

EP1000

3D Models

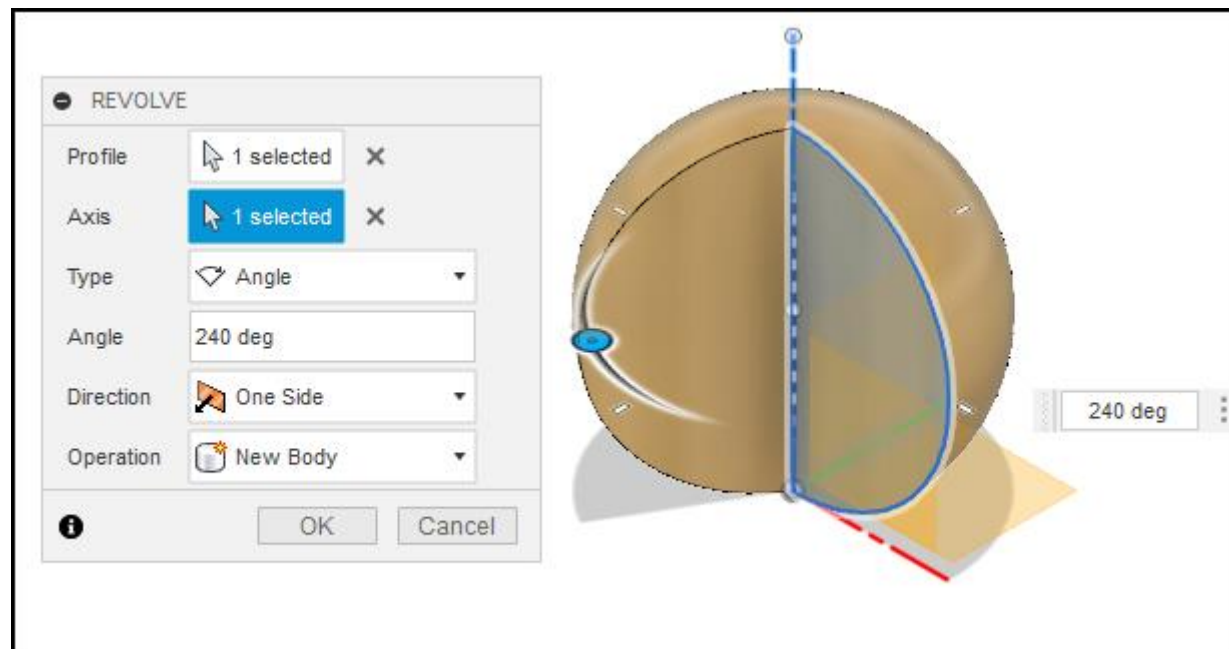
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Methods of Creating 3D Models

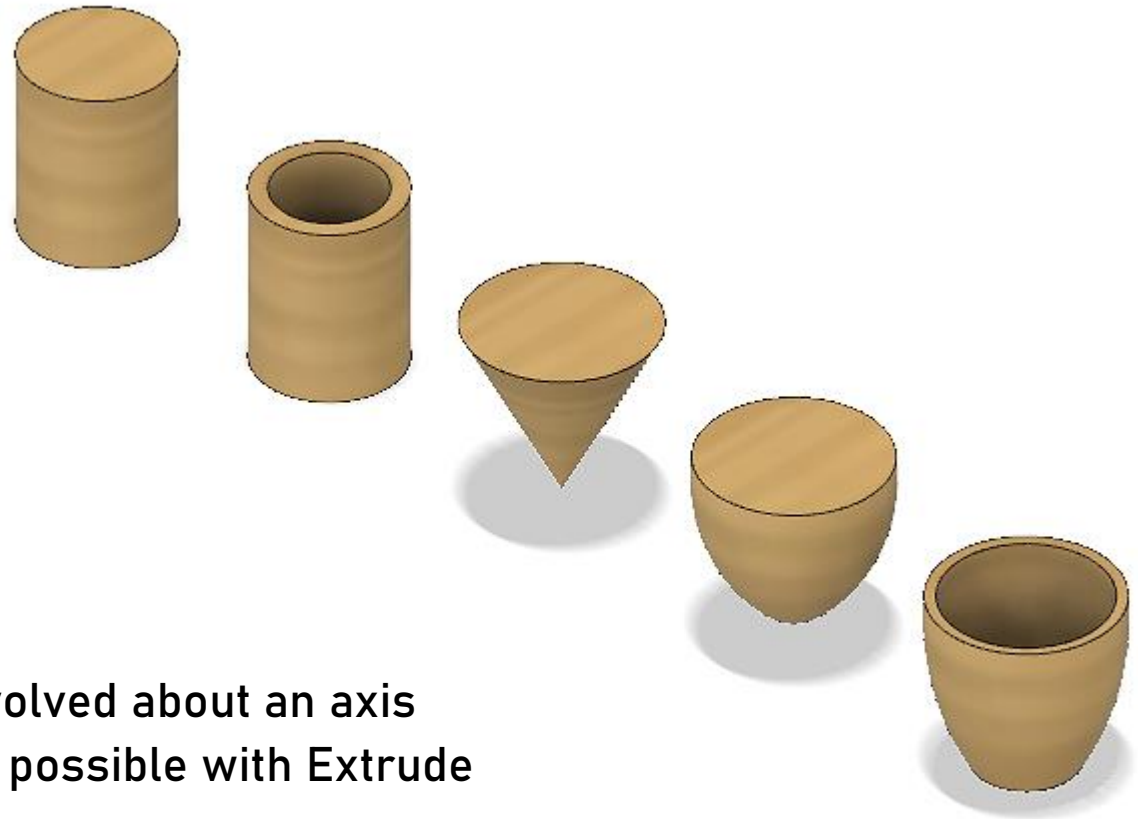
- Extrusion
 - Use a 2D plane profile
 - Extend into the 3rd plane
- Revolve
 - Use a 2D plane profile
 - Rotate the plane around an axis
- Sculpting
 - Start with a 3D object
 - Add, remove 3D objects
 - Subdivide the surface into sections
 - Push, pull, extend, contract sections

Create > Revolve

- Start with a 2D closed profile in plane
- Create > Revolution
 - Select the axis of revolution
 - Select the angle to revolve



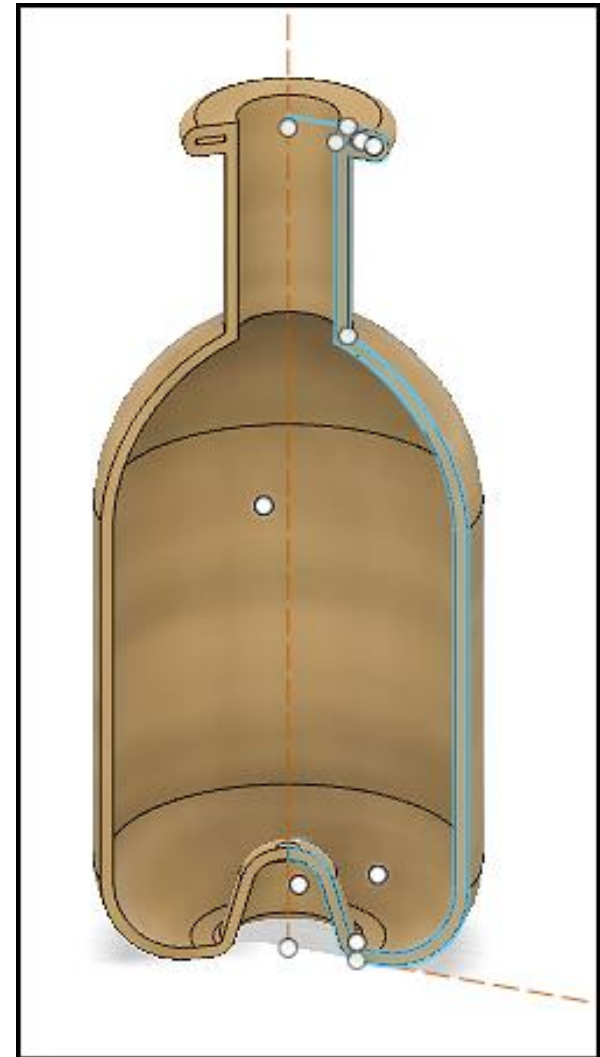
Create > Revolve



- Revolve used for
 - Uniform objects revolved about an axis
 - Creates objects not possible with Extrude
- What **profiles** were used to create these objects?

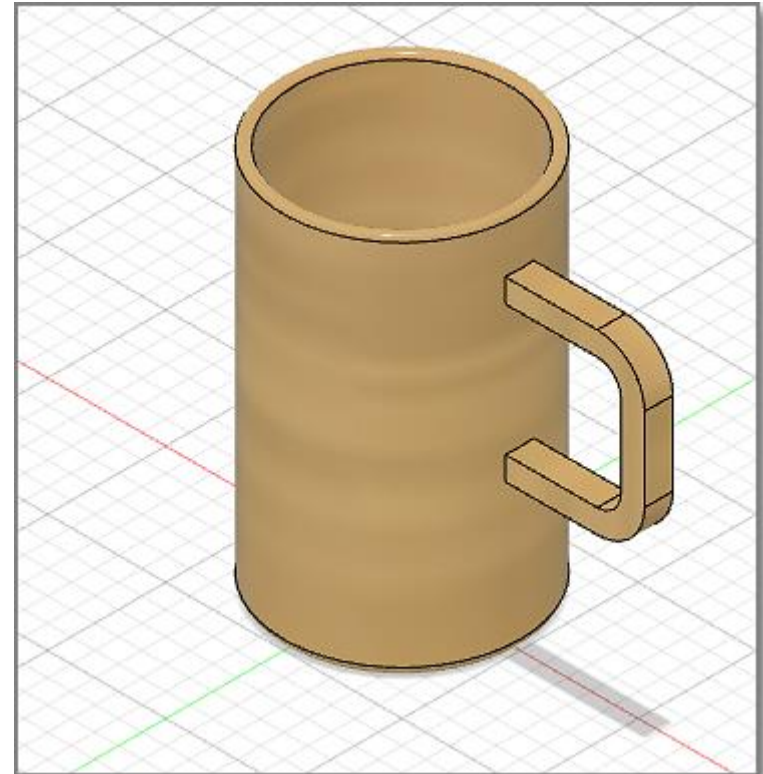
Revolve using Arc profiles

- You can create bottle objects using arc profiles.
- You can also use the revolve command to cut parts which you do not need.



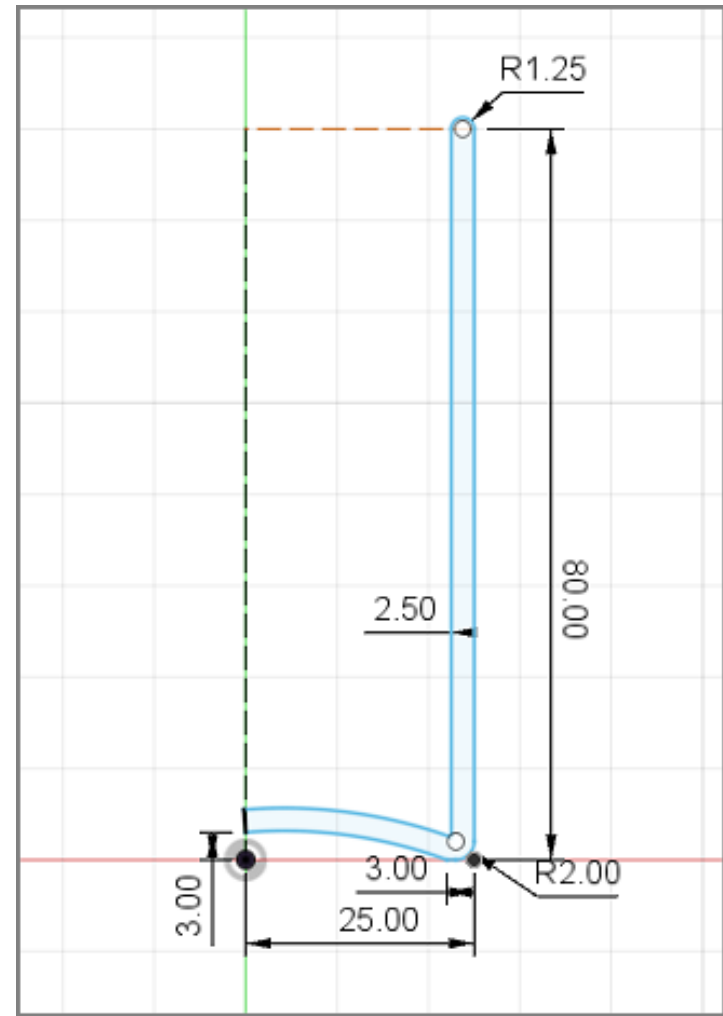
Exercise 1: Mug with Handle

- Let's make a mug with a handle
 - dimensions: 50mm (diameter), 80mm (height)
 - Include an arc at the base of the mug
 - let the mug's thickness be about 2.5mm
 - add a handle (ear) of thickness 6mm of your choice
- Go wild with your design!



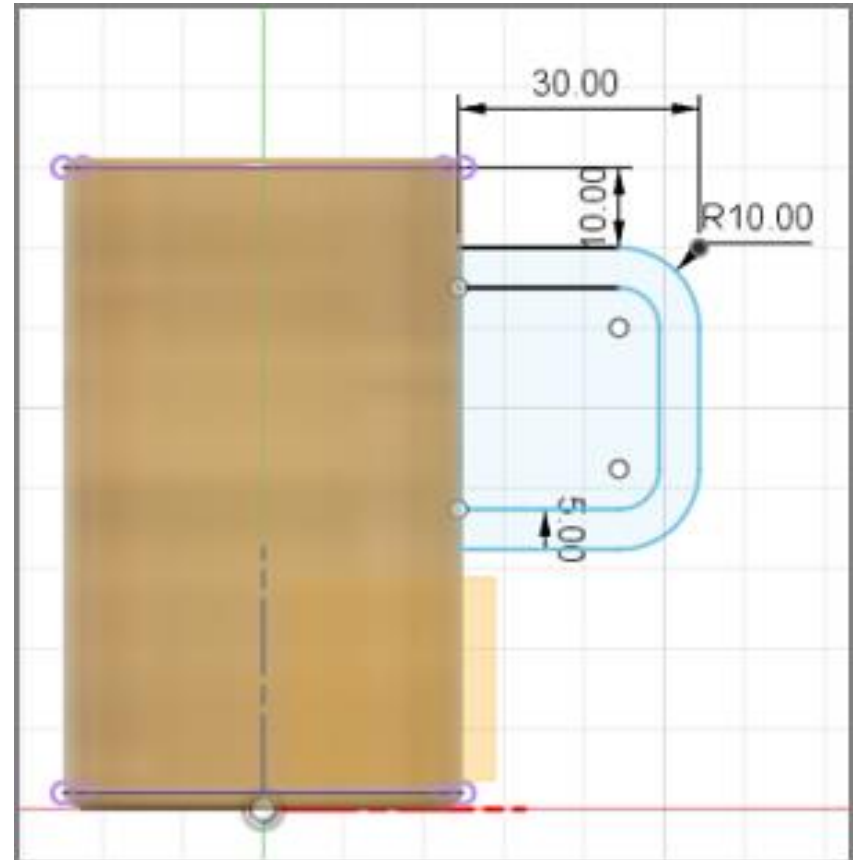
Tip 1:

- You can use the profile as a guide.
- Make sure you have a closed profile before you revolve.
- Also, ensure that you do NOT overlap across the axis



Tip 2:

- Create the handle on the mid-plane.
- Project the mug onto the plane to get the intersect points.



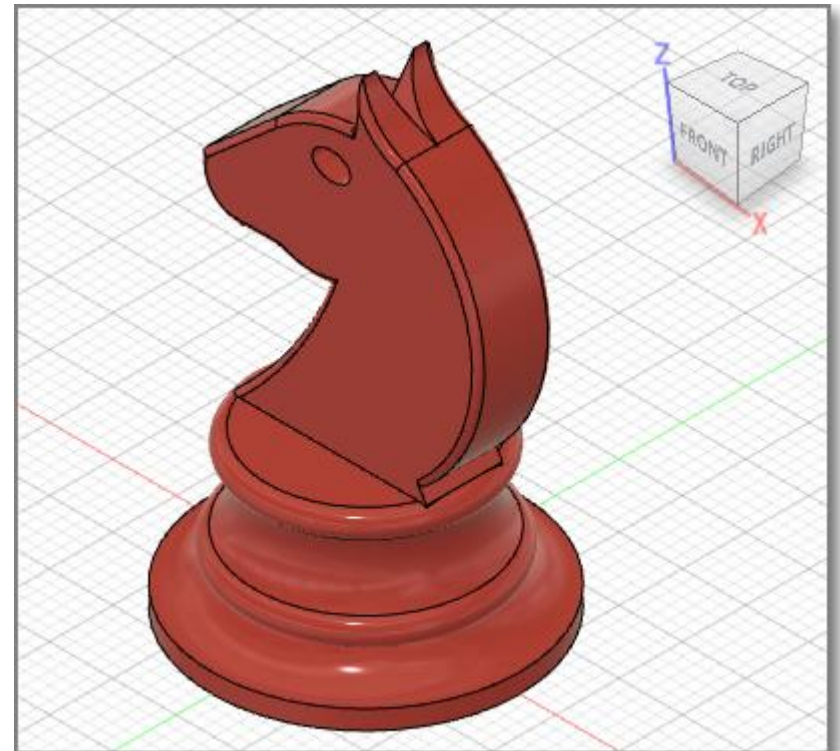
Exercise 2: How to model a Hex Nut

- This is Kevin Kennedy's video tutorial on the modelling of a hex nut:
<https://youtu.be/Xho87HJ-XDo>
- A useful tutorial should you need to create odd-sized fasteners.



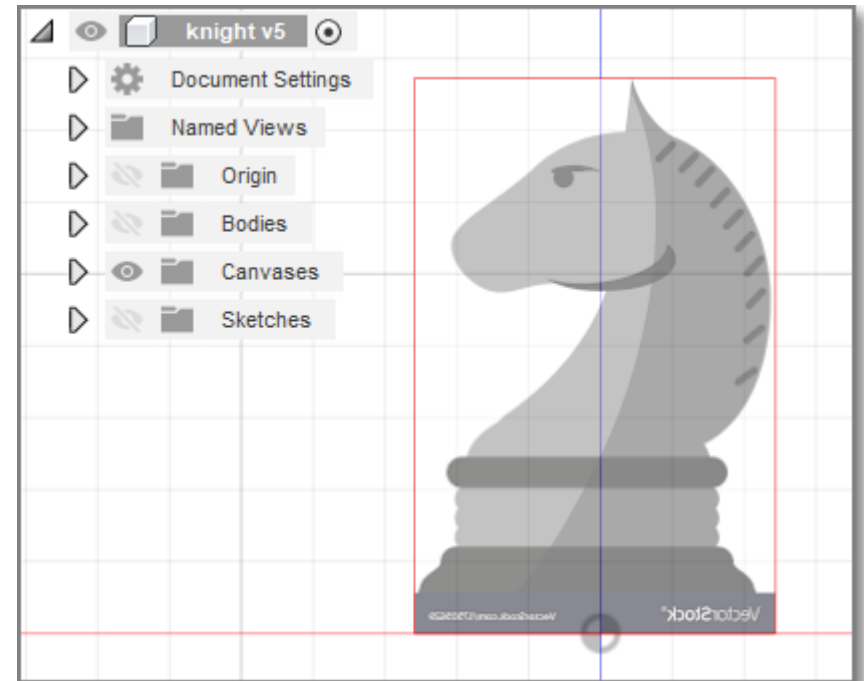
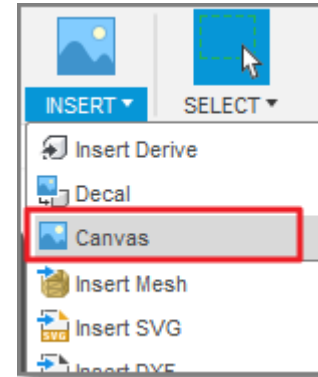
Assignment: Chess piece

- Design a chess piece:
 - Base: 30mm
 - Height: 50mm
 - Head thickness: 5mm
- Use a template for the head
- The base should be hollow (use the Shell feature)



Tip: Use a canvas

- Let's use a template (do a Google search)
 - Insert > Canvas
 - Adjust transparency
 - Adjust position
 - Create Sketch
 - Draw the profile
 - Switch off canvas

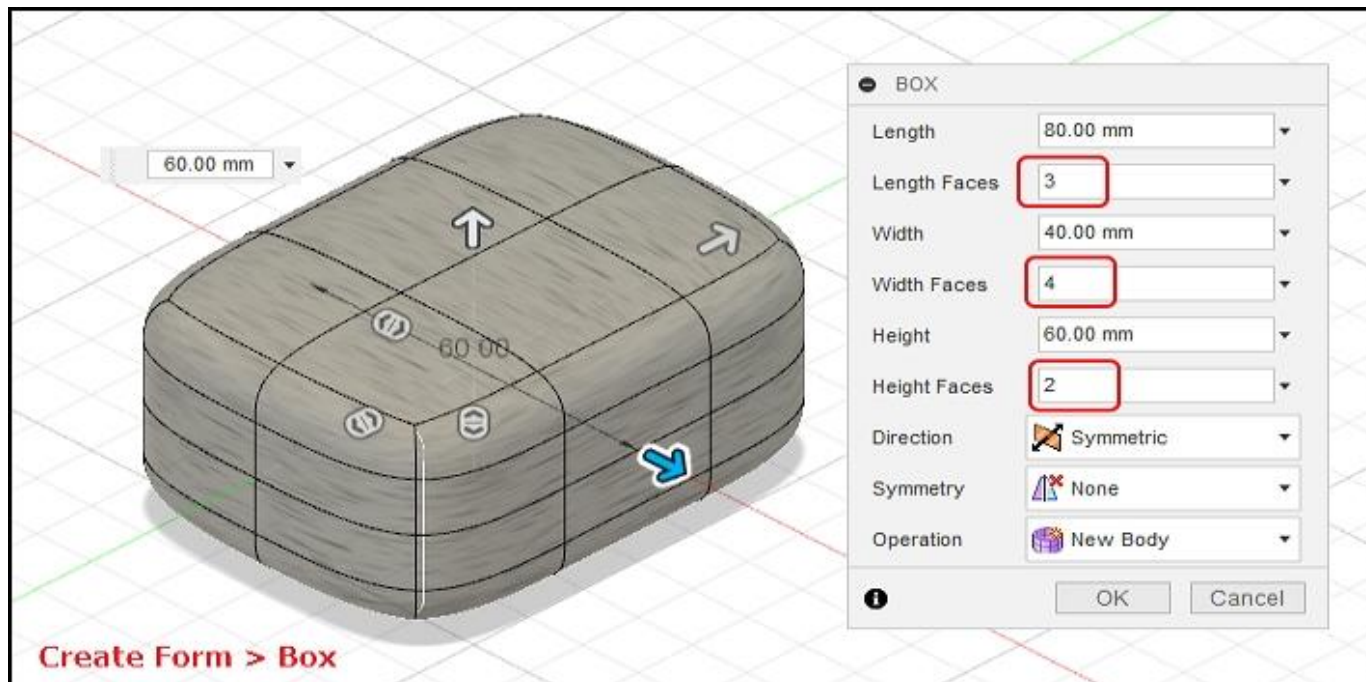


When you have finished...

- Embed your Fusion 360 file in your web page
- Ref:
 - Fusion 360 [How to embed a viewer of a Fusion 360 design into a website](#)
 - [EP1000 Assignment: 3D Modelling](#)
- Include this exercise in your documentation, including the steps taken

More modeling technique - Sculpting

- Use a basic 3D shape, break up the shape, manipulate each part.
- Like playing with plasticine



Sculpting

- Product Design Online Tutorials:
 - [How to sculpt an Earbud](#)
 - Sculpting for plastics parts:
[Part 1](#), [Part 2](#)
- Good for creating objects with no definite shapes
- Time consuming
- Great Effects

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End