EP1000

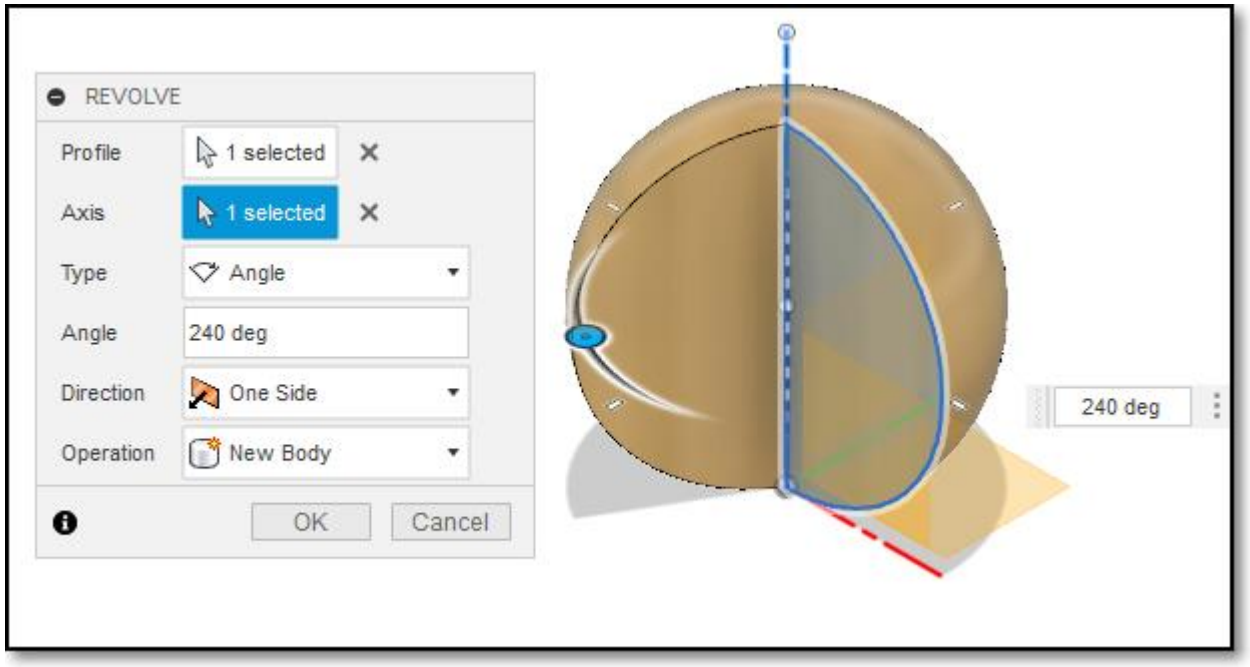
3D Models - 2

Methods of Creating 3D Models

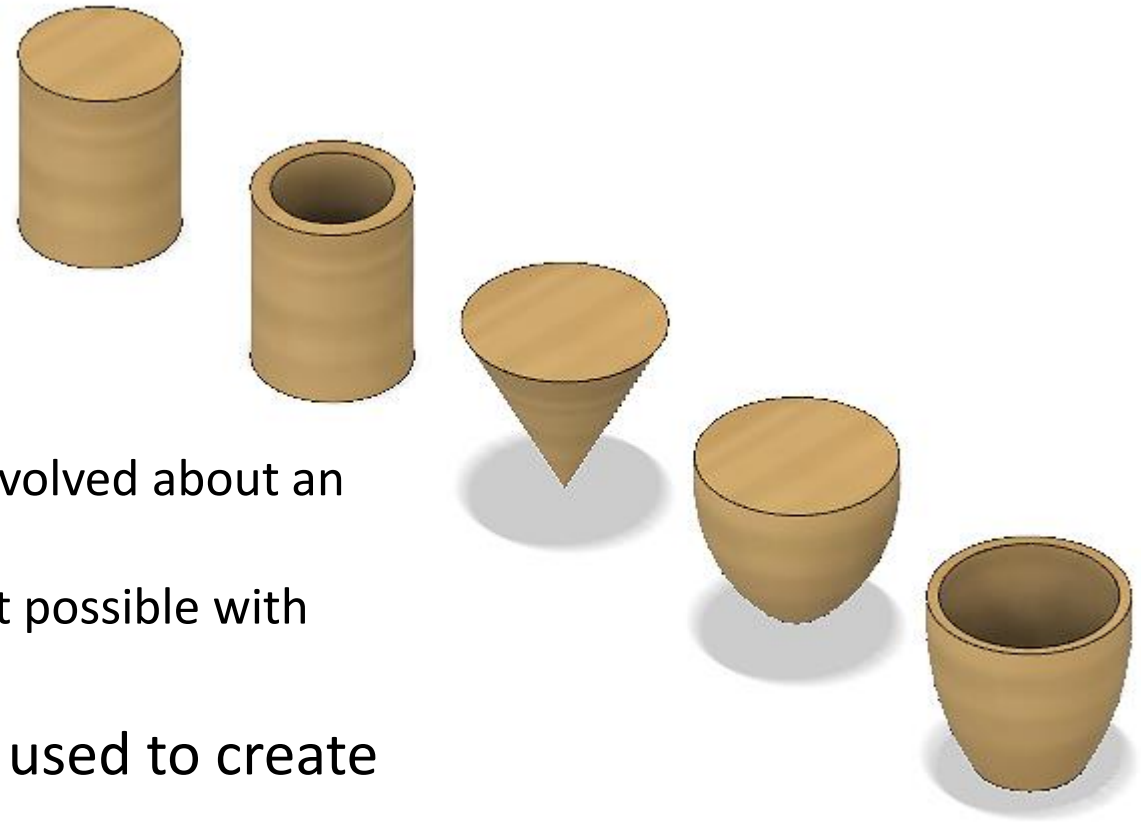
- Extrusion
  - Use a 2D plane profile
  - Extend into the 3rd plane
- Rotation
  - Use a 2D plane profile
  - Rotate the plane around an axis
- Sculpting
  - Start with a 3D object
  - Add, remove 3D objects
  - Subdivide the surface into sections
  - Push, pull, extend, contract sections

Create > Revolve

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



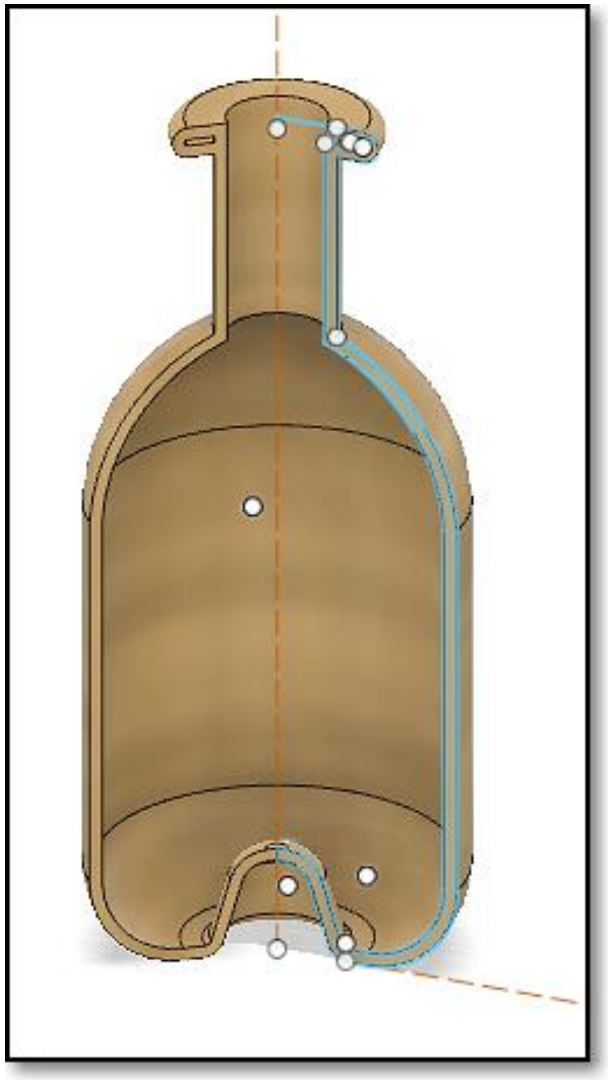
Create > Revolve



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

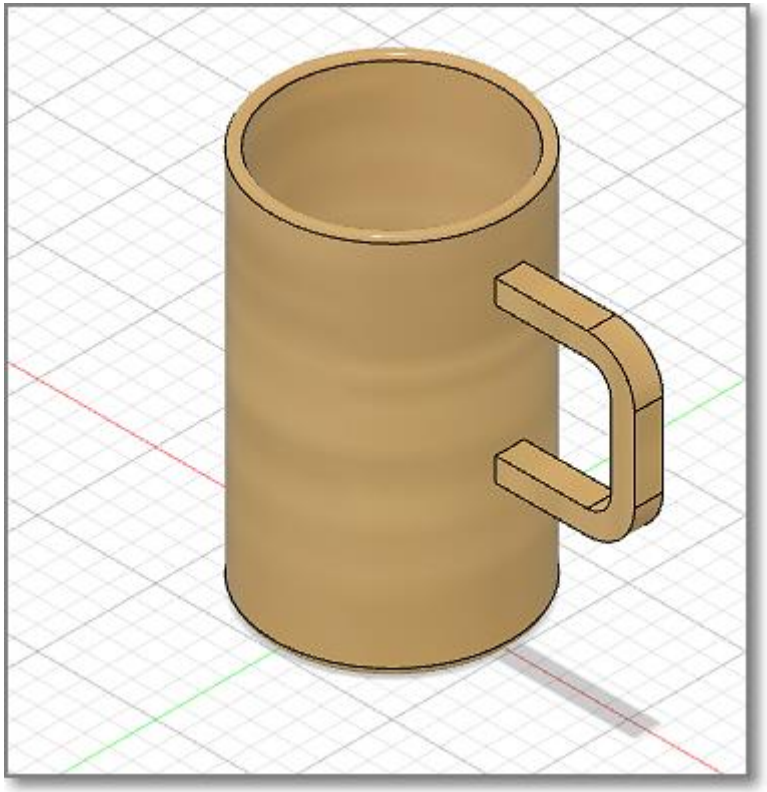
Revolve using Arc profiles

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



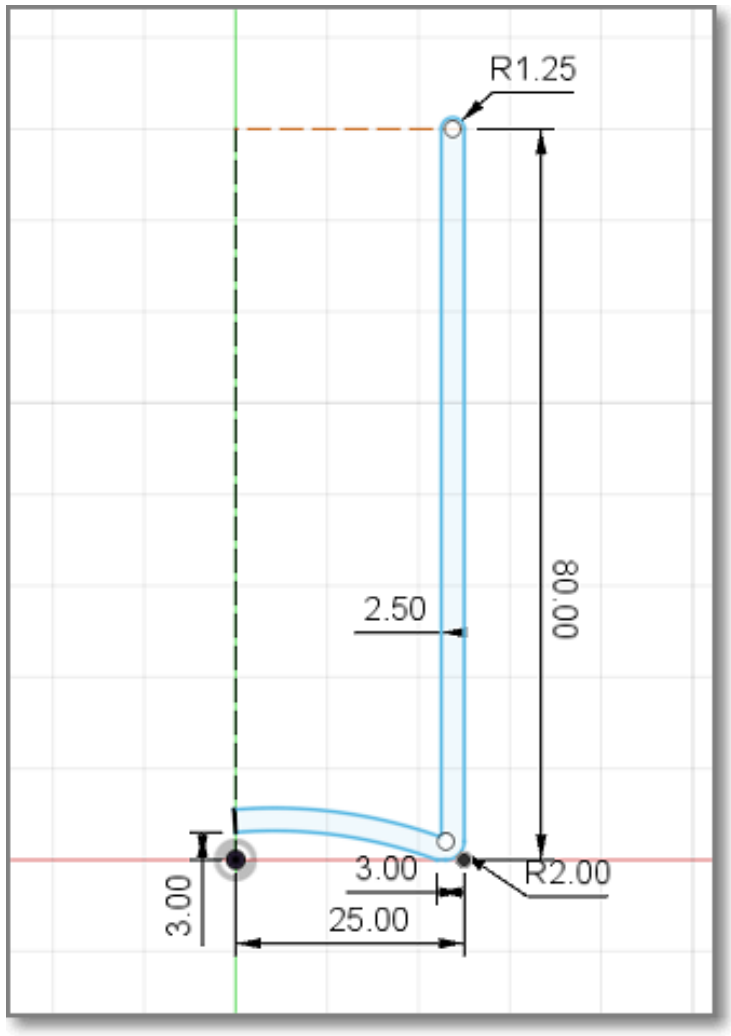
Exercise 1: Mug with Handle

- 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! It’s just an exercise on using the revolve and extrude functions.



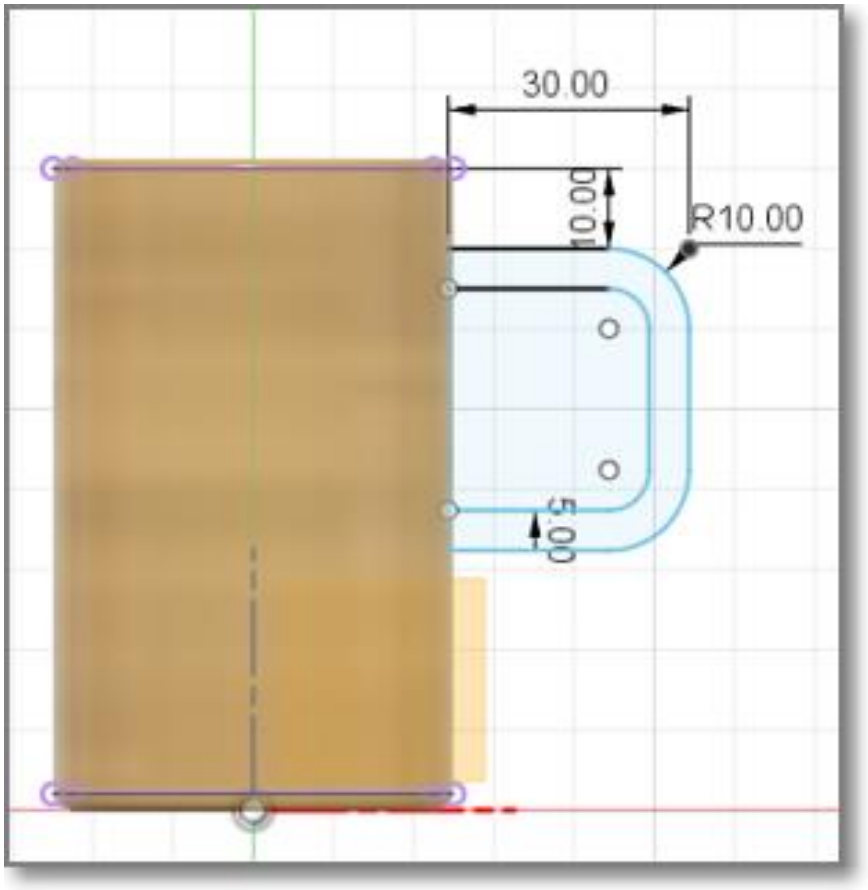
Tip 1:

- 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



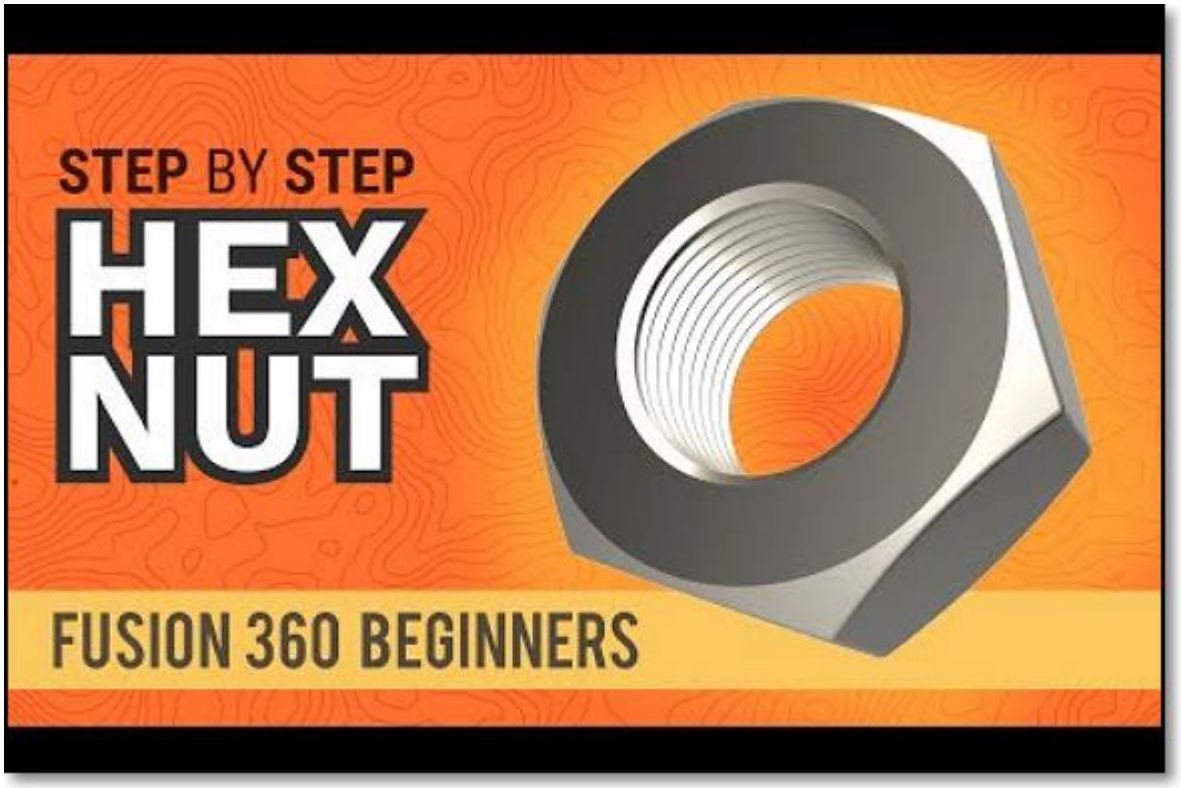
Tip 2:

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



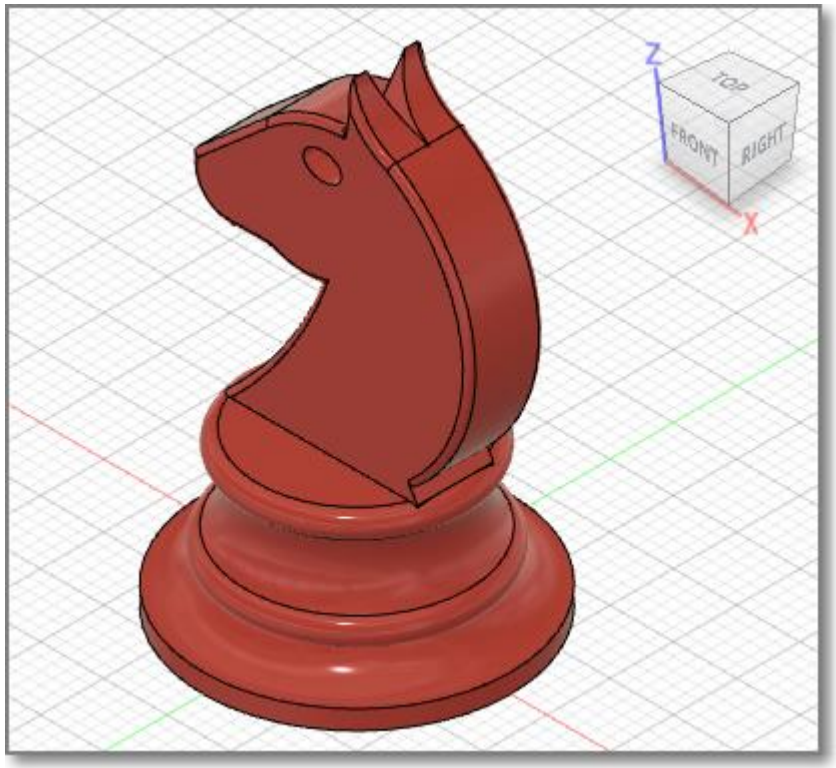
Exercise 2: How to model a Hex Nut

- 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.



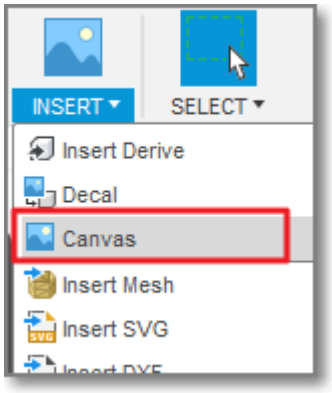
Exercise 3: Chess piece - Knight

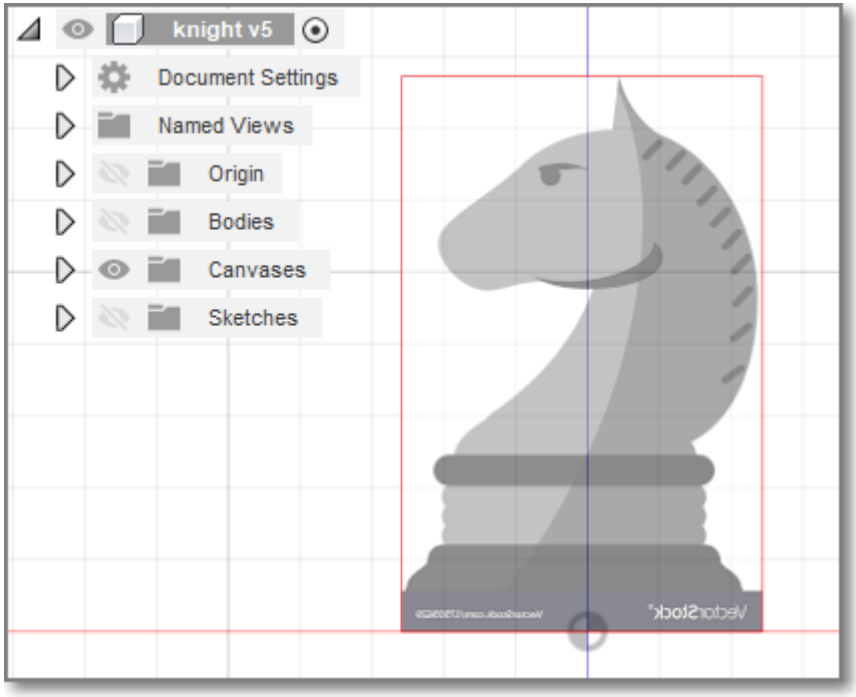
- Design a Knight chess piece:
  - Base: 30mm
  - Height: 50mm
  - Head thickness: 5mm
- Use a template for the head
- The base should be hollow



Tip: Use a canvas

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



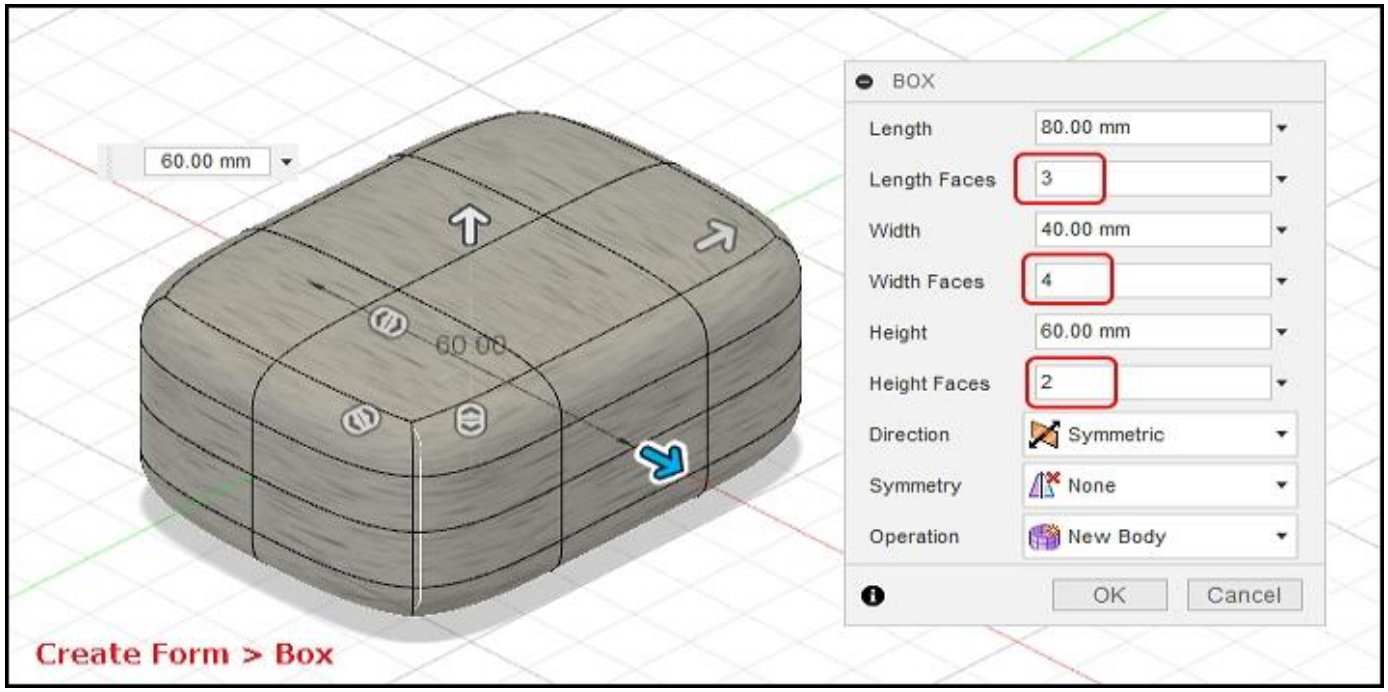


When you have finished…

- 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

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