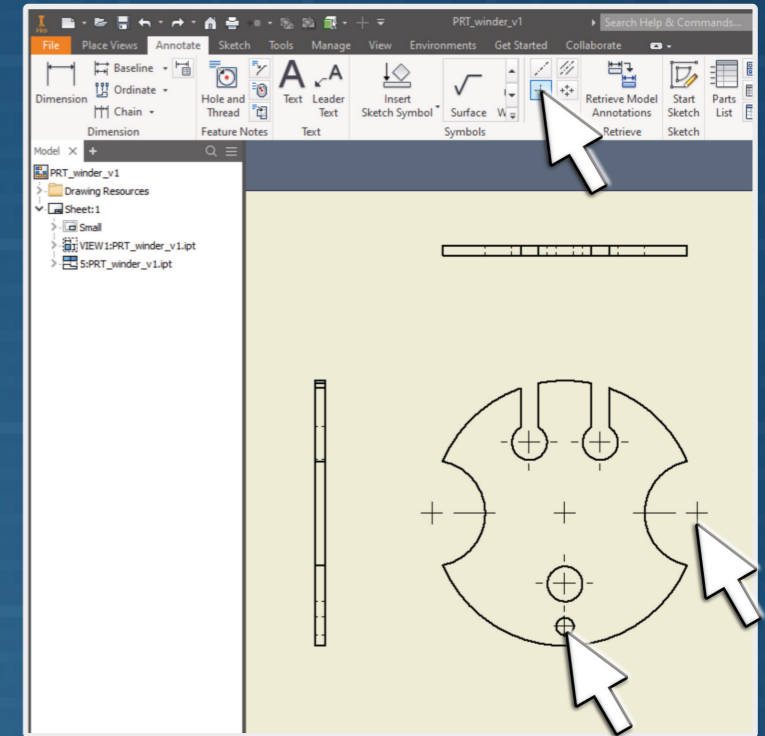
15. Time to make a 'Engineering Drawing' of your earbud winder. To do this, you need to download the drawing template from DesignClass.co.uk. This is set to the latest British Standards Institute (BSI) rules...



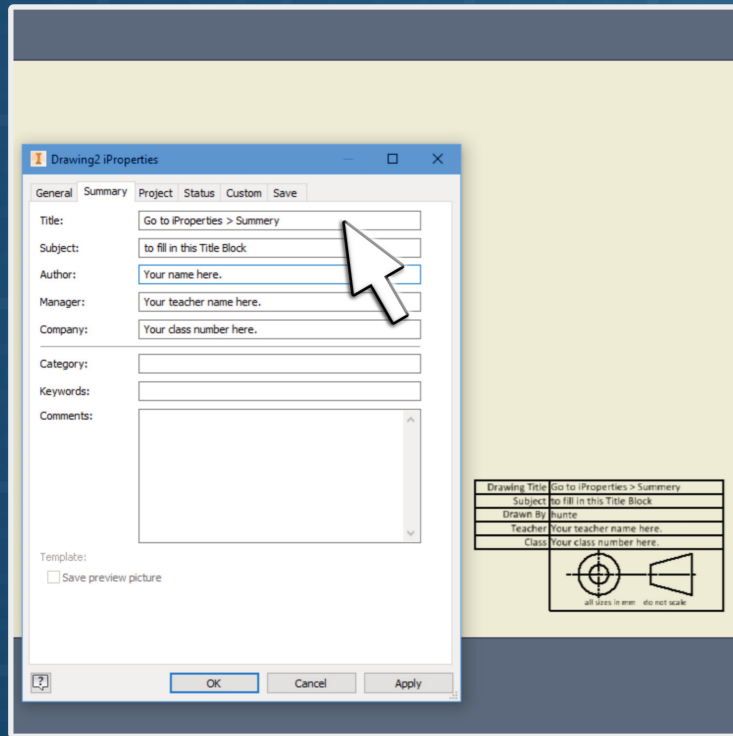
16. Let's get the title block populated. This is easy, as the DesignClass template is linked to 'iProperties'; the data engineers fill about their designs. Select 'iProperties' from the 'File' menu.



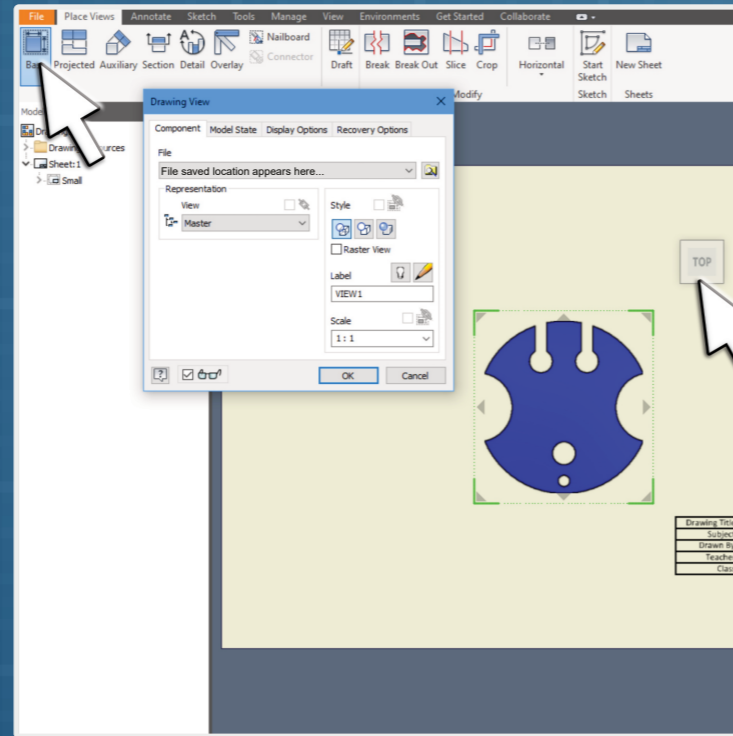
19. Time to get the other views. Use the 'Project' tool and select your elevation. Click to create a Plan, End Elevation and Isometric view. Right-Click and select 'Create'.



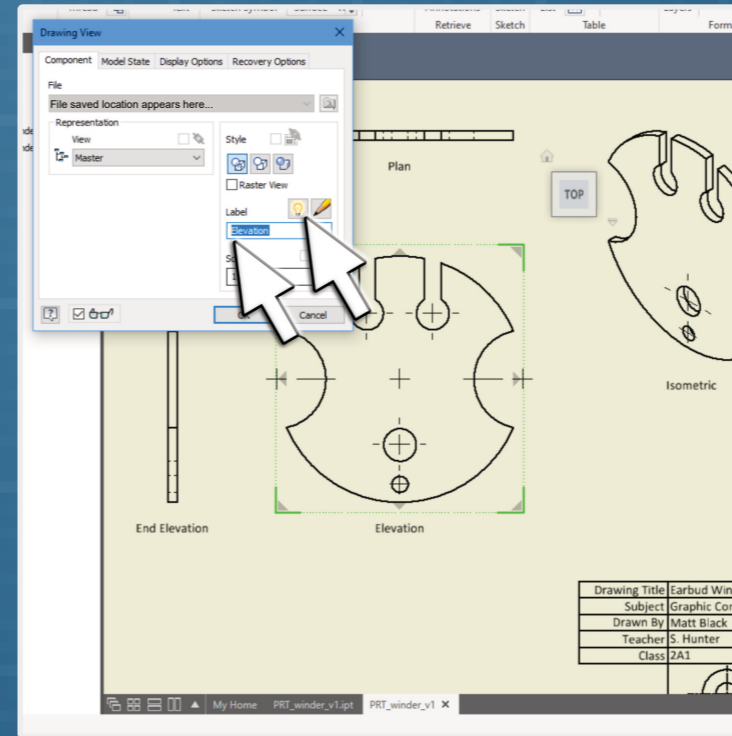
20. Okay, move to the 'Annotate' tool. Let's add centre-lines. Select the centre-line tool and find the centre to any circle or arc on your Elevation.



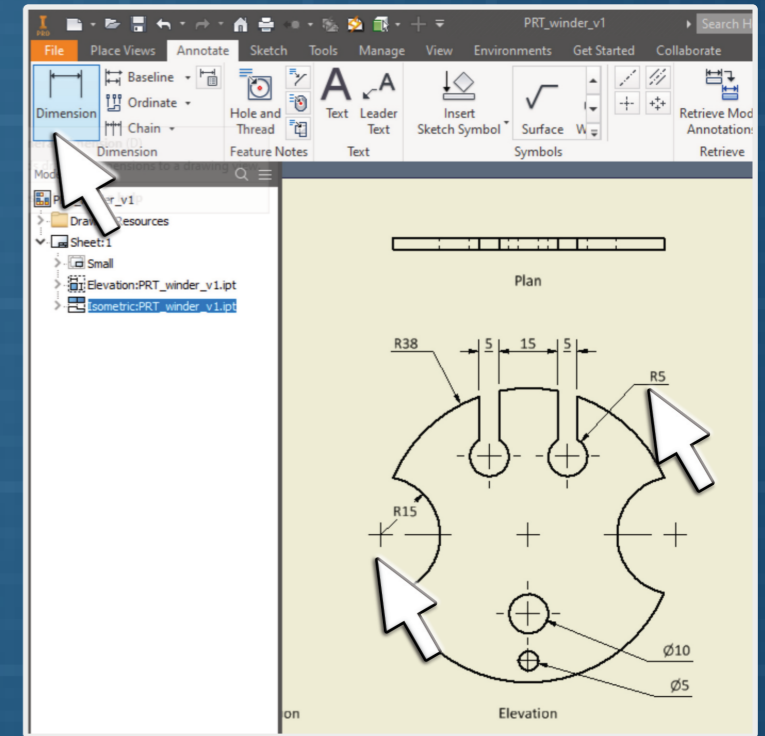
17. Select 'Summary' and fill in the various boxes. This will then fill in the title block with the proper font and all lined up nicely...



18. Okay, let's add your 3D model to create the orthographic drawing. Select 'Base'. This will set you first view, which should be the 'Elevation'. You may need to use the 'rotation cube' to see your model straight on. Click 'OK' when happy...



21. Each of the views need to be titled. We'll do this the easy way. Double-Click the view you wish to title. Select the 'Lamp' symbol, the type the name in the 'Label' box. The name will appear underneath the view. (Like it should)



22. Finally, add some key dimensions. Select the 'Dimension' tool. Now select different features of your model and show their size. You only need to dimension a feature once. Choose what you think are the most critical sizes.



COURSE NOTES V1.0

