

## Lesson 6: Fusion 360 Essential Skills

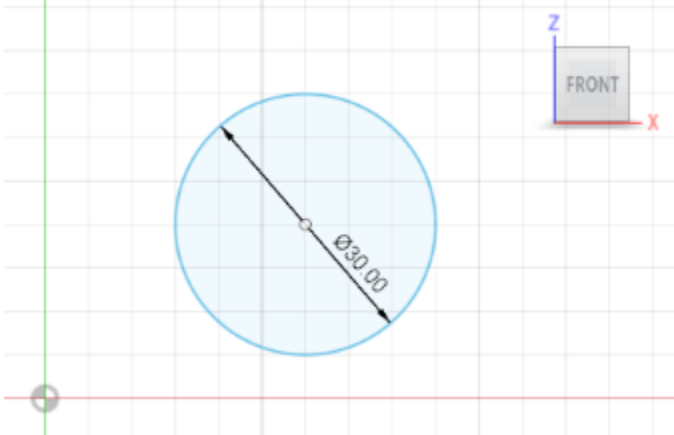
### Objectives:

1. Become familiar with the navigation tools of Fusion 360.
2. Understand the purpose of Fusion 360 software.
3. Acquire the essential skills needed to create your own custom growth form.

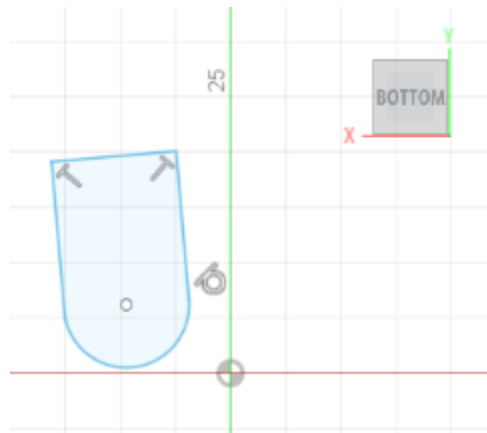
### Introduction:

A 3D model is a computer representation used to convey detailed information about a physical object. This activity will guide you to use software to create 3D models. You can build 3D models using any 3D modeling software app, often referred to as computer-aided design (CAD) software.

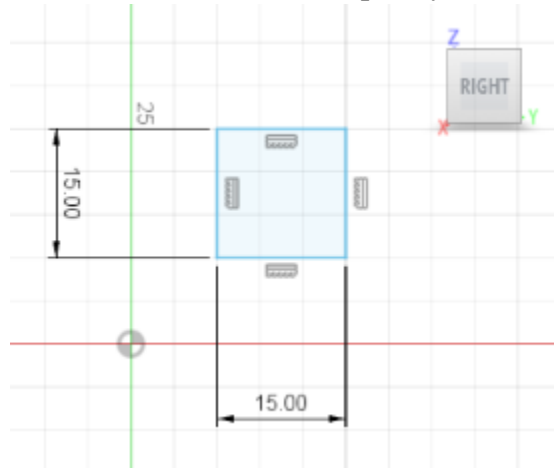
Watch this [introduction video](#) to Fusion 360.

Fusion 360 Skill	Mastery Check
<i>Navigate different views</i> <a href="#">Video 0:00-2:02</a> <a href="#">Video 11:21-13:00</a>	Use the viewcube to change the orientation of the model
	Zoom
	Pan
	Orbit
<i>Manage design files</i> <a href="#">Video 0:53-4:39</a>	Open a new project and label it as instructed by your teacher.
	Create a new folder and label it as instructed by your teacher.
	Open a new design
	Save your file
	Give your file a name
<i>Creating a basic sketch</i> <a href="#">Video 0:17-3:57</a>	Sketch a 2-dimensional shape of your choice, along the X-Z plane 

Sketch a 2-dimensional shape of your choice, along the X-Y plane



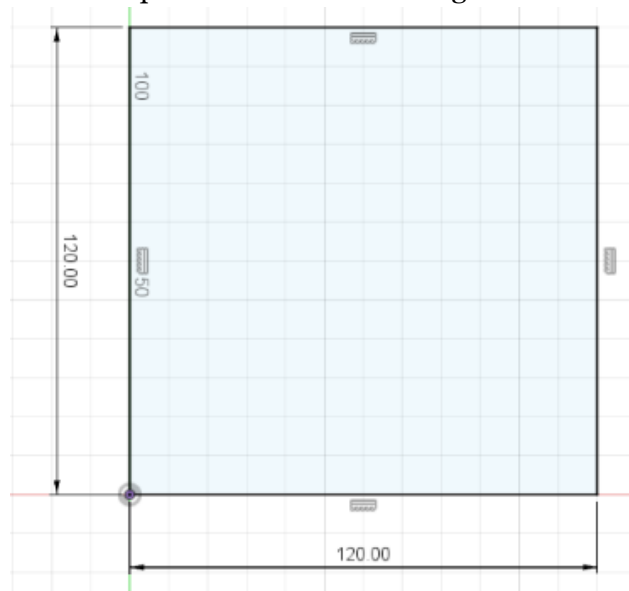
Sketch a 2-dimensional shape of your choice, along the Y-Z plane

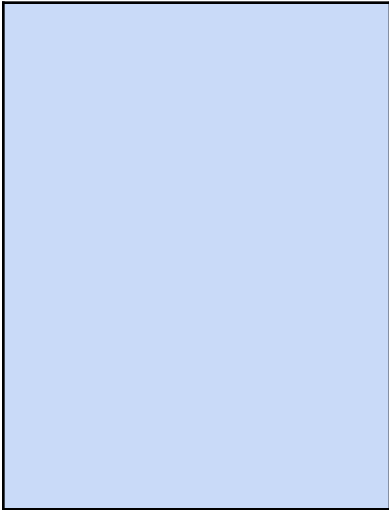


Lock your sketch dimensions

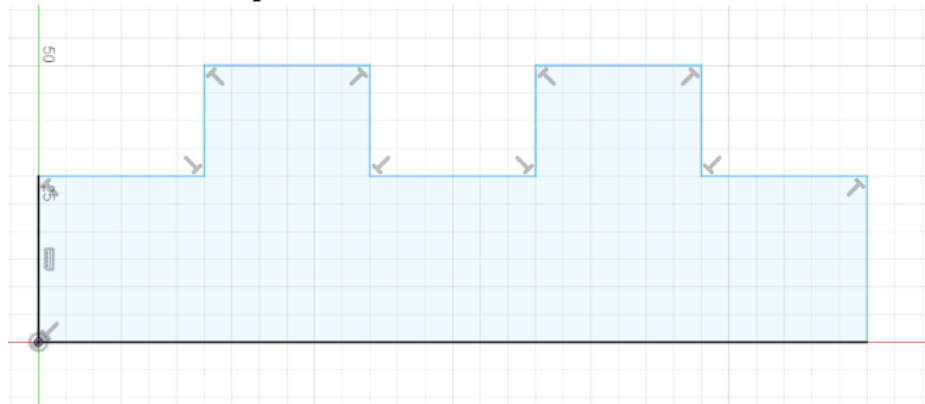
[Video 3:59-5:20](#)

Create a square with a 120 mm length for each side.





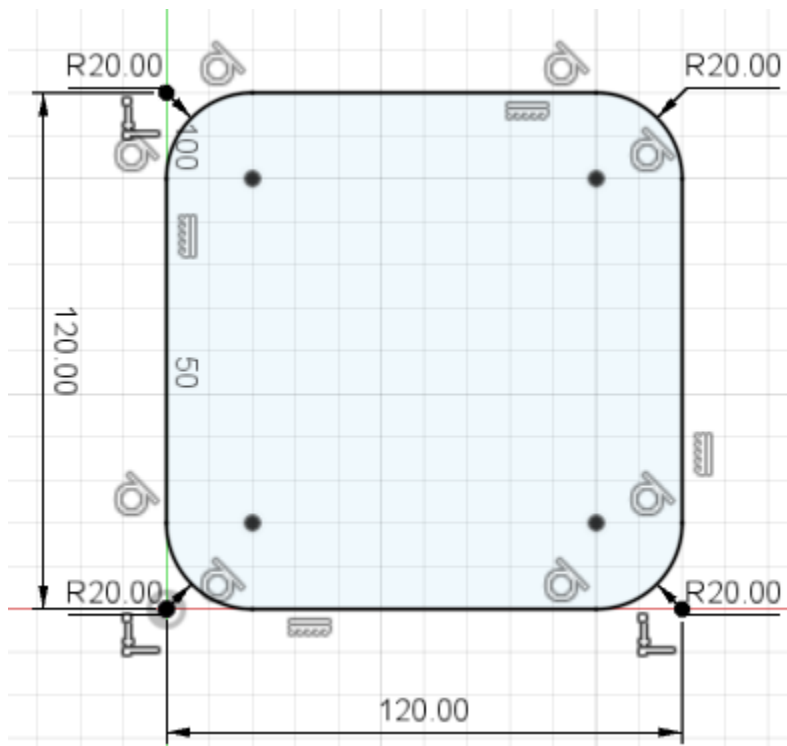
Sketch a closed shape similar to the one below:



Fillet a 2D sketch

[Video](#)

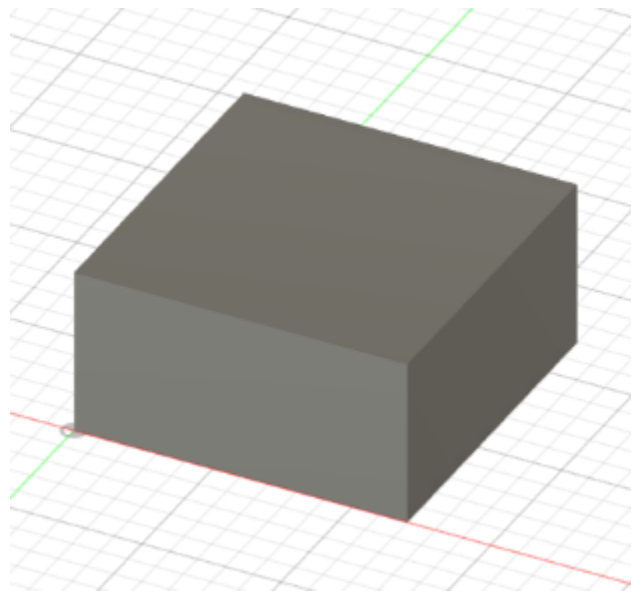
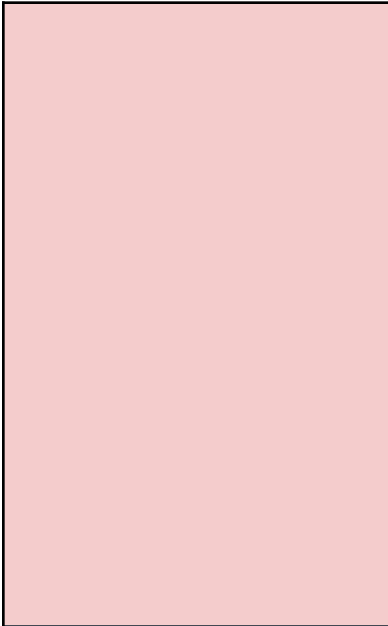
Using the 120 mm side square created earlier, add 20 mm radius fillets to each corner.



*Extrude*

[Video 5:21-8:15](#)  
[Video 0:40-2:17](#)

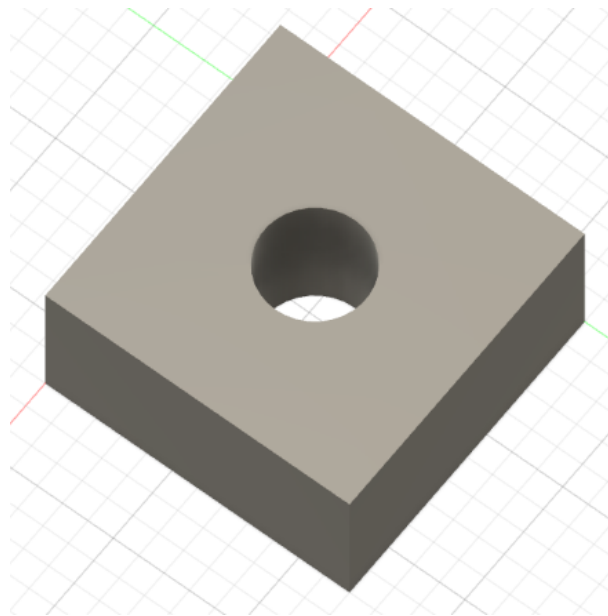
Extrude your previously-designed square to 60 mm.



*Making holes*

[Video 8:57-11:55](#)  
[Video 13:29-15:47](#)

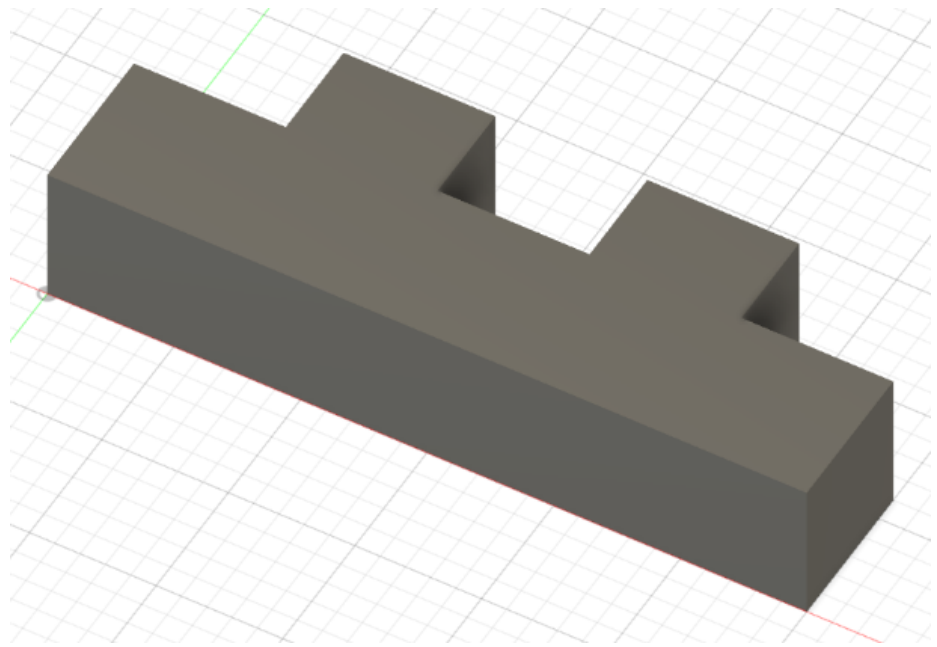
Create a through-hole in your previously-designed extruded square. The hole should be centered. Hole diameter: 40 mm



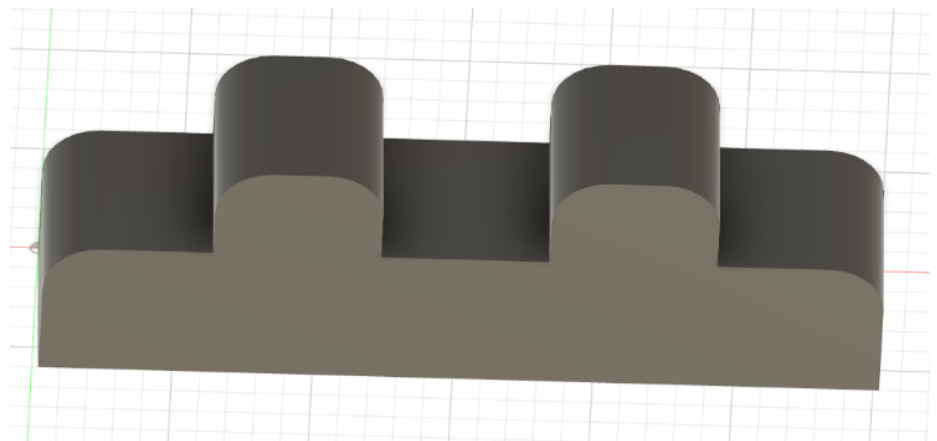
*Fillet a 3D shape*

[Video 16:13-17:30](#)  
[Video 0:00-4:25](#)

Using your previously designed sketch, extrude 30 mm to make a 3D shape.



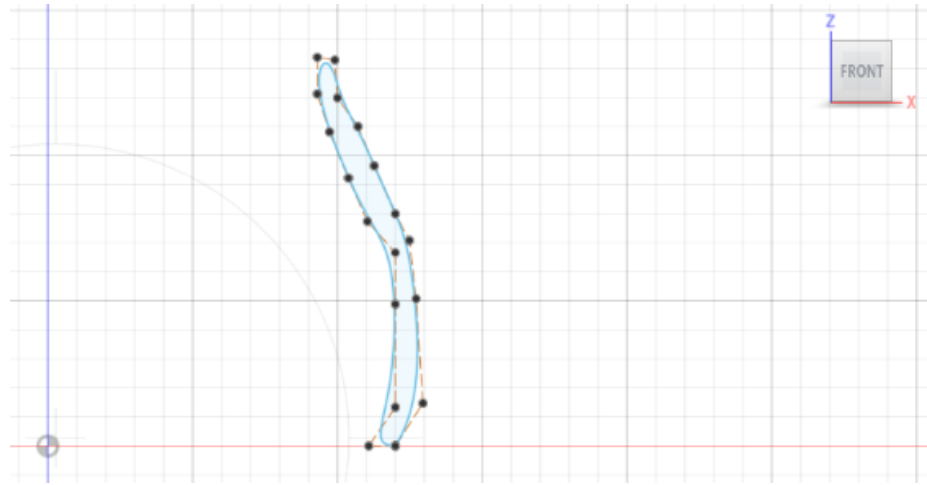
Add 10 mm filets to form two arcs at the top of the shape, and two rounded edges on the sides.



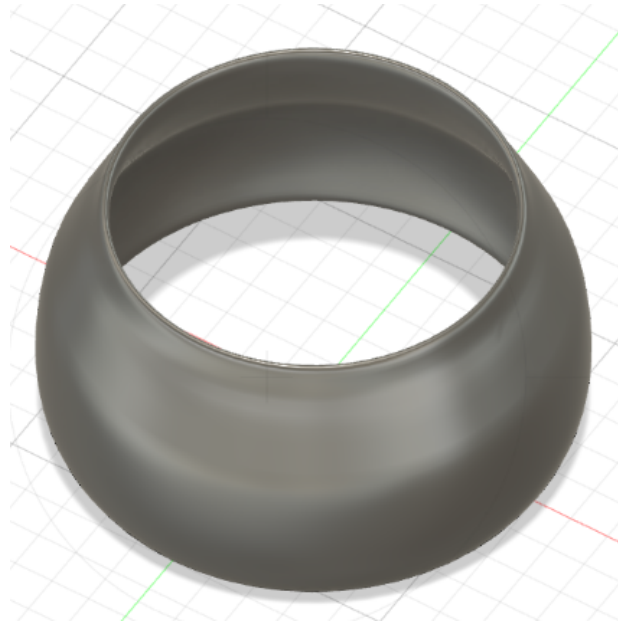
*Revolve*

[Video 2:20-4:07](#)

Under the sketching menu, use the **control point spline** tool to create a closed shape that is similar to the one below. It will be helpful to sketch this shape some distance away from the axis origin.



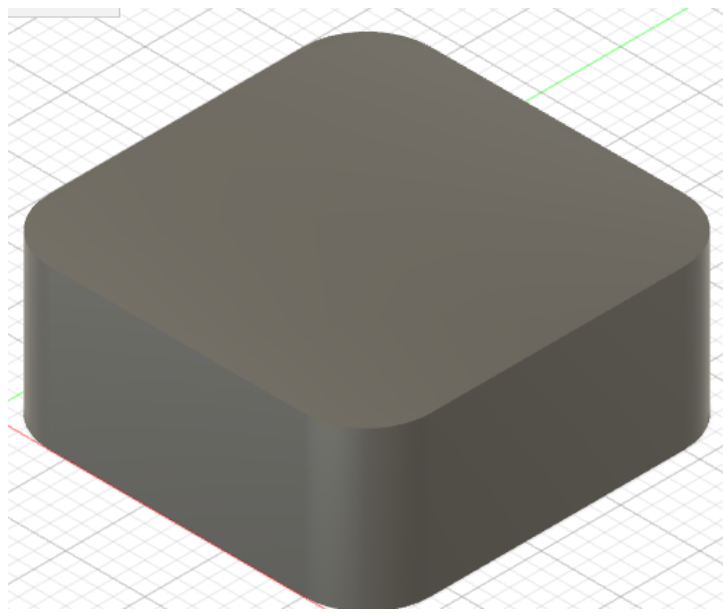
Revolve this shape to create a 3D design. Try a full revolve around the vertical axis.



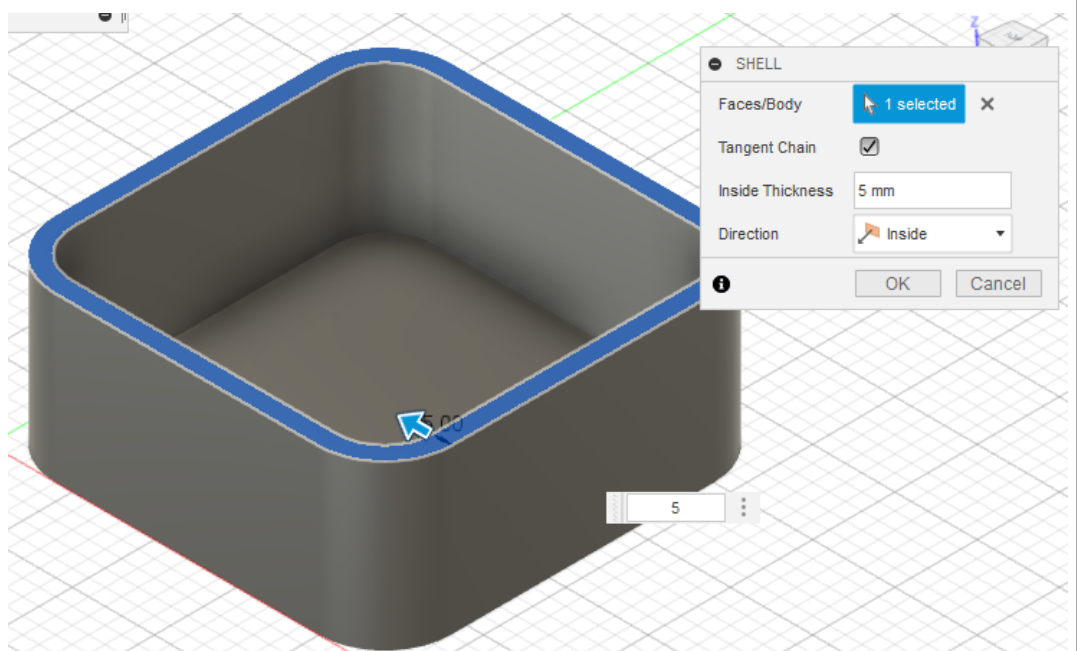
Shell

[Video 0:00-2:46](#)

Using the sketch of a circle previously made and filleted, now extrude it out 50 mm.



Then shell the top face, with an inside thickness of 5 mm.



Congratulations! You have now practiced enough skills to be able to create your own mycelium growth form!



