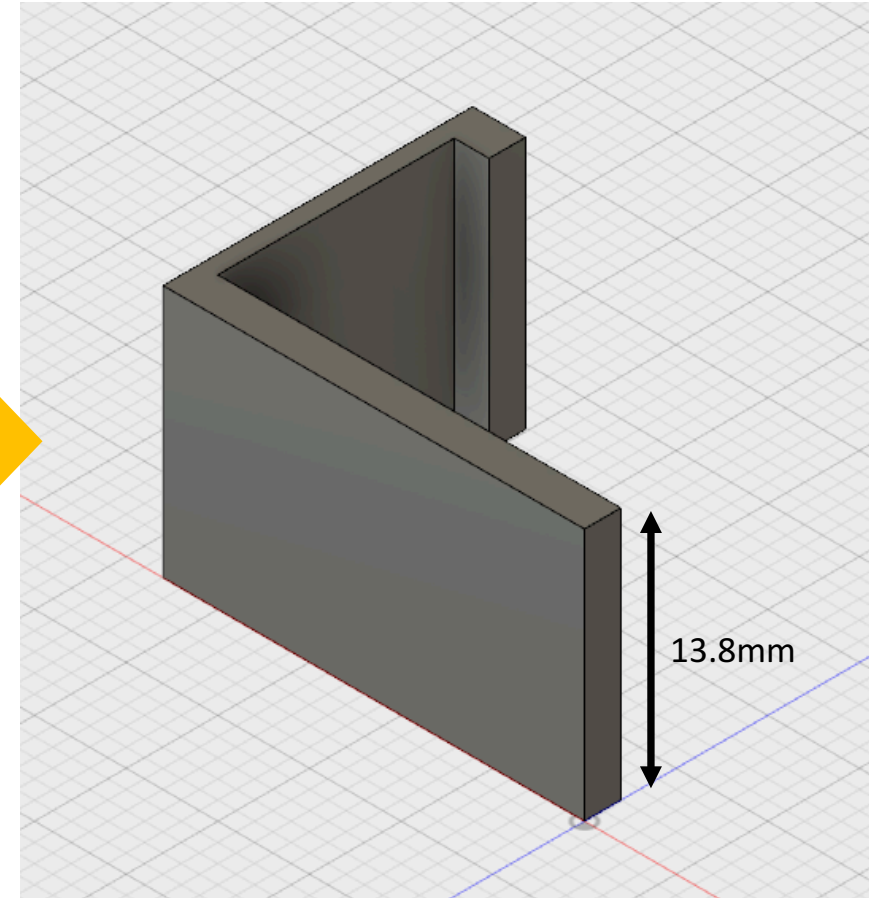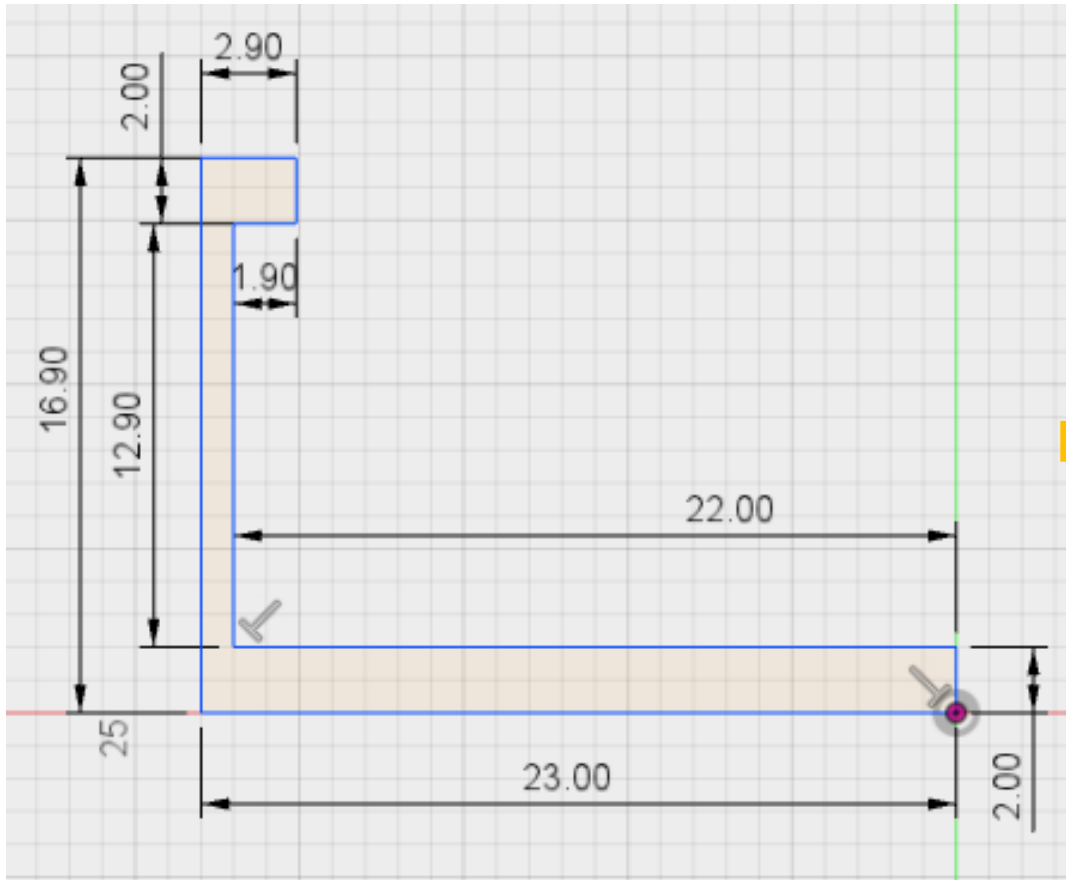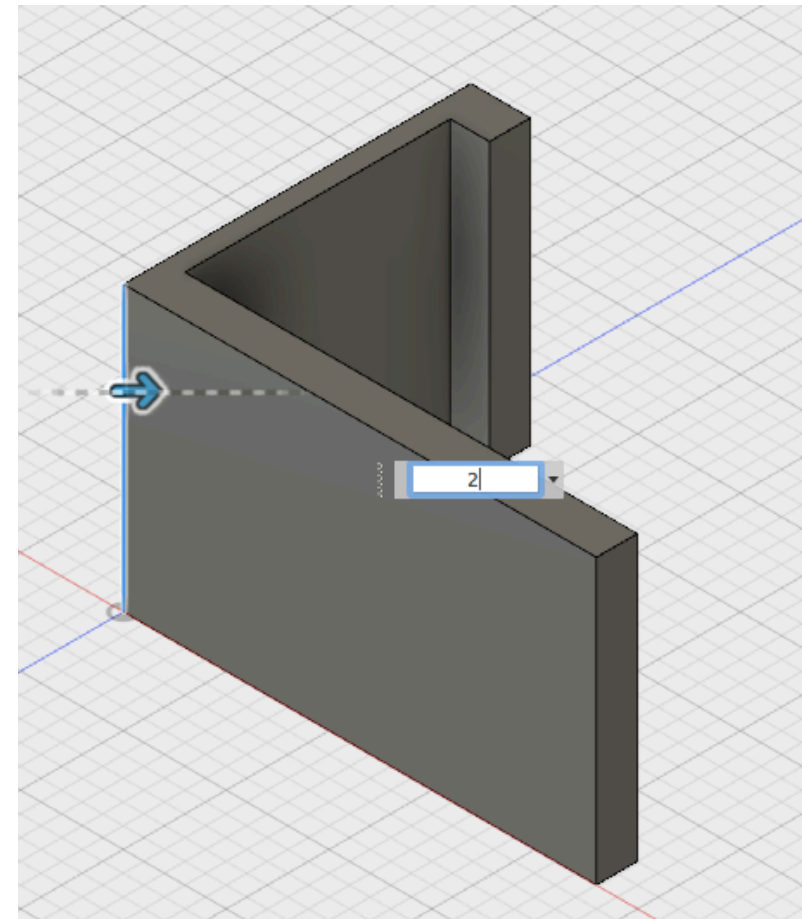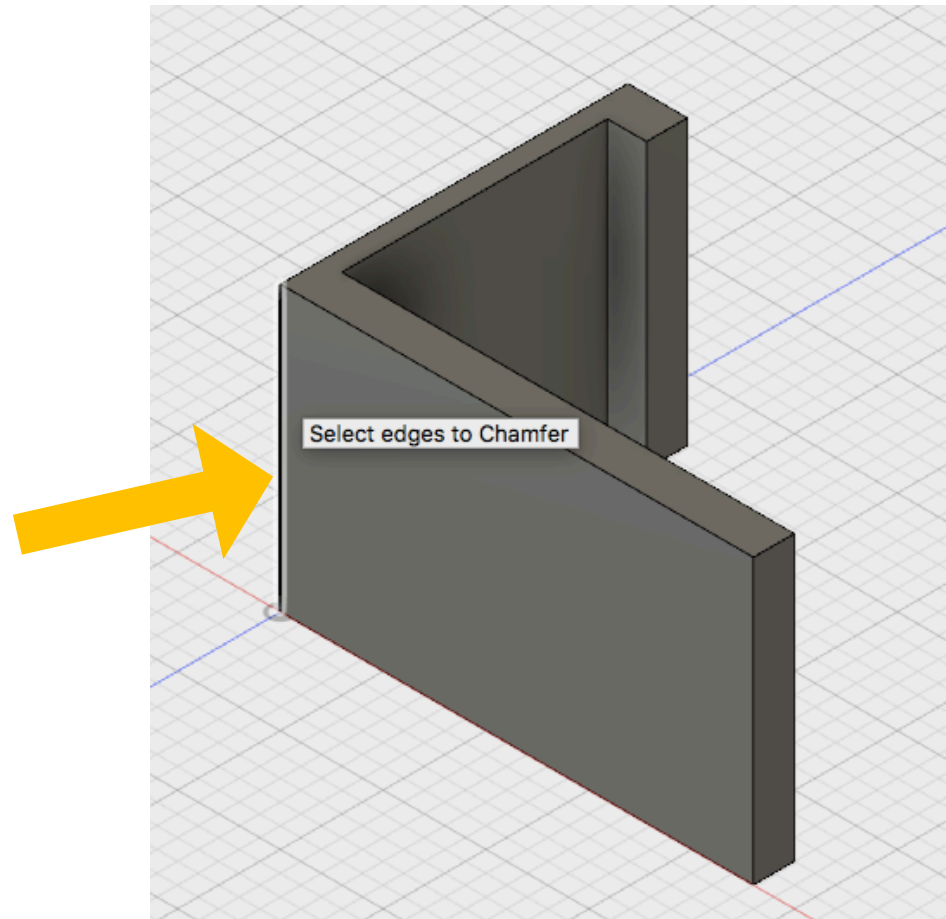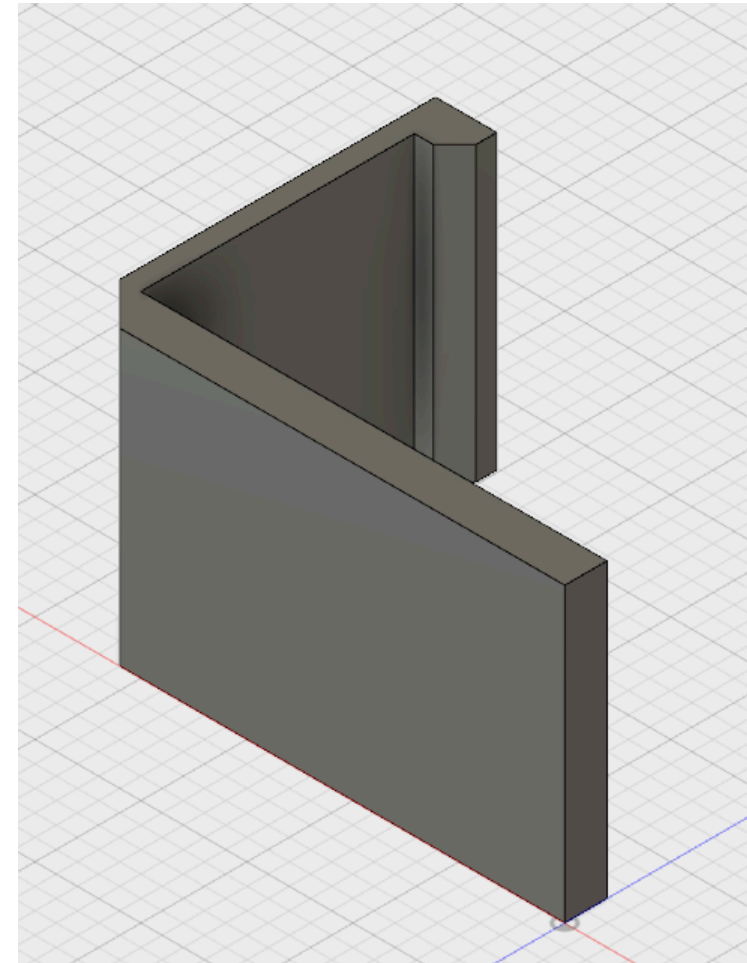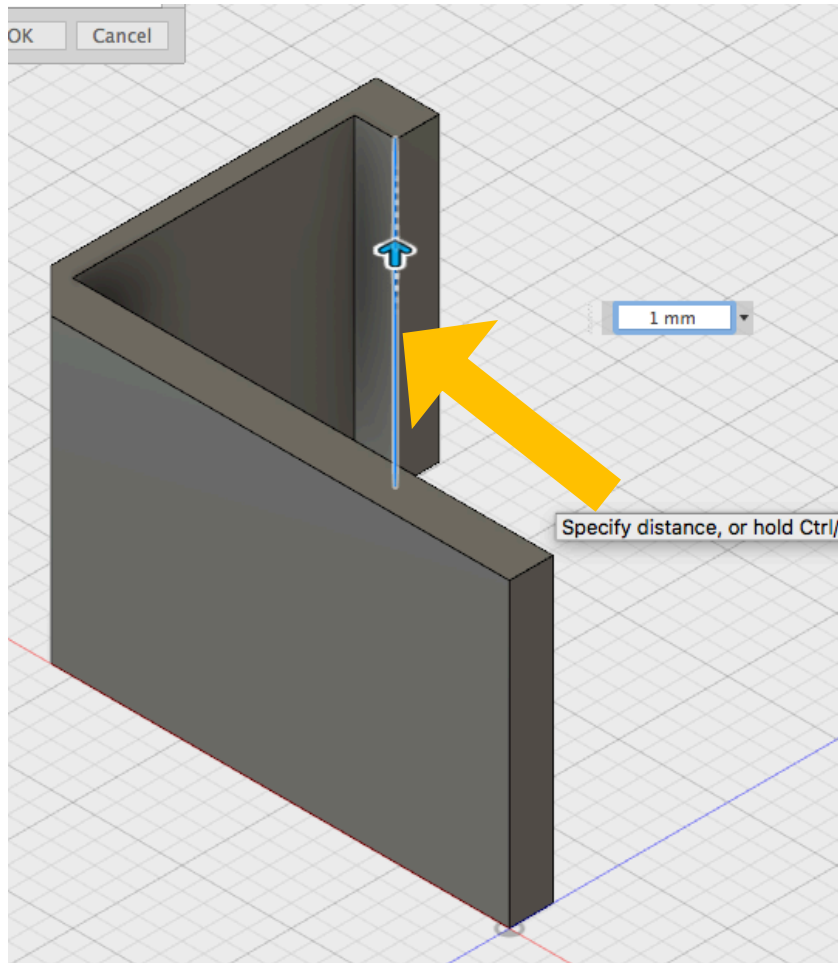# Lesson 7

The Batman Clip

Step 1: Draw a 3D object as shown below.

Step 2: Next, go to "Modify" > "Chamfer". Select the edge pointed out below, key in 2mm.
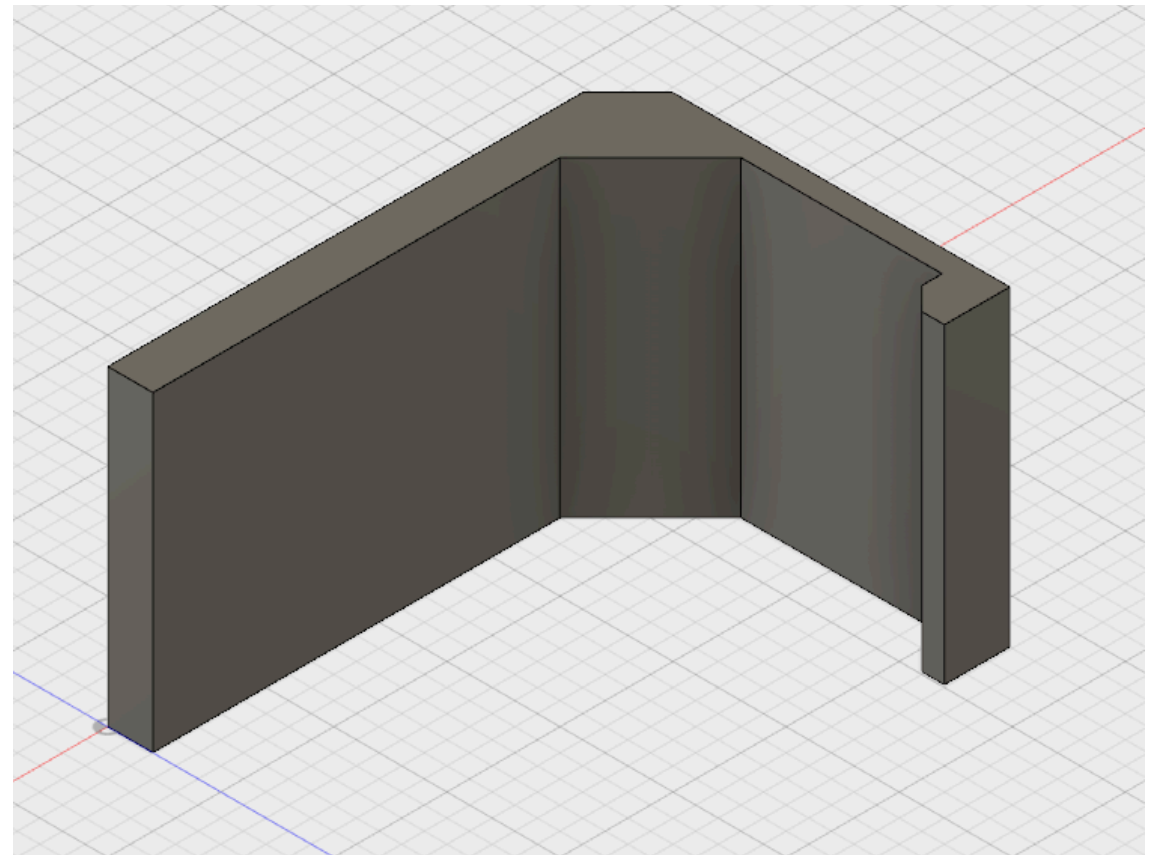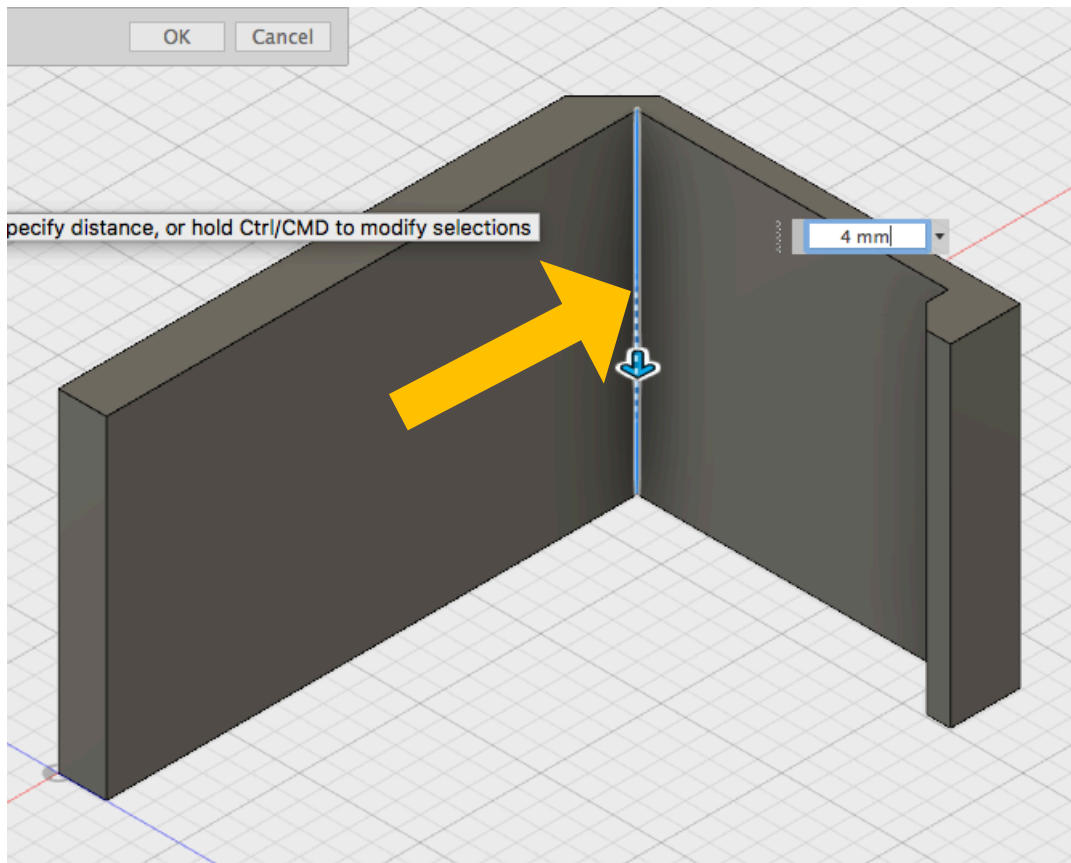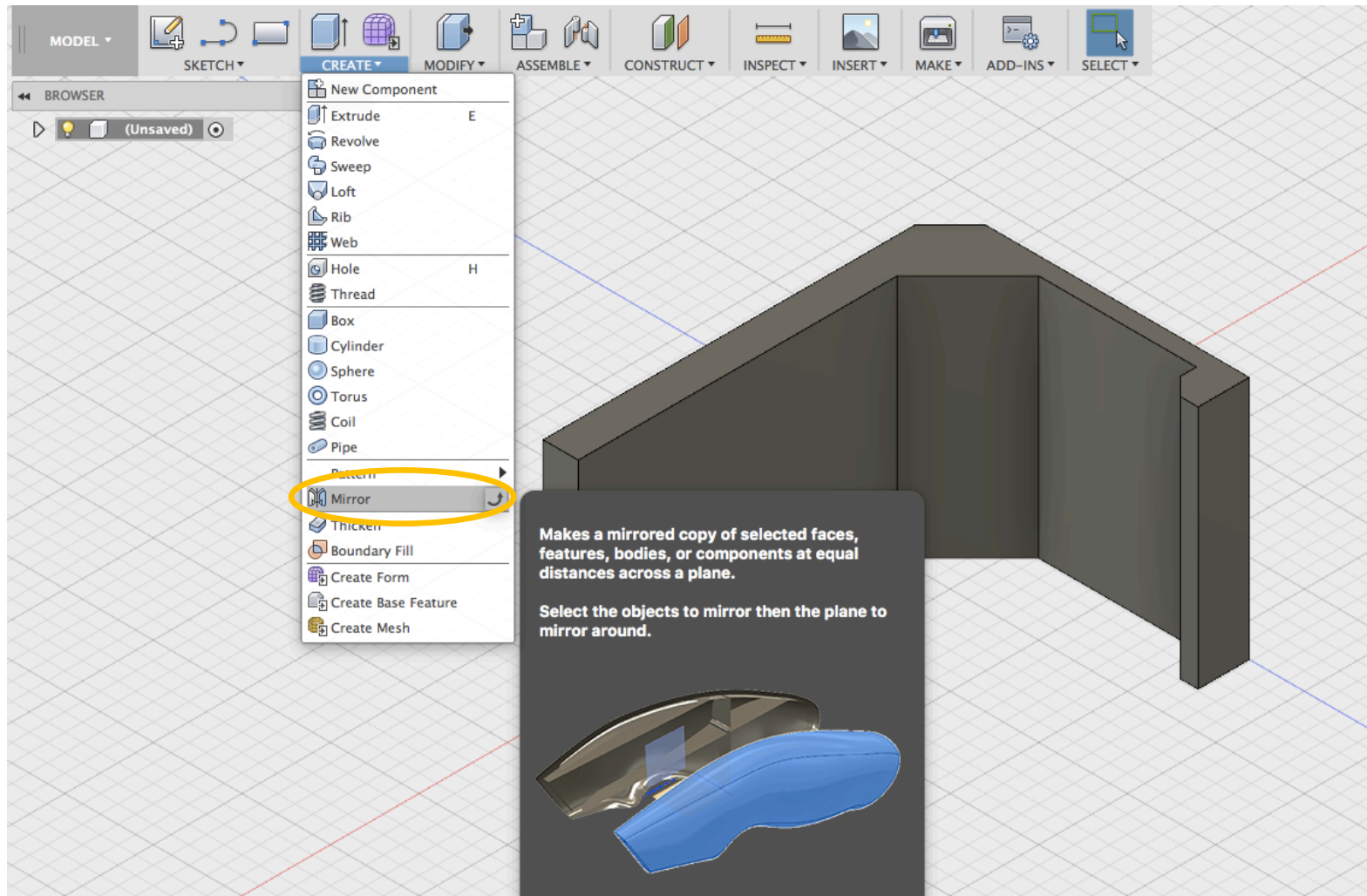
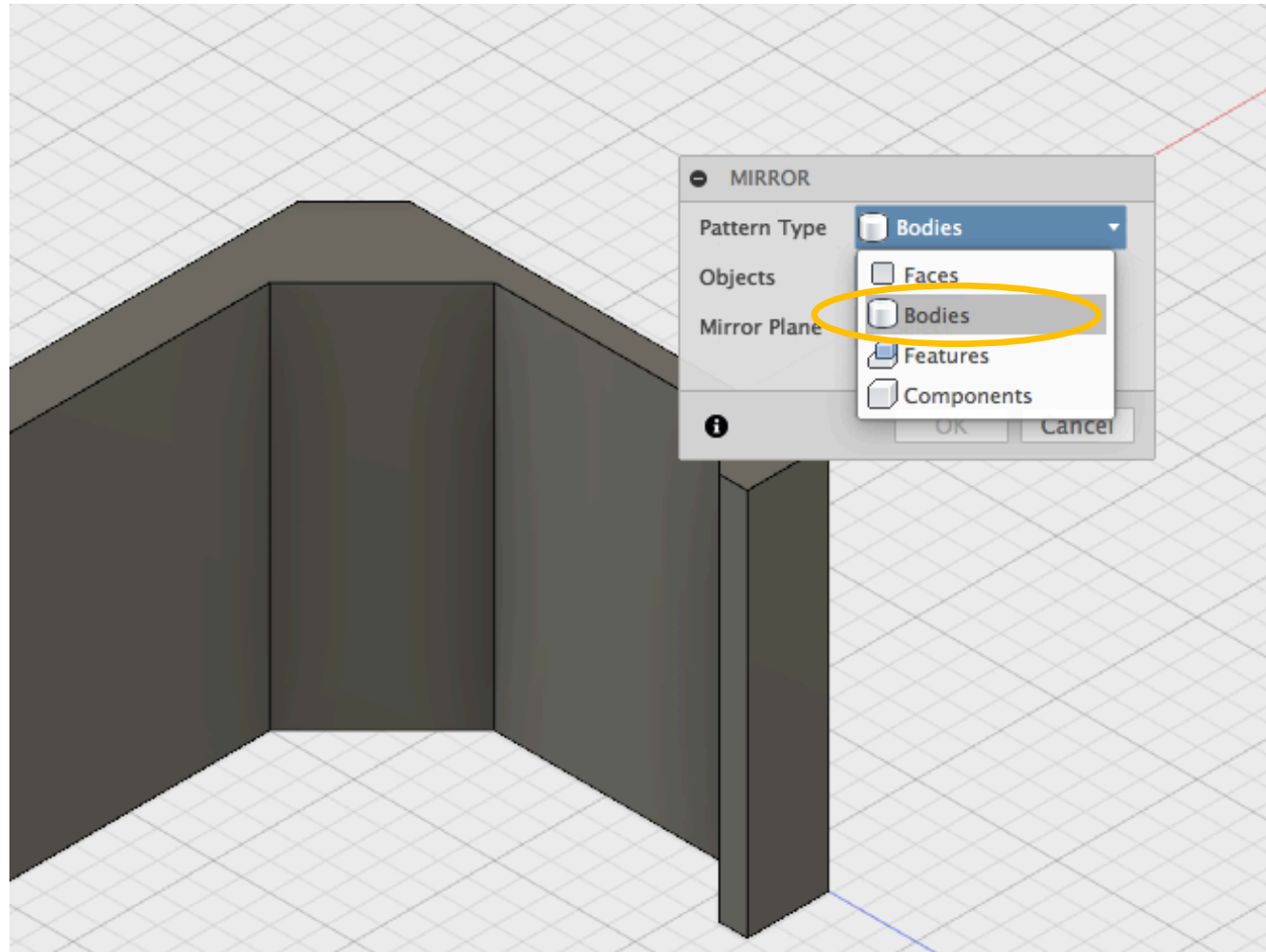# Step 3: Next, chamfer this edge by 1mm.
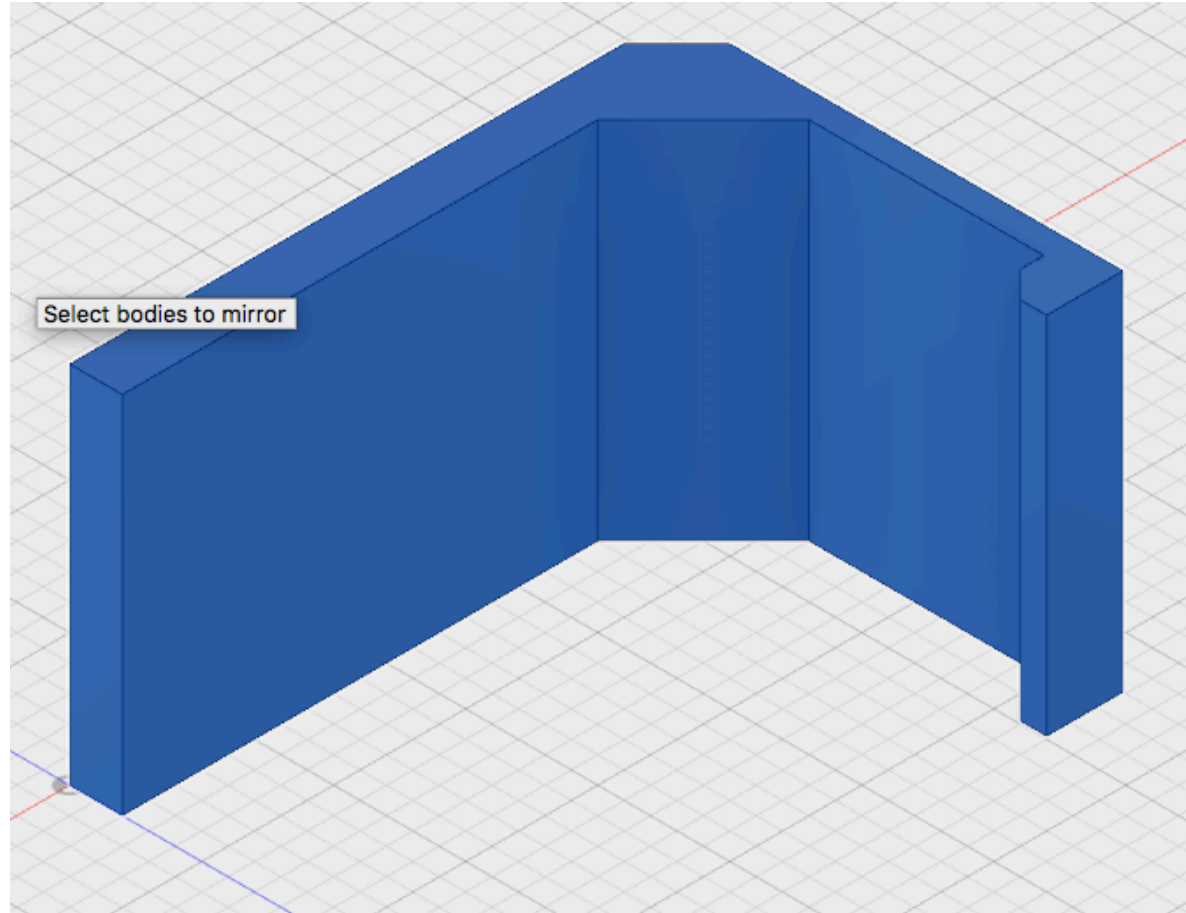
Step 4: Then, chamfer the inner edge by 4mm.
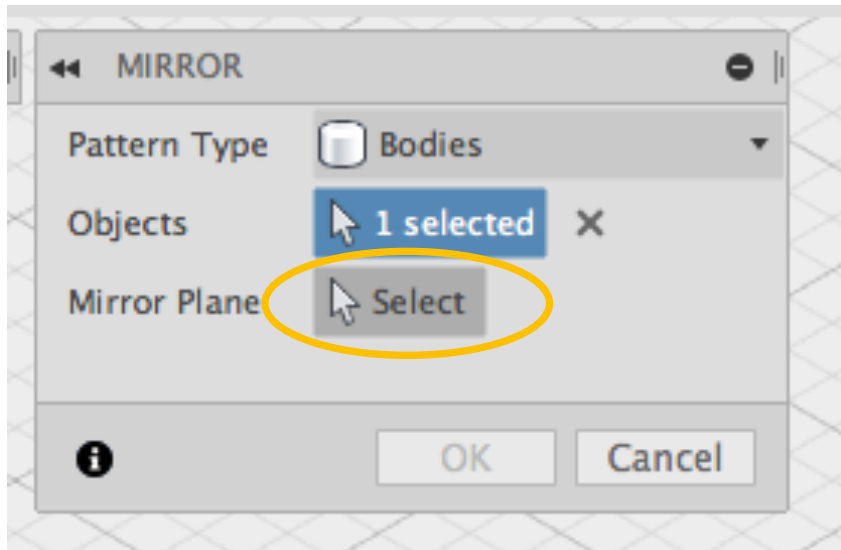
Step 5: Next, go to "Create" > "Mirror".

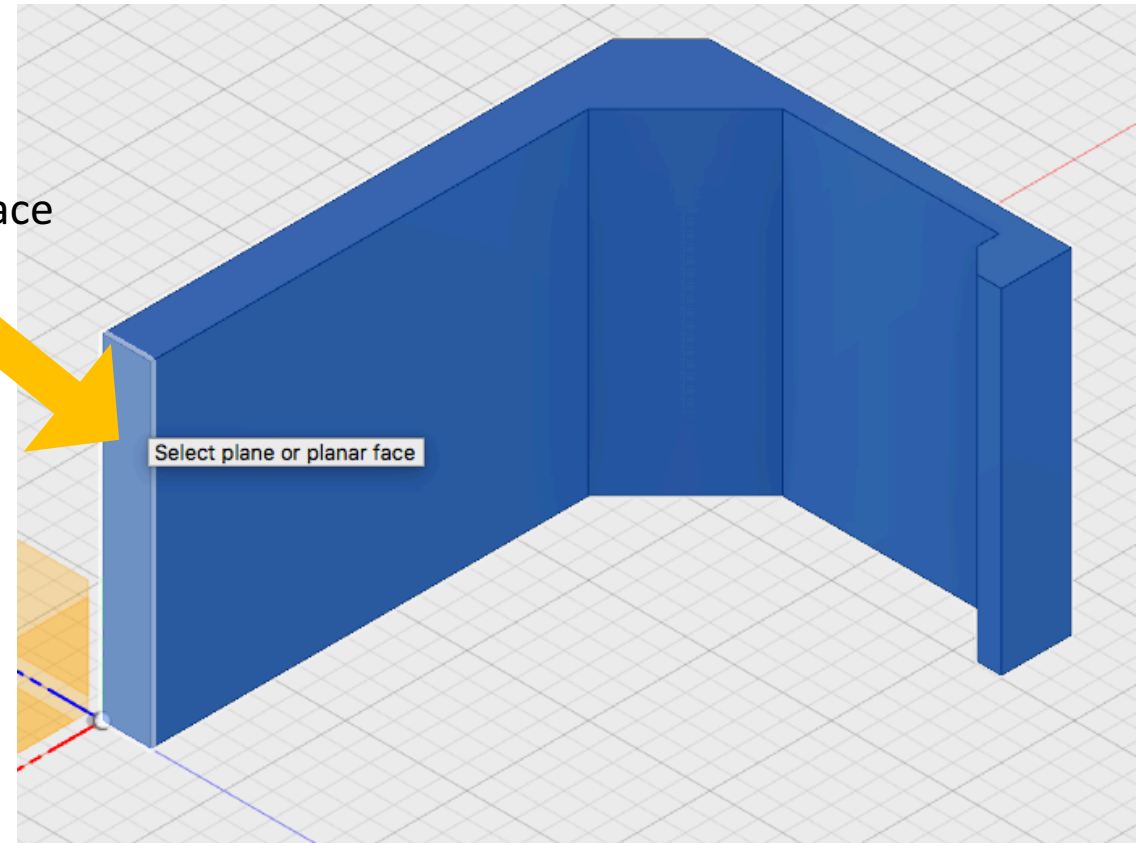# Step 6: Click "Pattern Type" selection and select "Bodies".

Step 7: Select the 3D object you just drew.
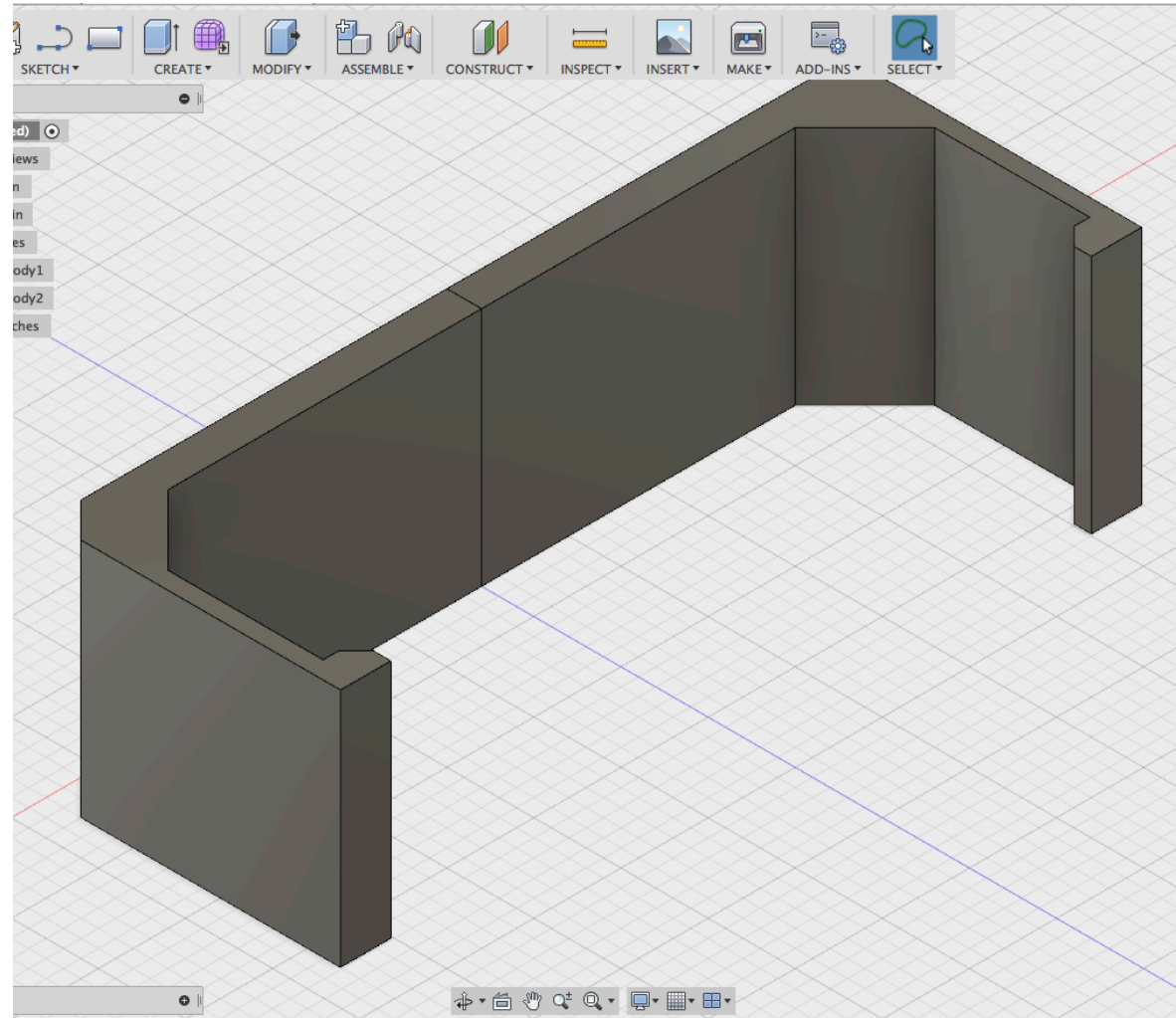
Step 8: Click "Mirror Plate", then select the area pointed out below. Hit "Enter".

Select this face

MIRROR

Pattern Type — Bodies

Objects — 1 selected

Mirror Plane — Select

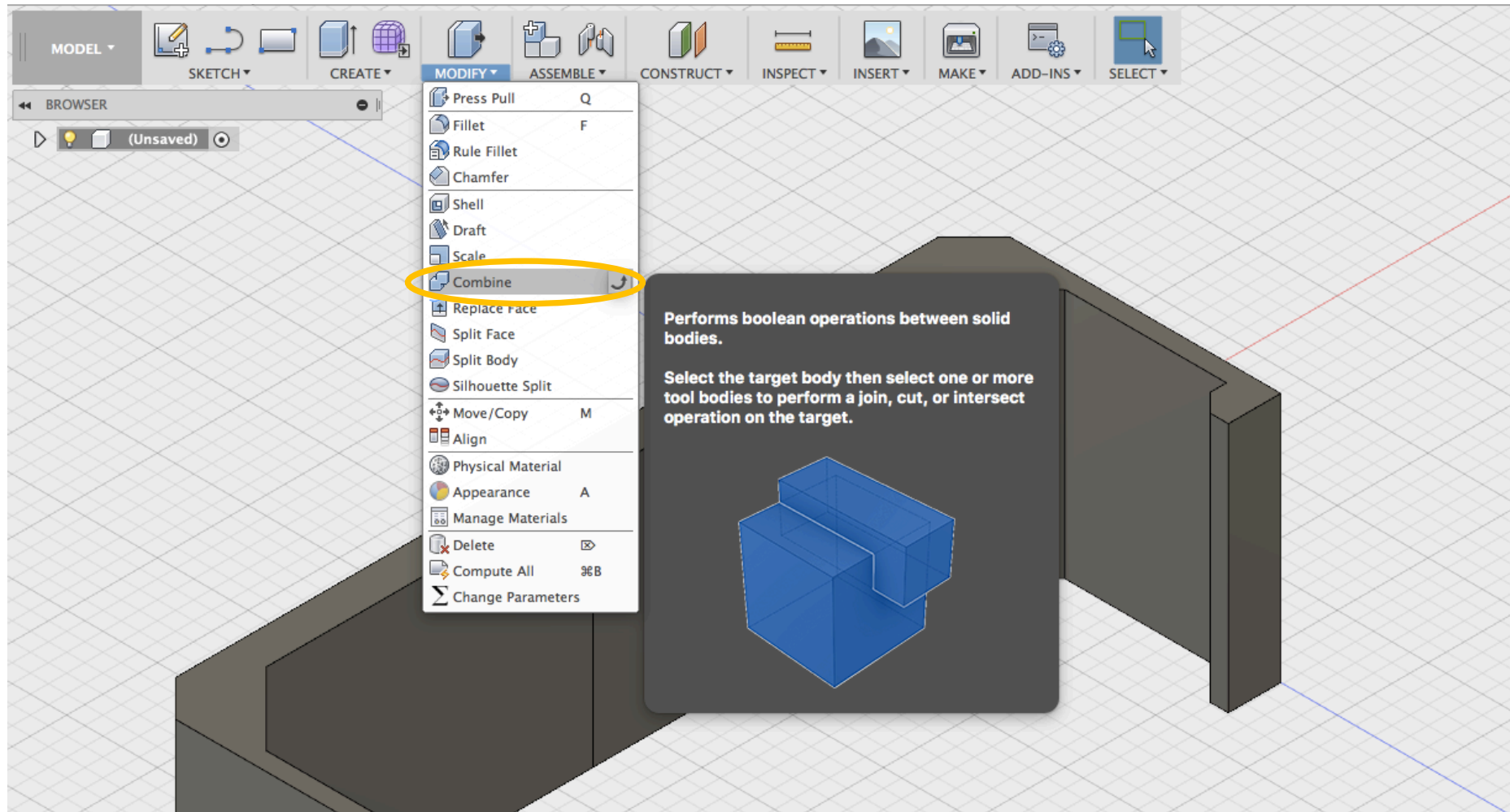OK   Cancel

Select plane or planar face
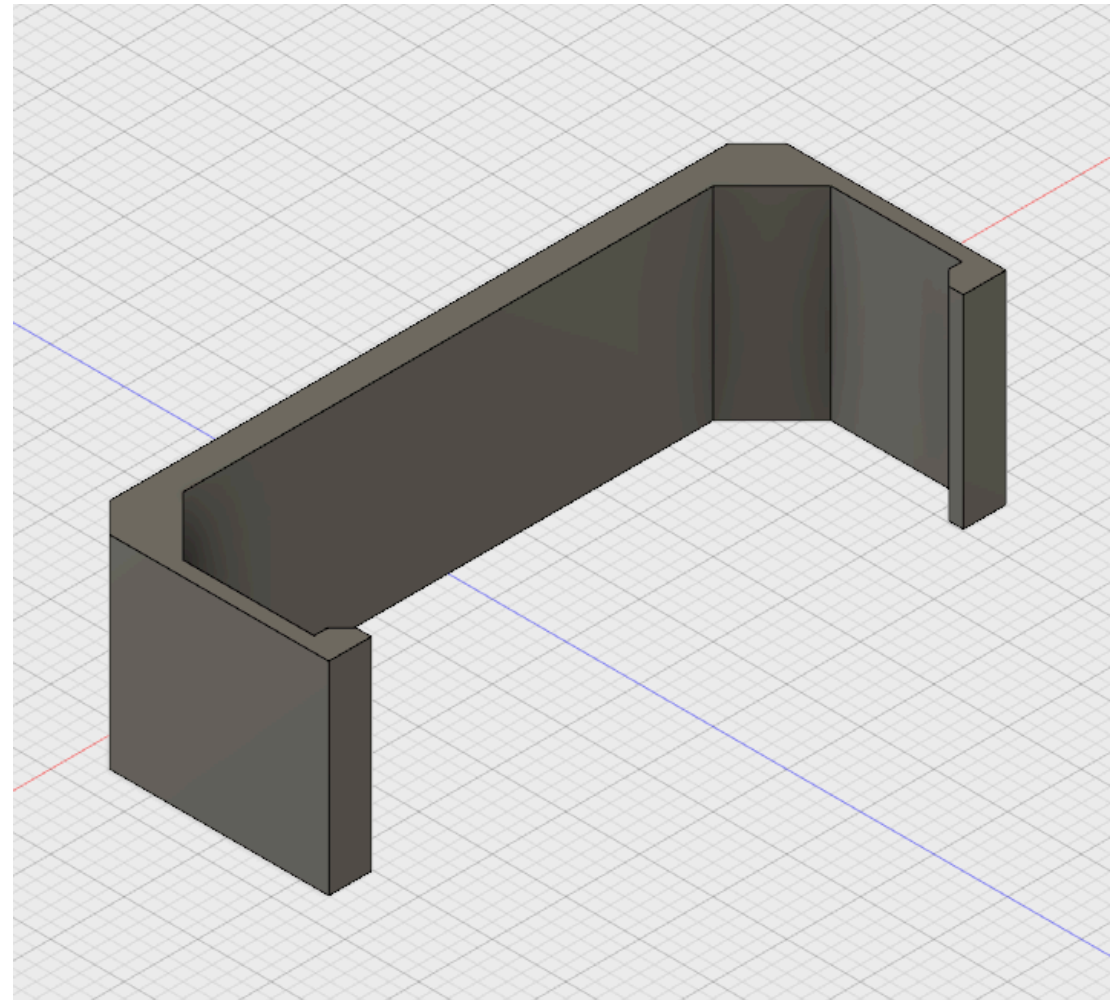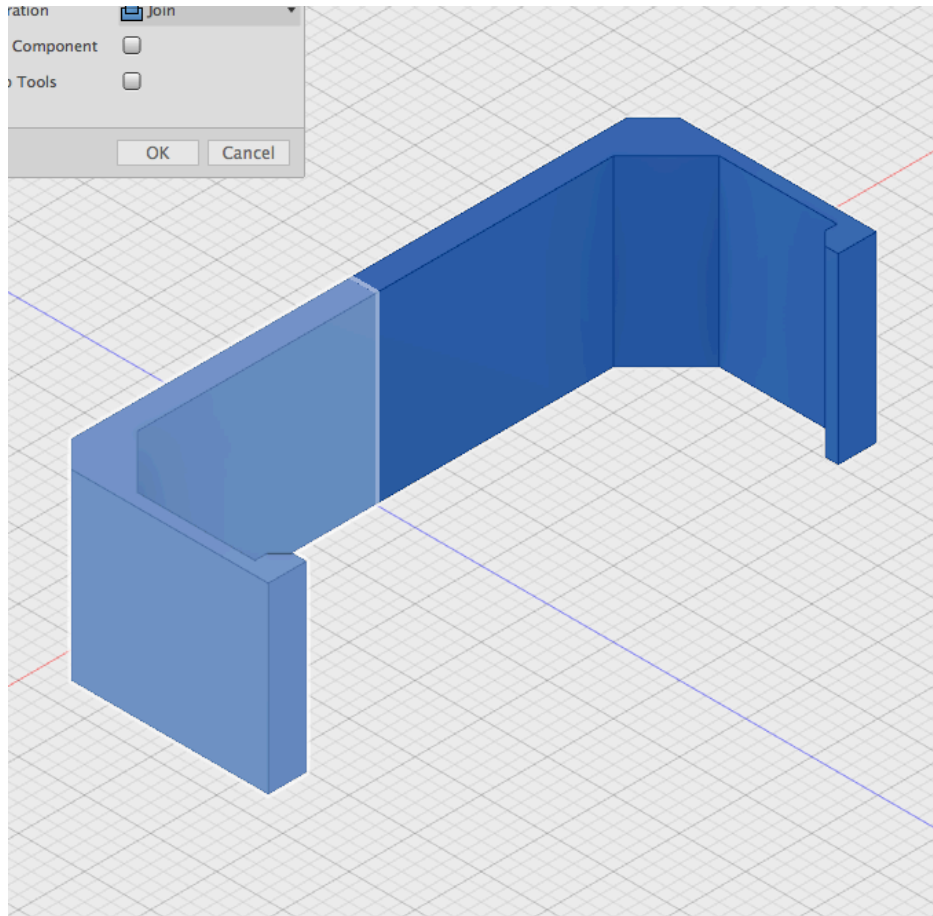
Step 9: You should see something like this:

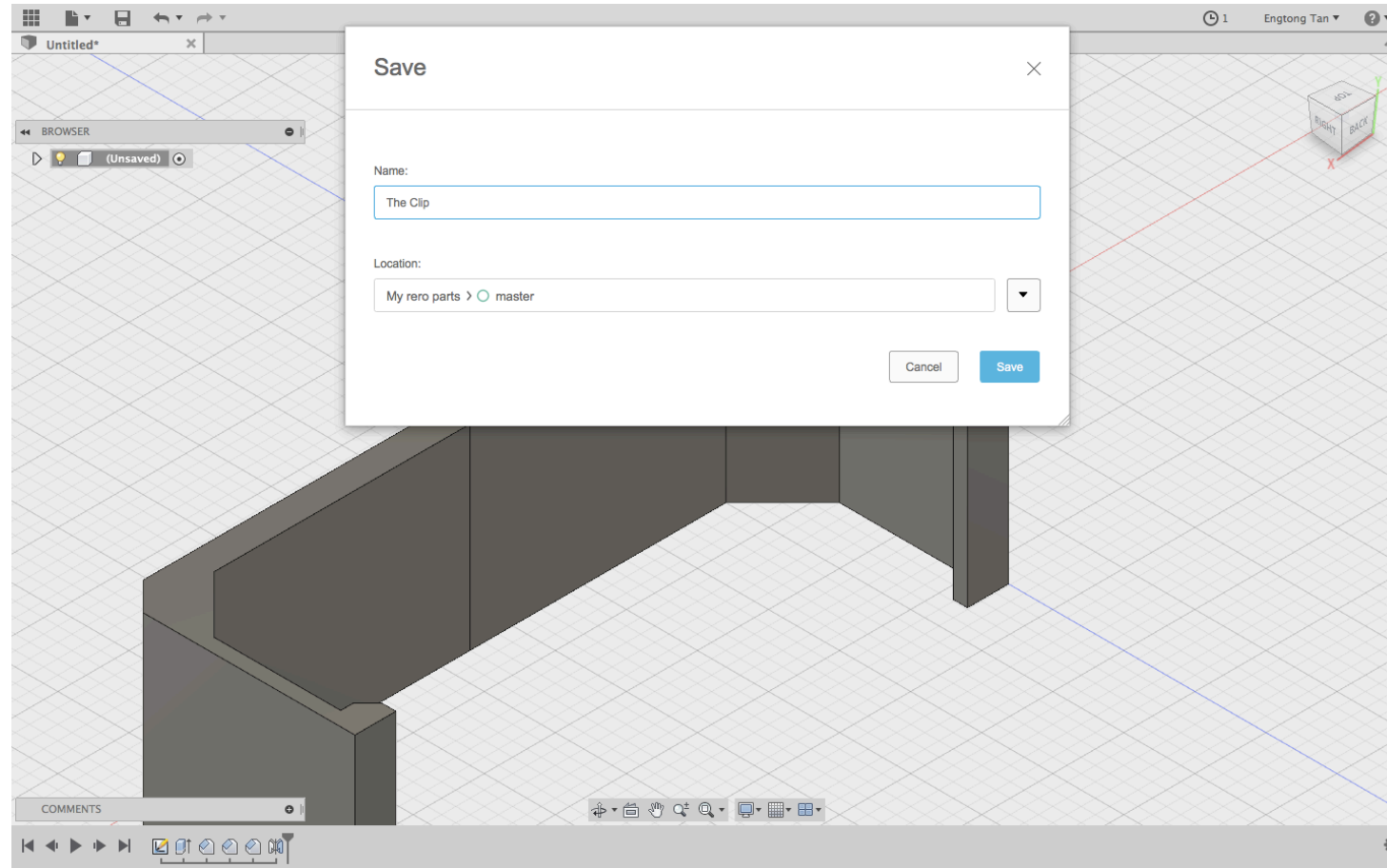# Step 10: Go to "Modify" > "Combine".
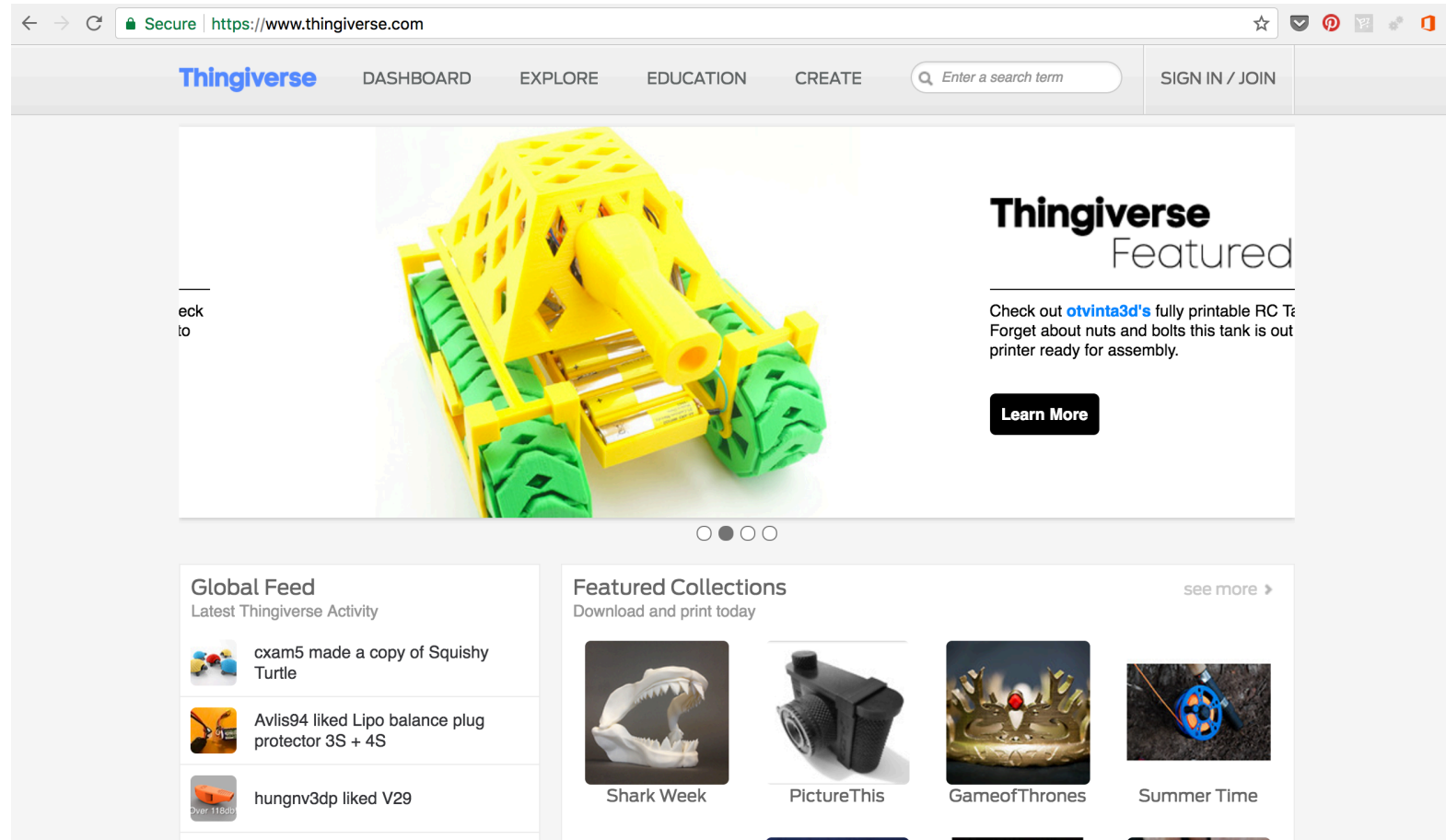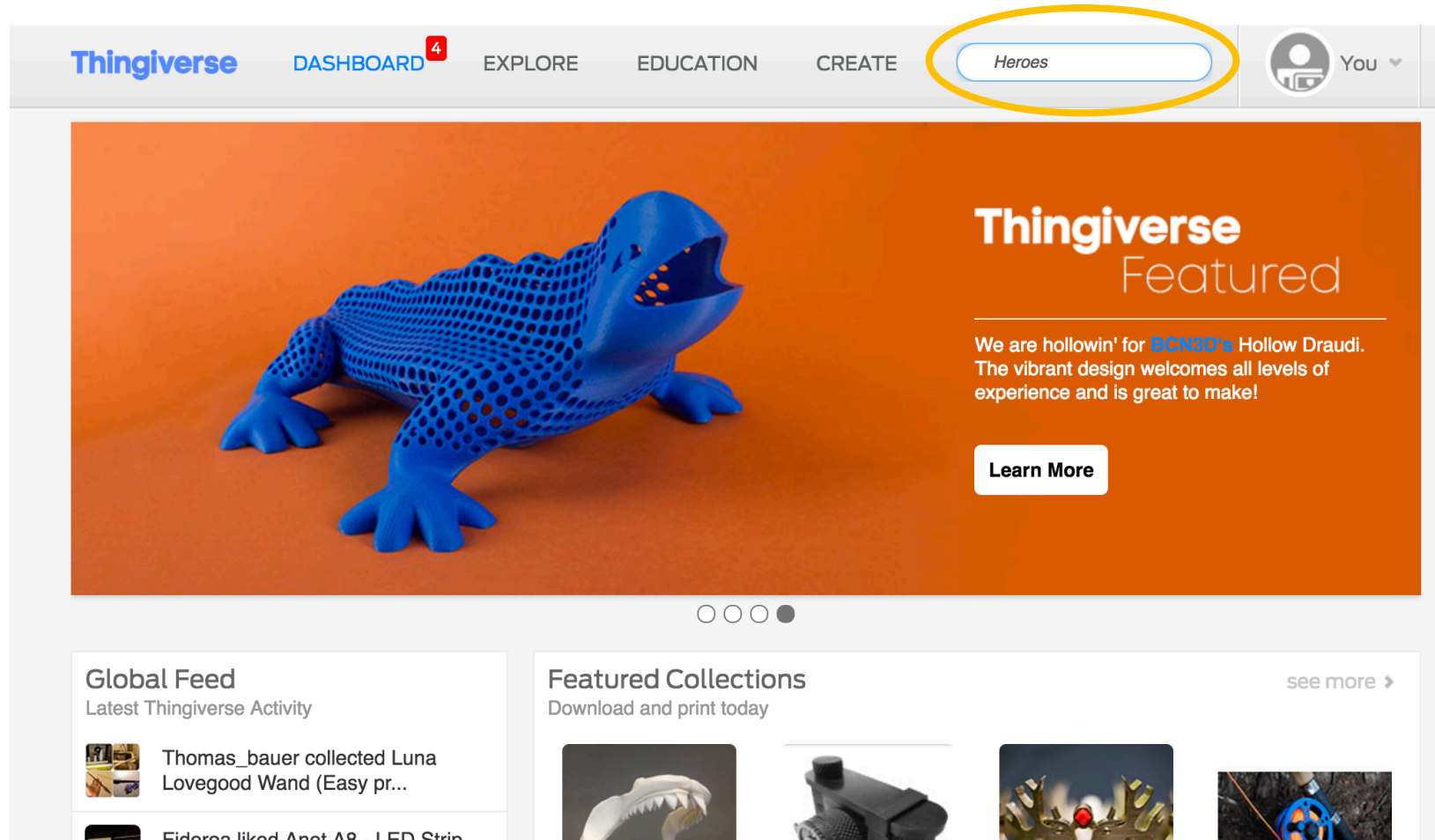
Step 11: Select both parts, then hit "Enter".

Step 12: Save your design before you proceed.

Step 13: Next, we are going to download foreign parts from www.thingiverse.com.

Step 14: Type "Heroes" at the search box, then hit "Enter".

Step 15: From the search result, select the first listing.

Step 16: Scroll down, click the second tab: "Things Files".
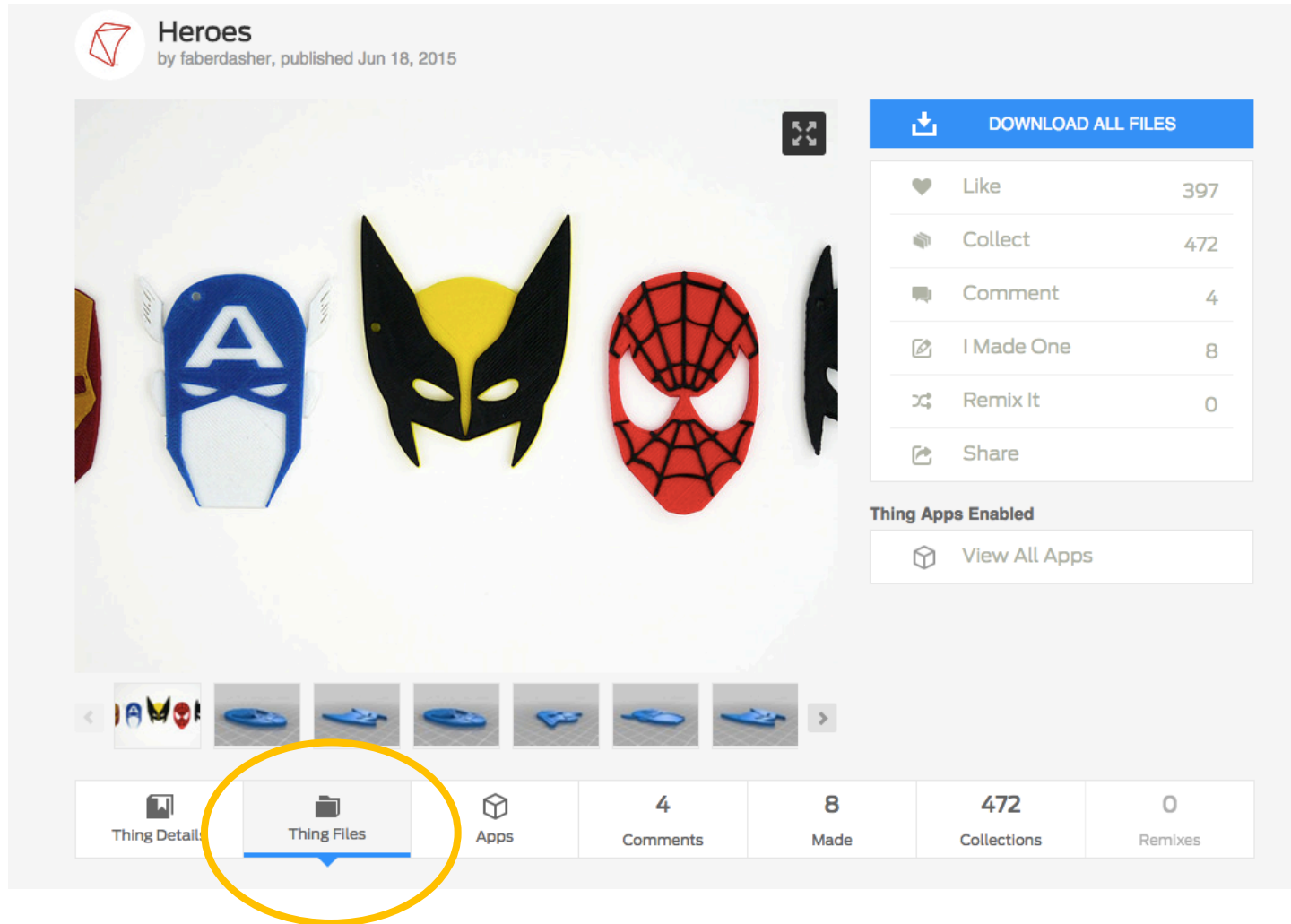
Step 17: Double-click on the character that you like to begin download. (STL file)

Step 18: Go back to Fusion 360. Click ▦ locat at the top-left corner.
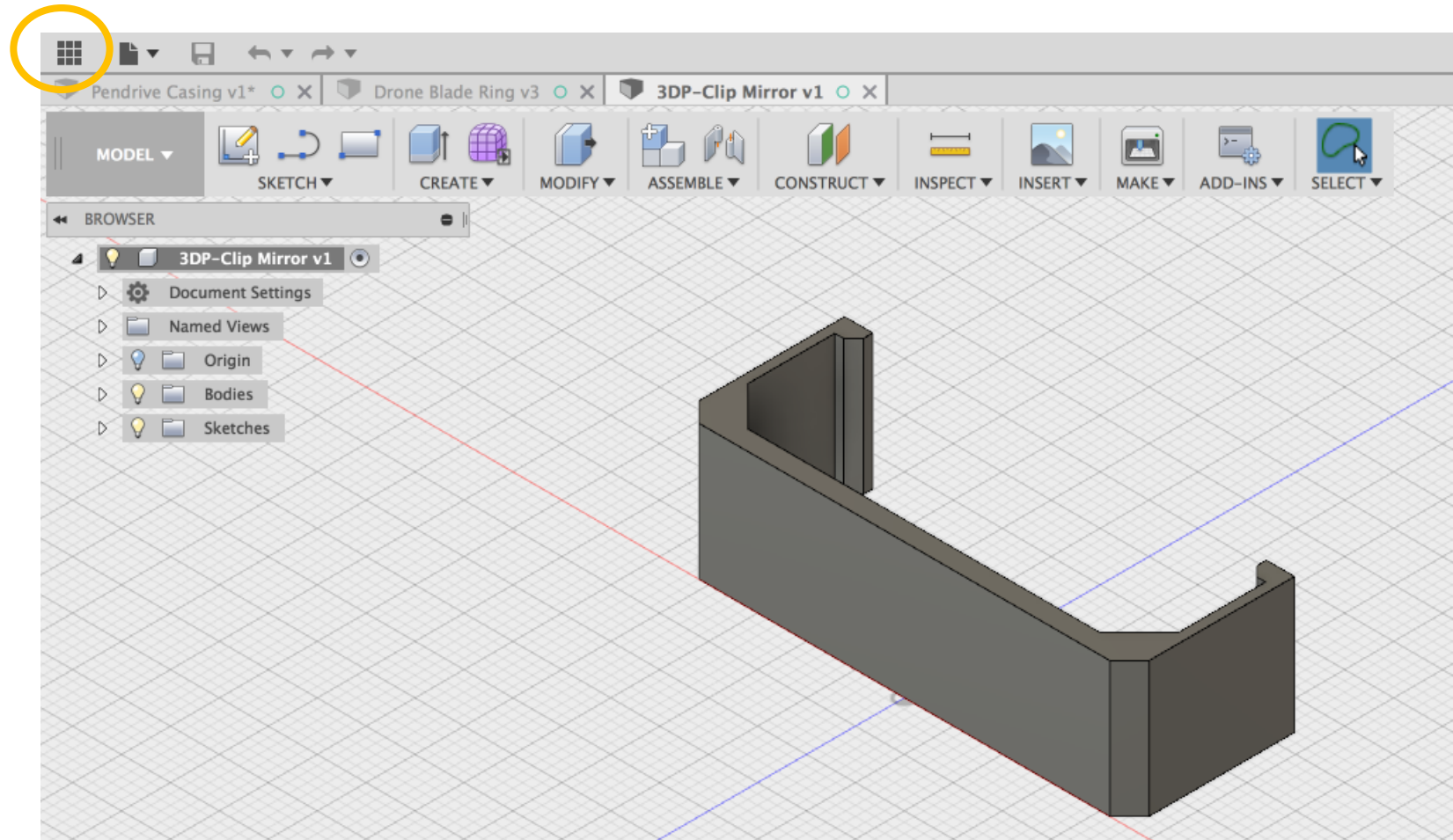
Step 19: Click "Upload".
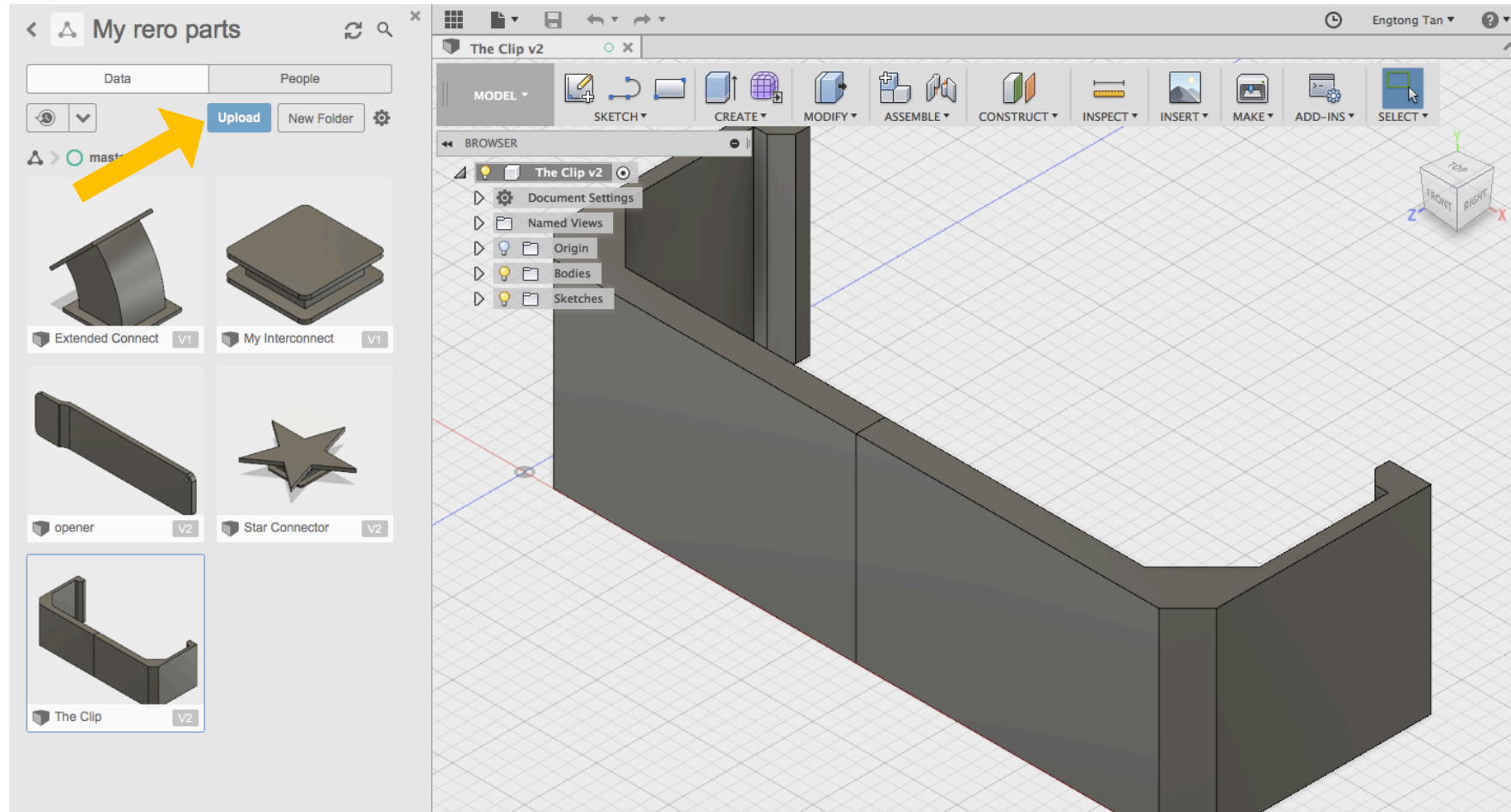
Step 20: Click "Select file". Select the file that you have downloaded just now.
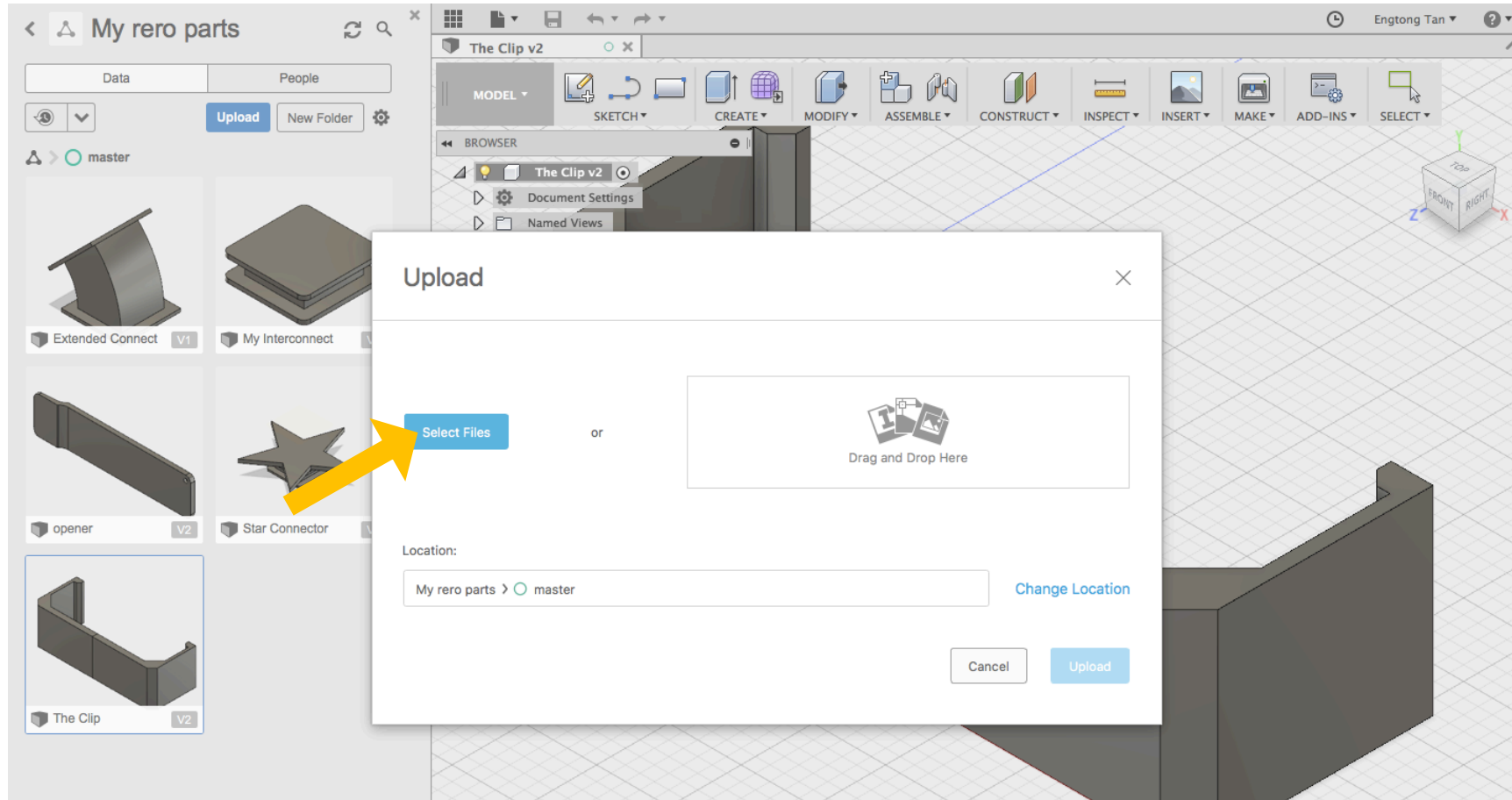
Step 21: Click "Upload".

Upload ✕

Select Files   or

Drag and Drop Here

Name	Type	Size	Remove
batman_keyring	STL	29 kB	✕

Location:

Chin's First Project 〉◯ master   Change Location

Cancel   Upload

Step 22: Click "Close" when download is complete.

Job Status

| Uploads | Simulations |

Name	Status	Action
batman_keyring.stl	Complete	

Close

Step 23: You can find your downloaded character at the left panel. Right-click on it then select "Insert into the Current Design".
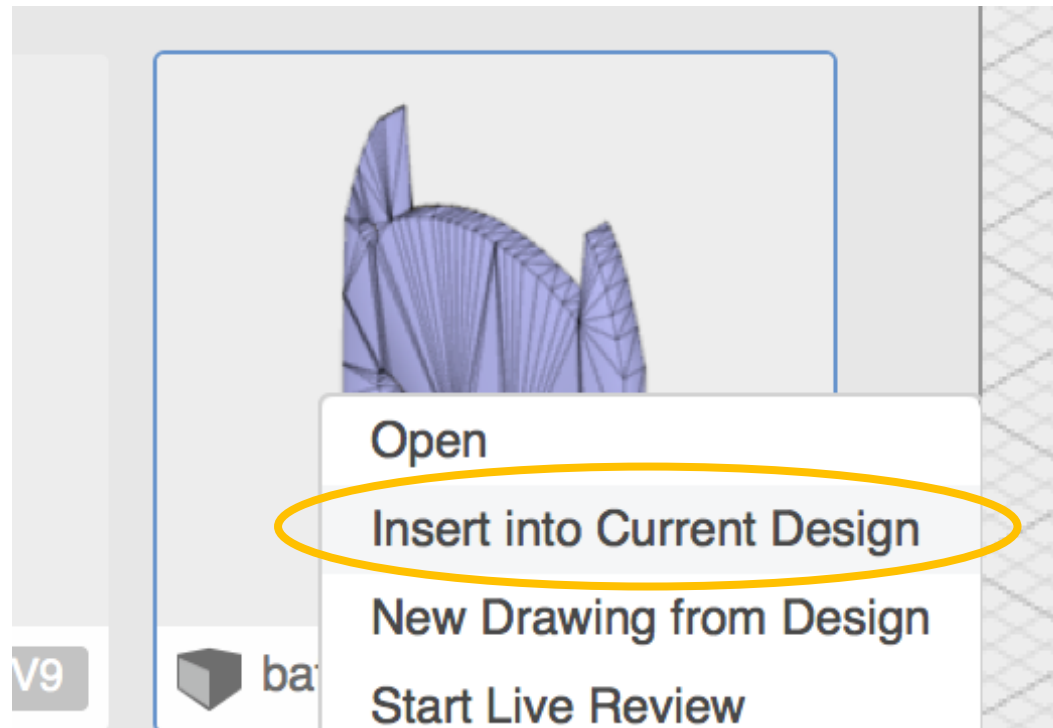
Step 24: Click "OK".
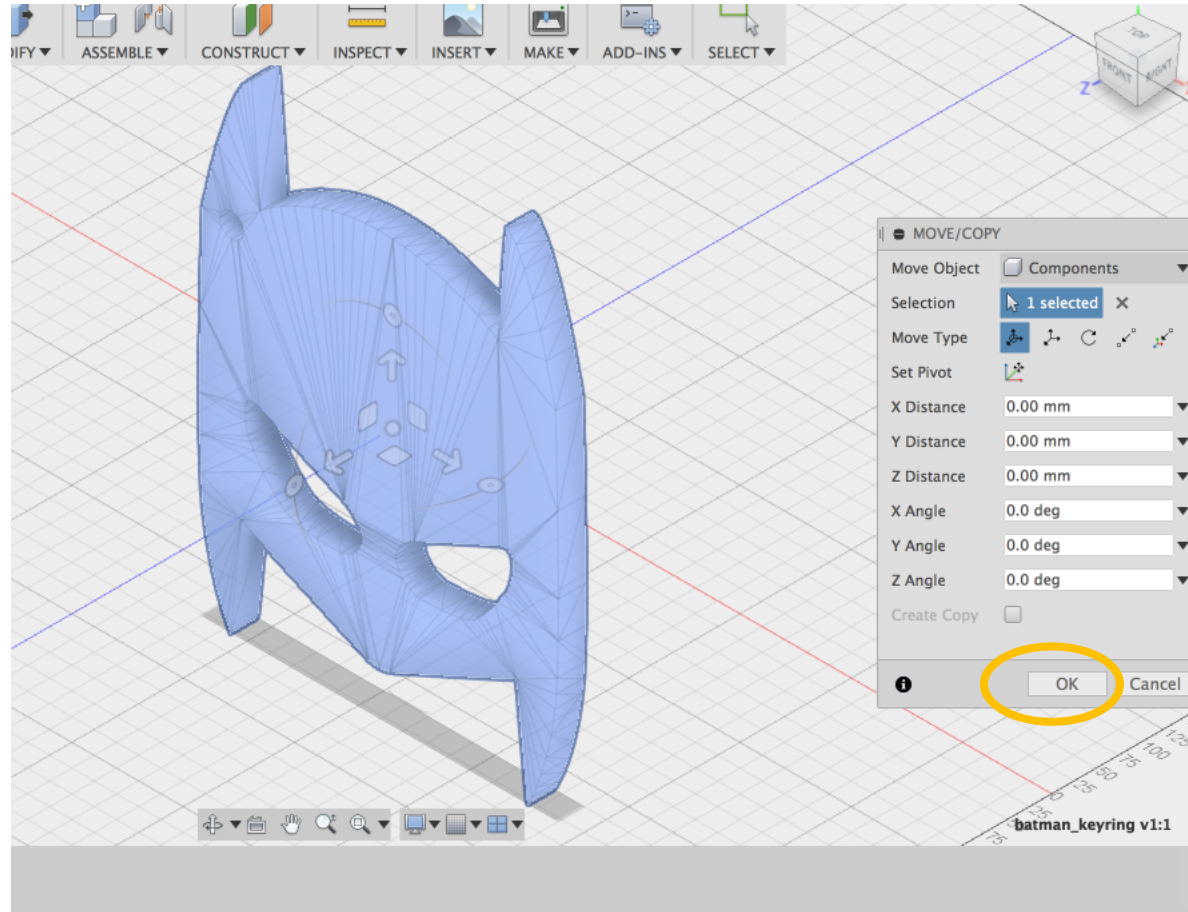
Step 25: Right-click the 'batman' tab on the browser, then select "Break Link".
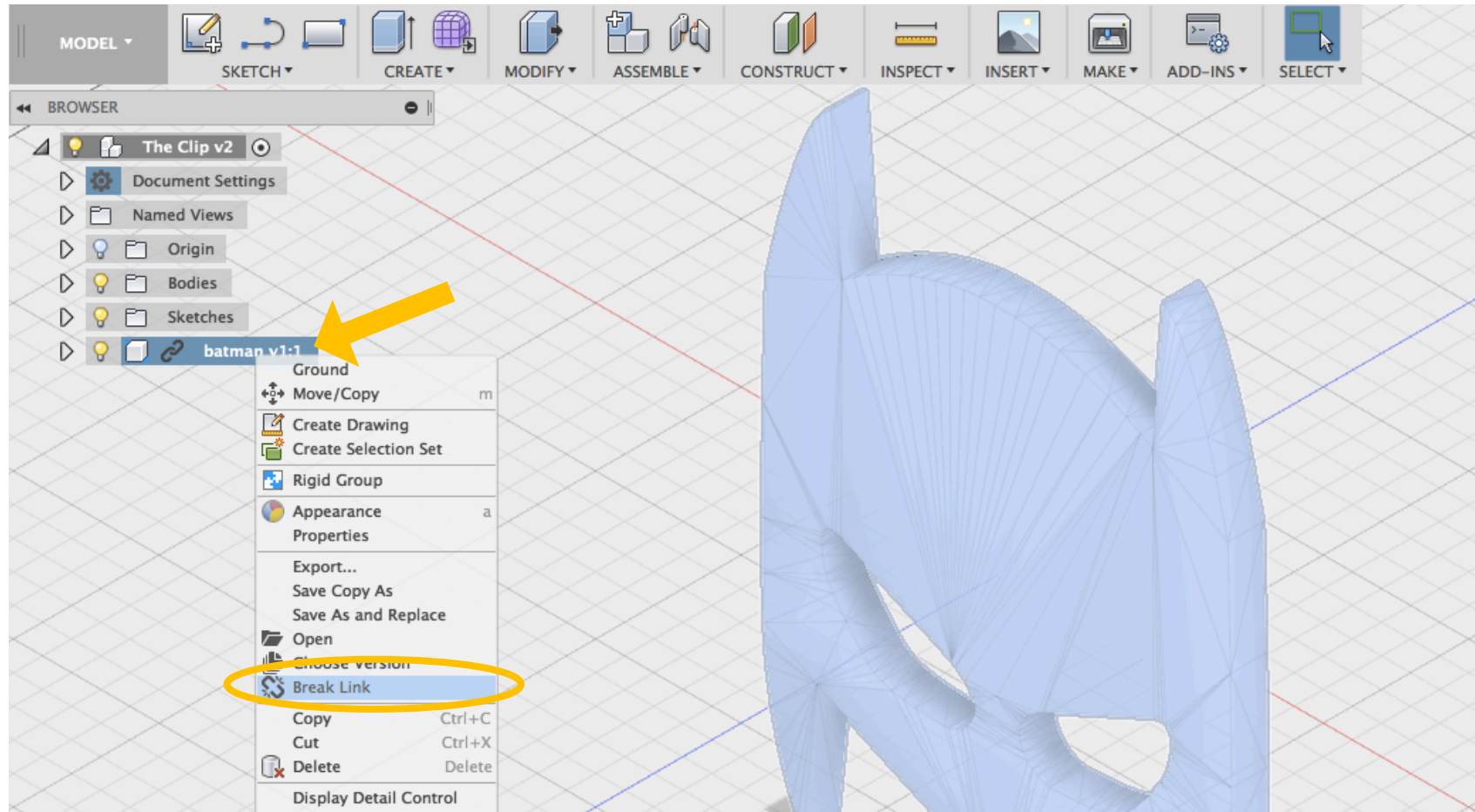
Step 26: Next, right-click "Document Settings" on the browser then click "Do not capture Design History".
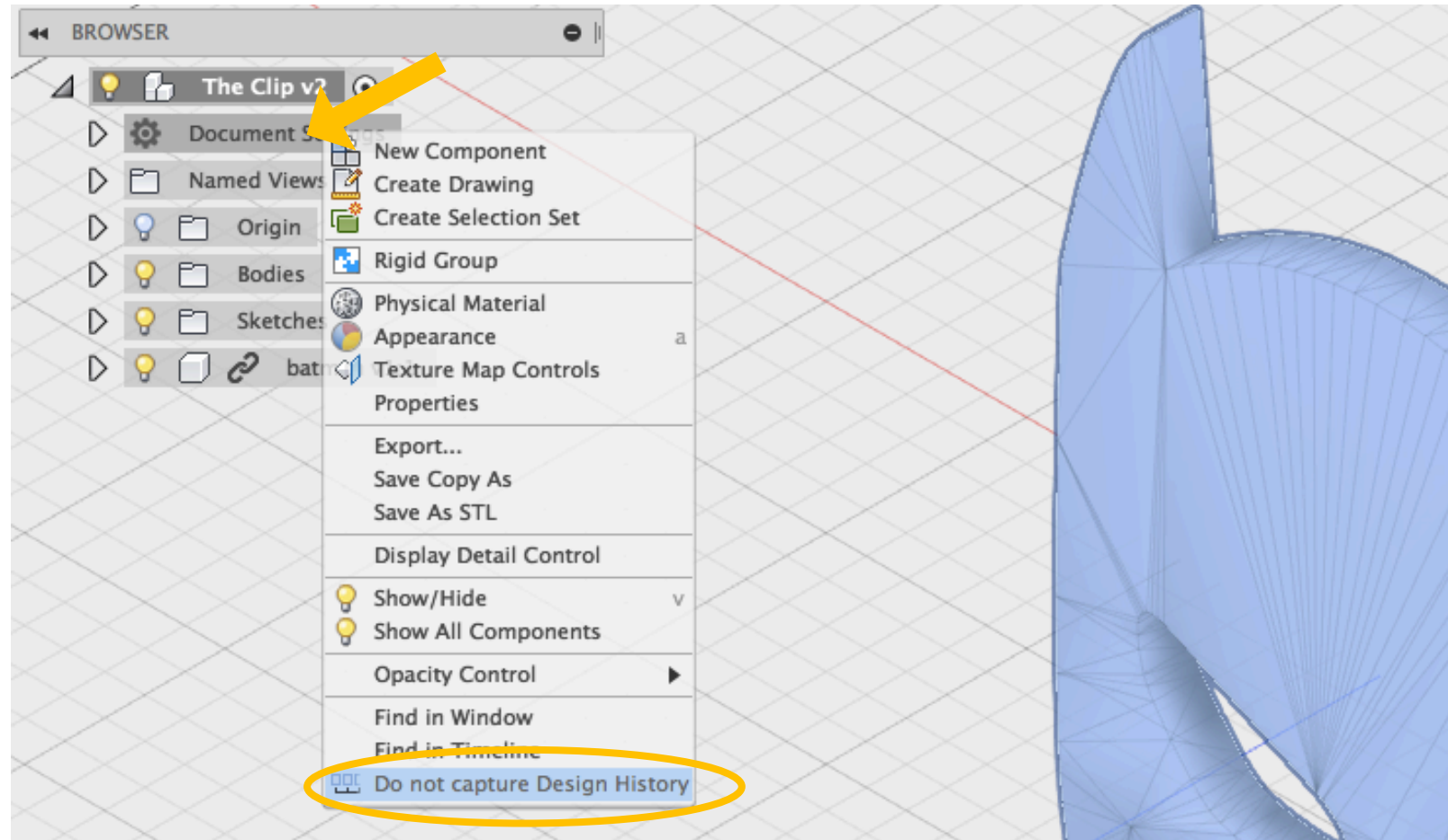
Step 27: Click ▷ to expand the "batman" and its "Bodies" tab on the browser.
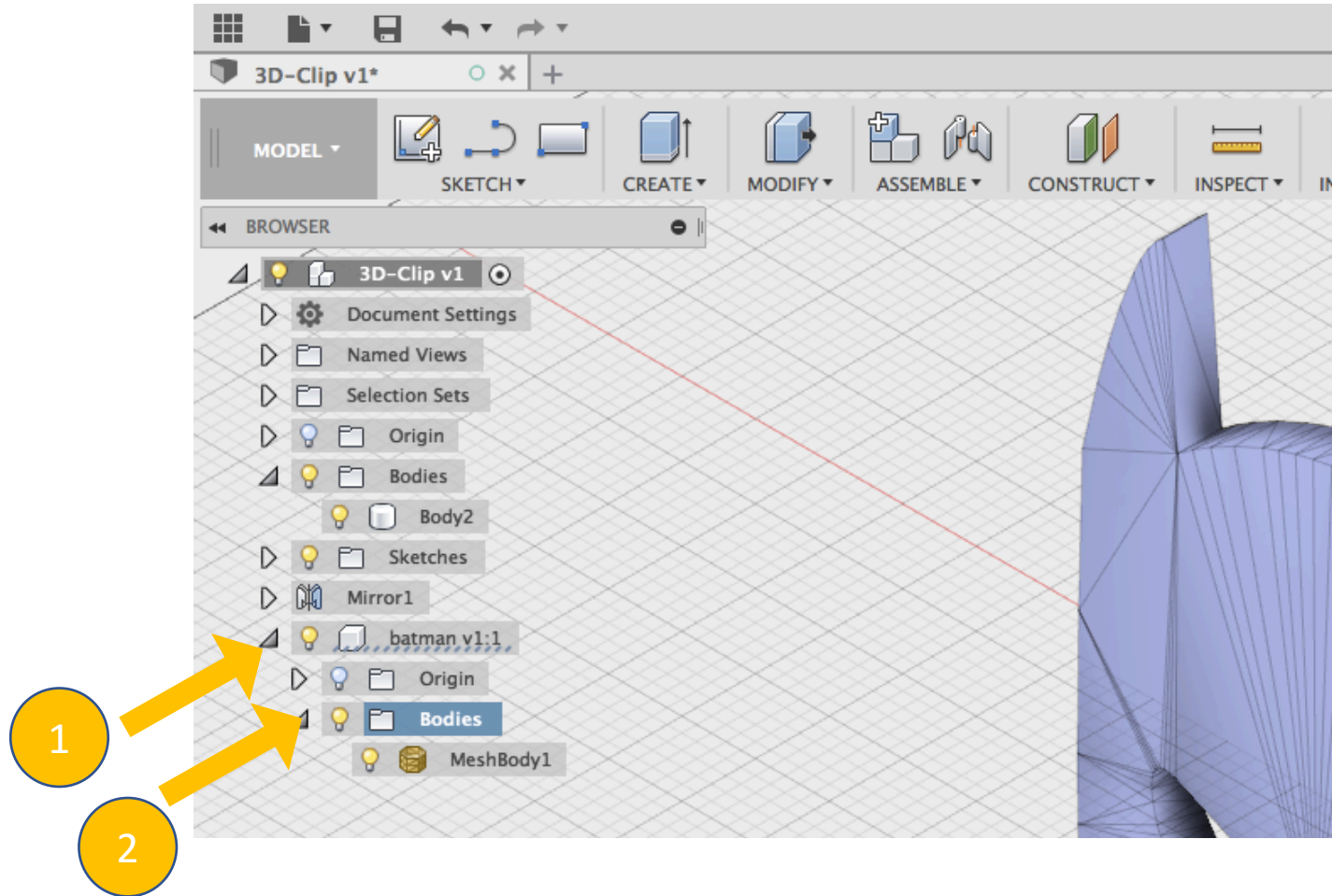
Step 28: Right-click "MeshBody1" then click "Mesh to Brep".
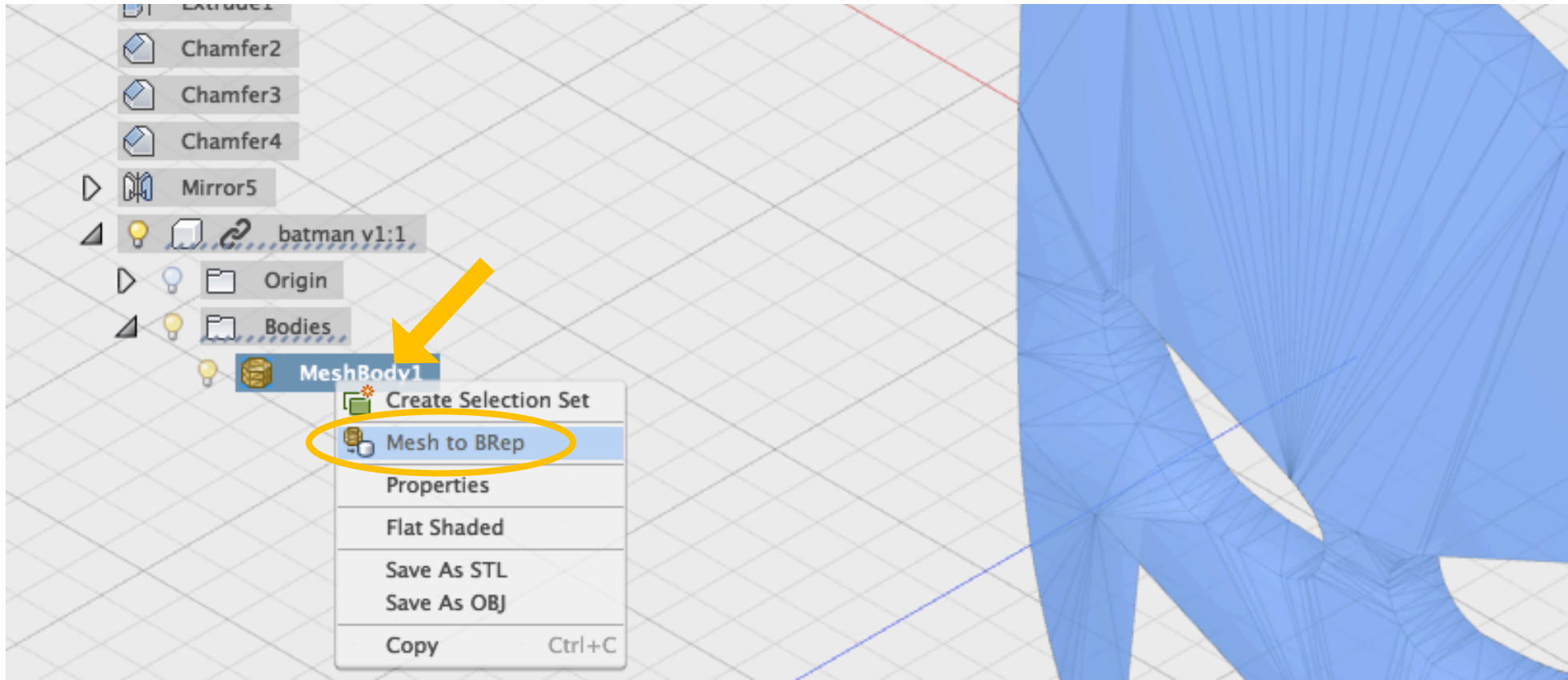
Step 29: Click "OK" or hit "Enter" and your Batman mask will be converted into Brep format.
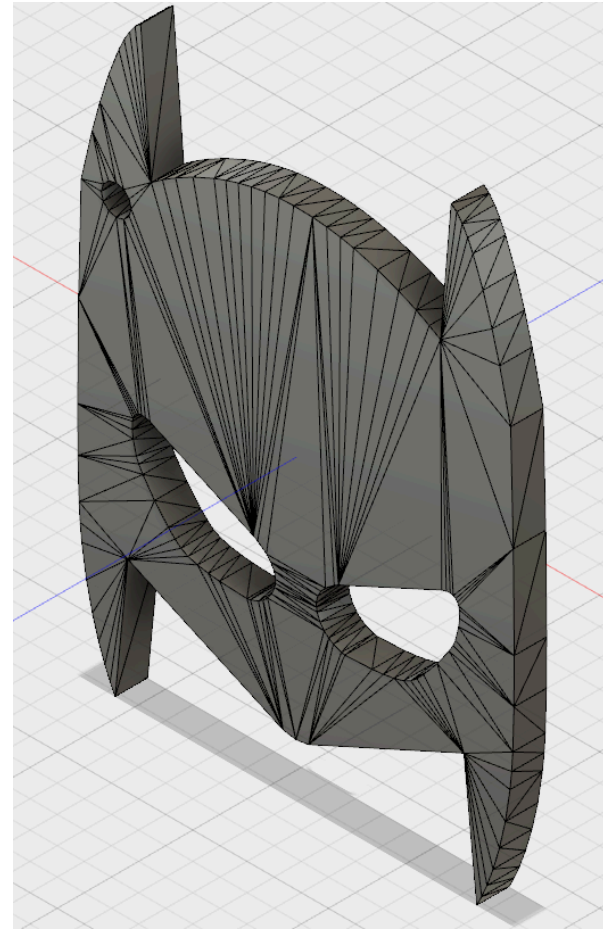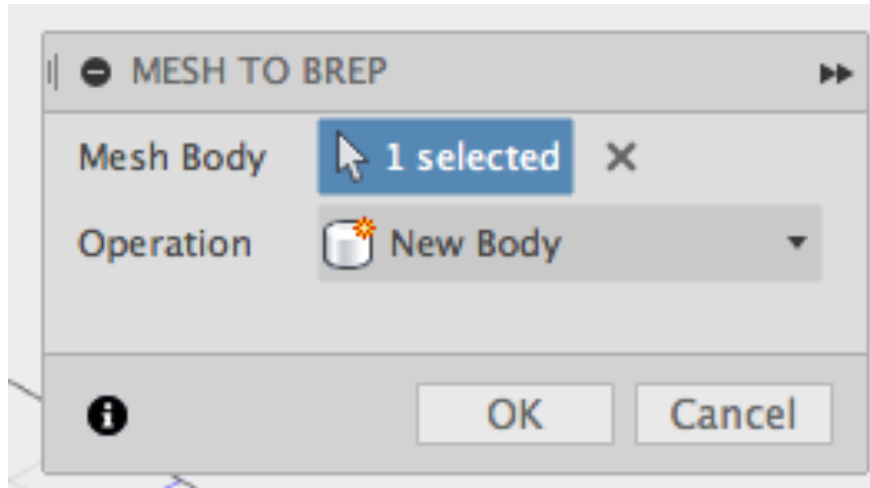
Note: Brep is a kind of design format that allowed us to combine with other design format in fusion 360.

Step 30: Next, we will need to scale down the Batman mask to match the clip. Go to "Modify" > "Scale".
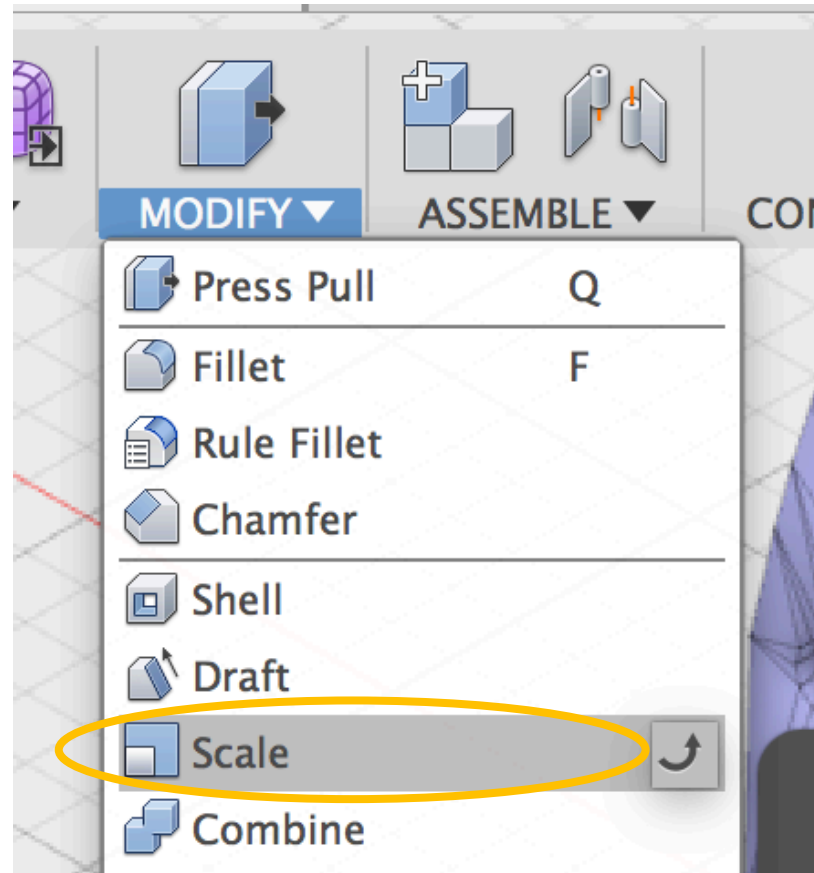
Step 31: Select the Batman mask, then key in "0.2" and hit "Enter".
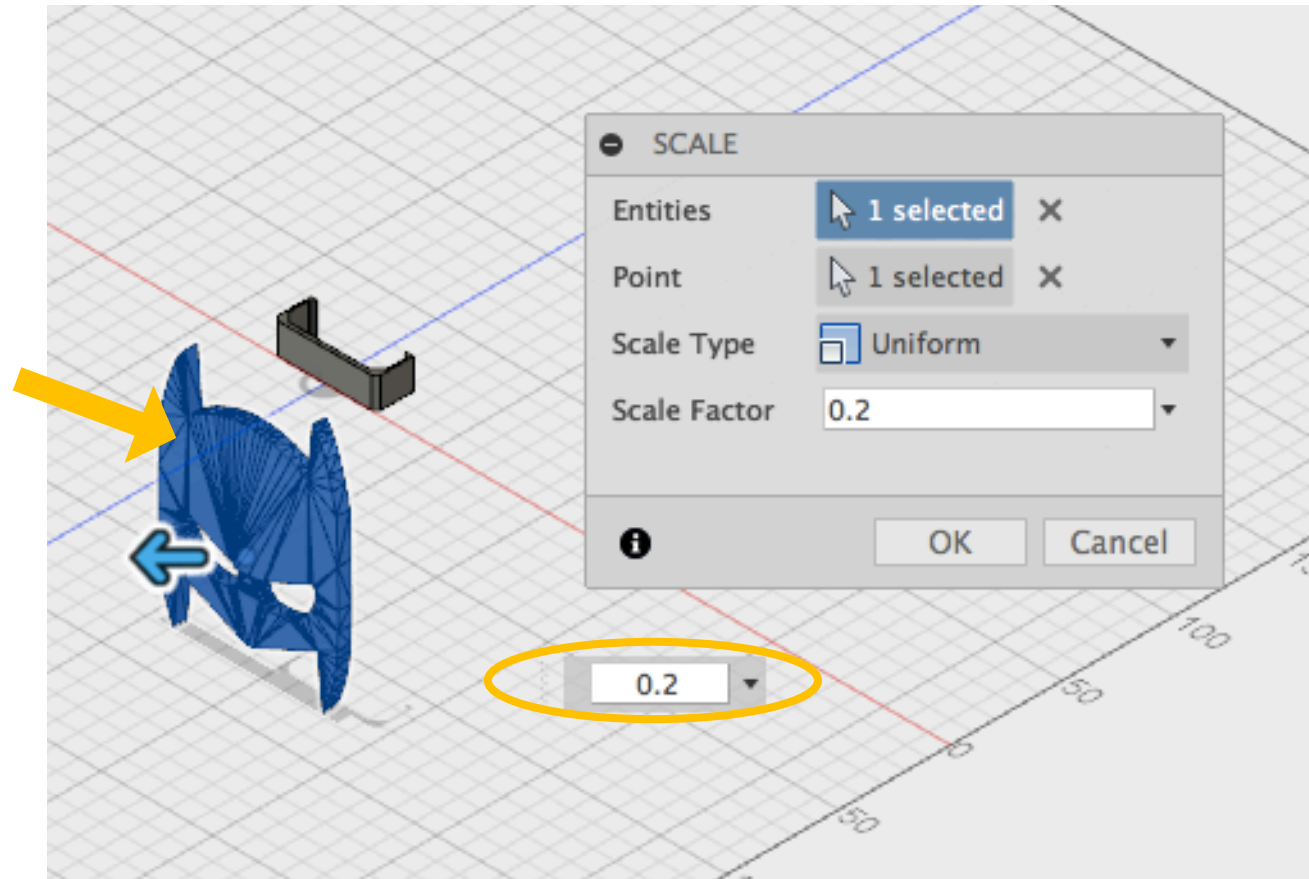
Note: The mask has been scaled down to 2/10 from its original size. The following steps are to move the mask to combine with the clip.
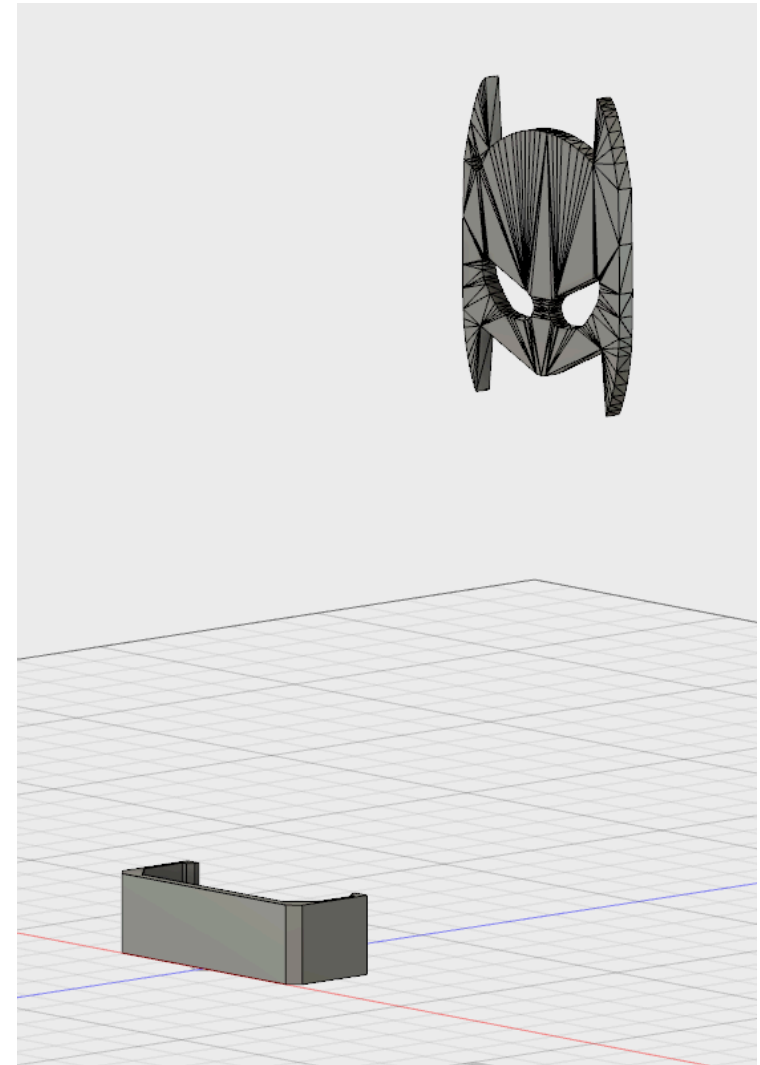
Step 32: First, go to "Modify" > "Move/Copy".
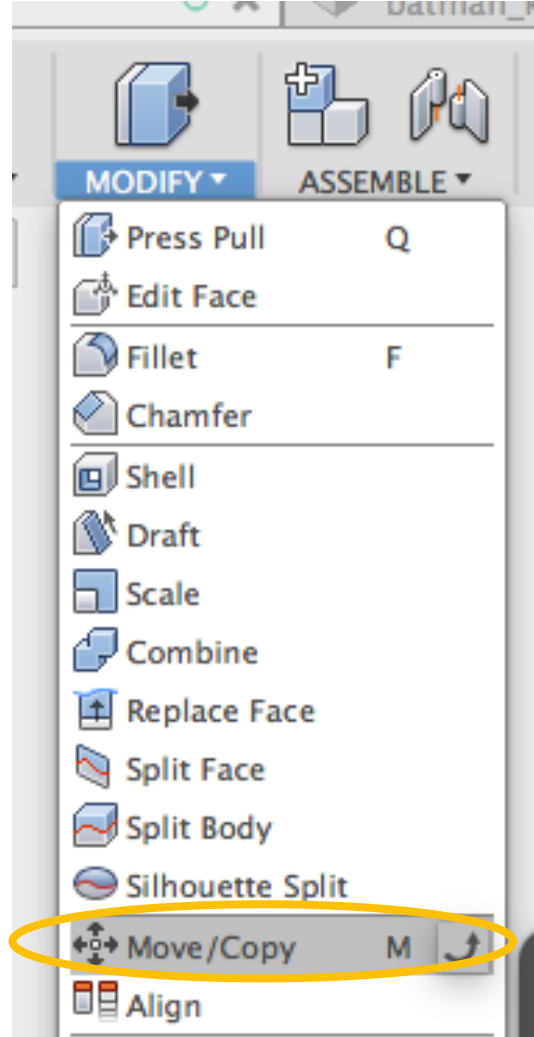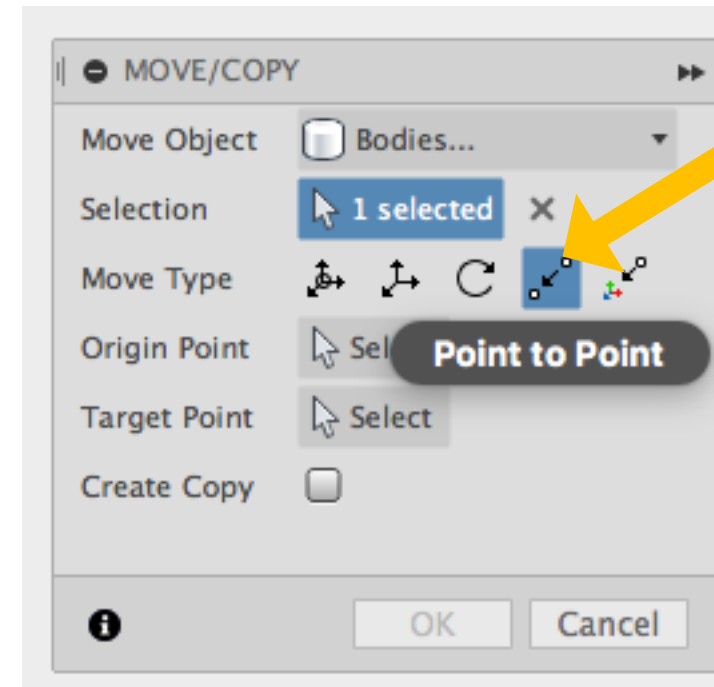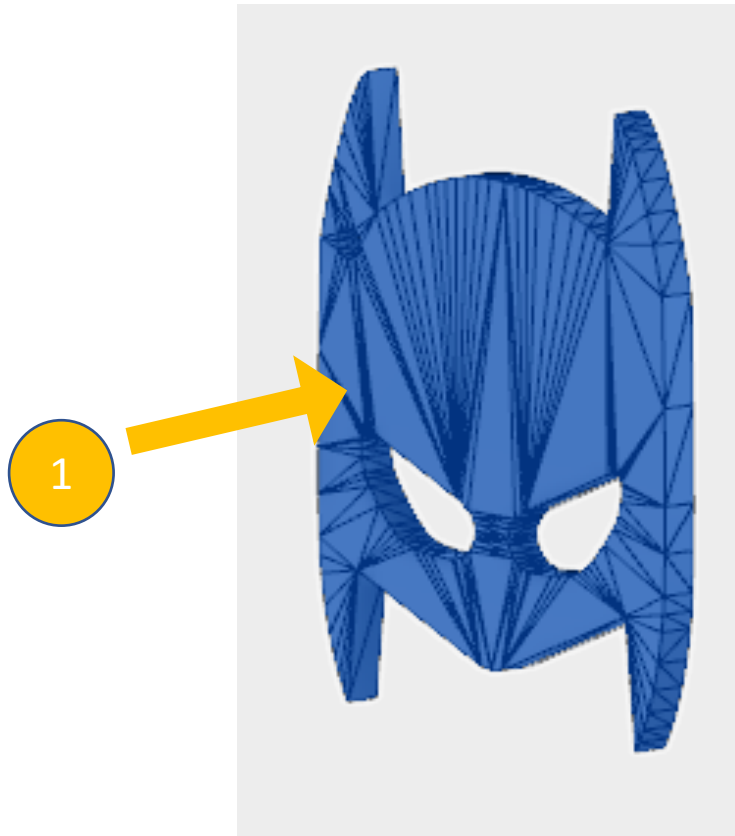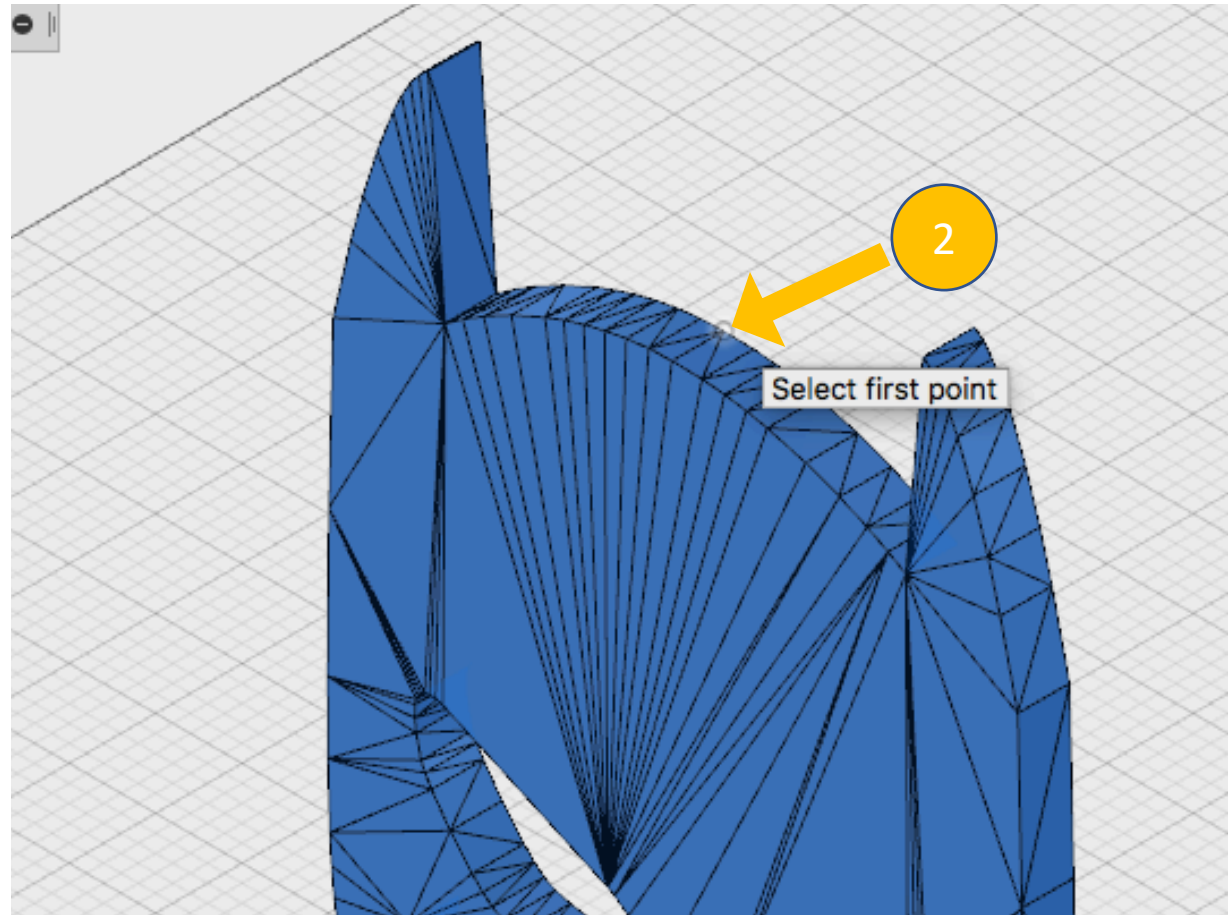
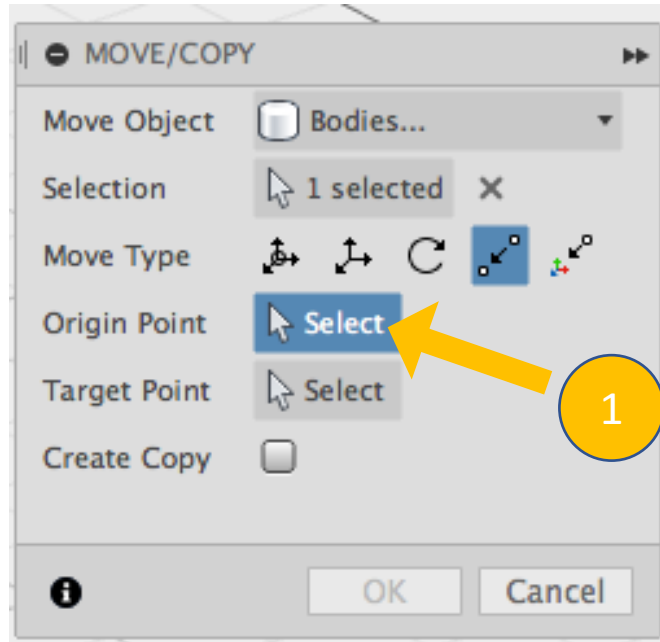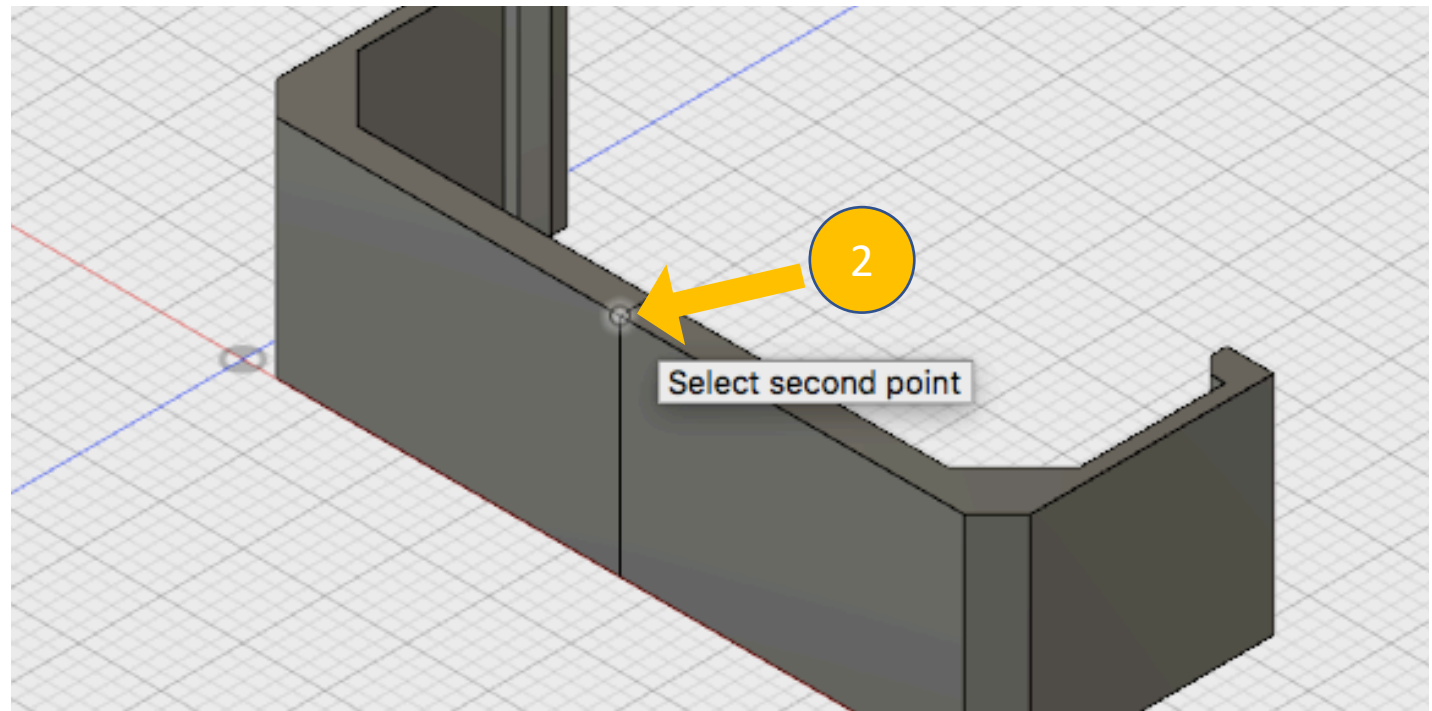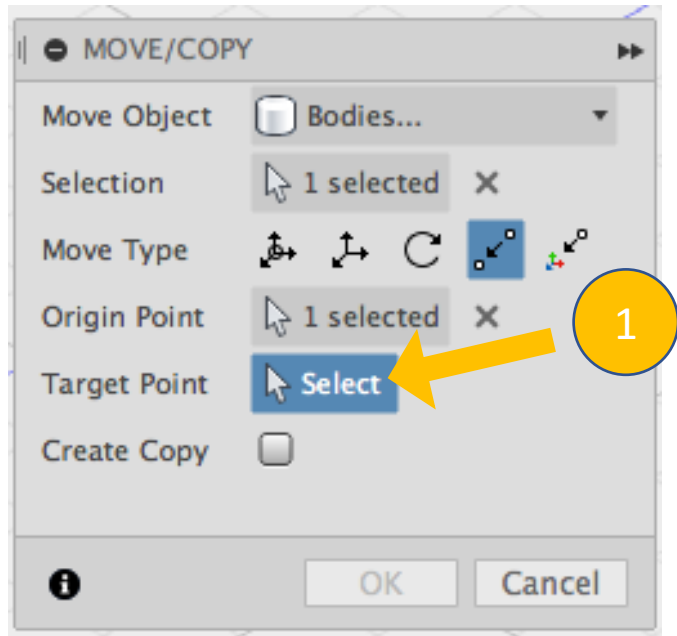# Step 33: Select the Batman mask, then click "Point-to-Point" in the property box.

Step 34: Next, click on "Origin Point" button, then select the top-center point of the mask as the origin point.
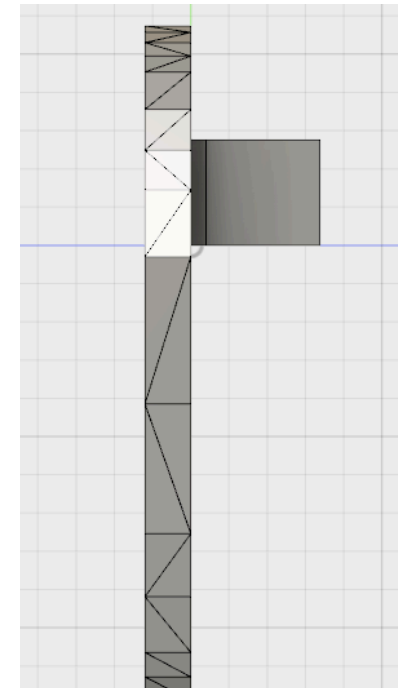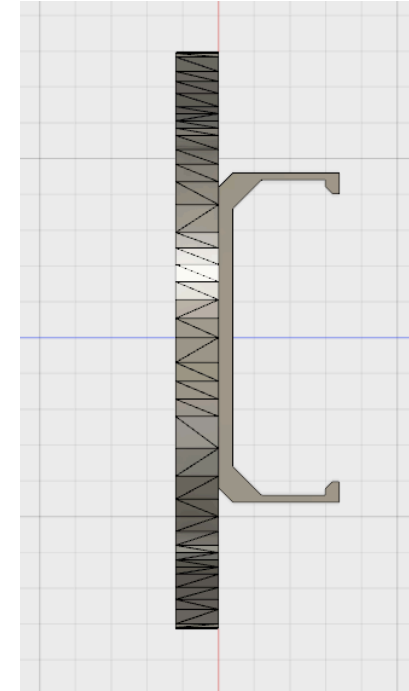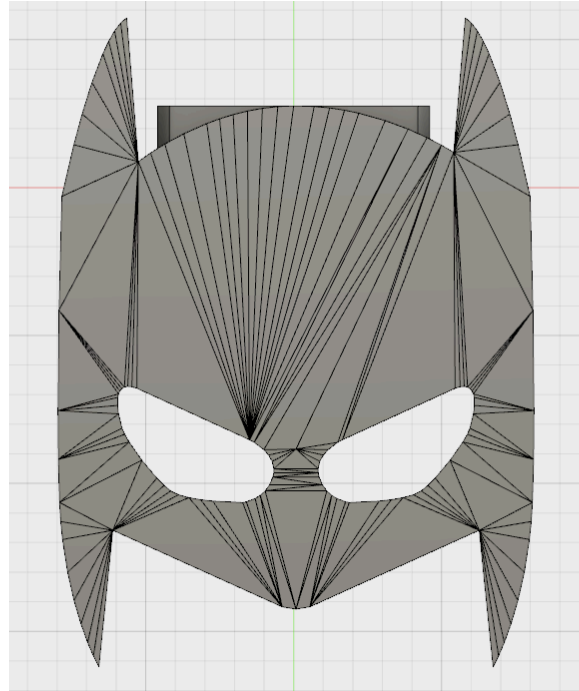
Step 35: Then, click on the "Target Point" button. Select the top-center point of the clip. Then hit "Enter".

Note: You may need to use the zoom tool to zoom in/out to get the correct point precisely.

Step 36: The Batman mask is now placed exactly on the side surface of the clip.
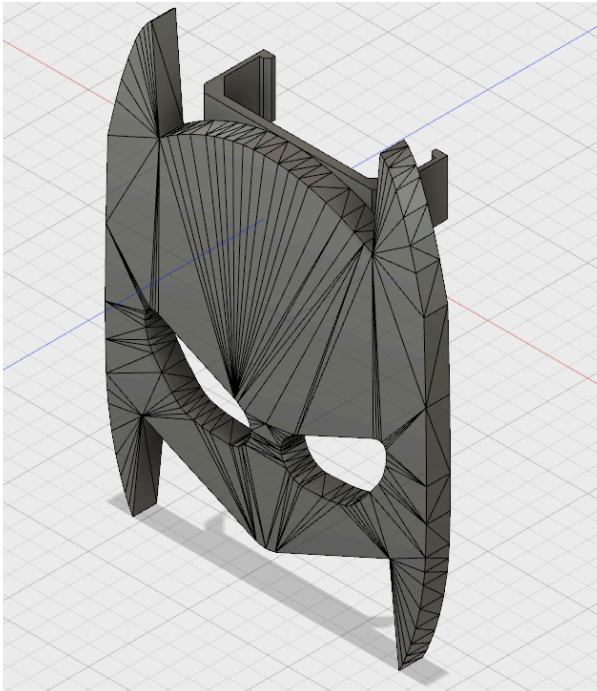
Note: You need to ensure that the mask is placed exactly at the center of the clip, not overlapping the clip and does not have a gap in between. Otherwise, you will need to redo until you get the desired result.

Step 37: Next, go to "Modify" > "Move/Copy" again. Select the mask as the object to move.
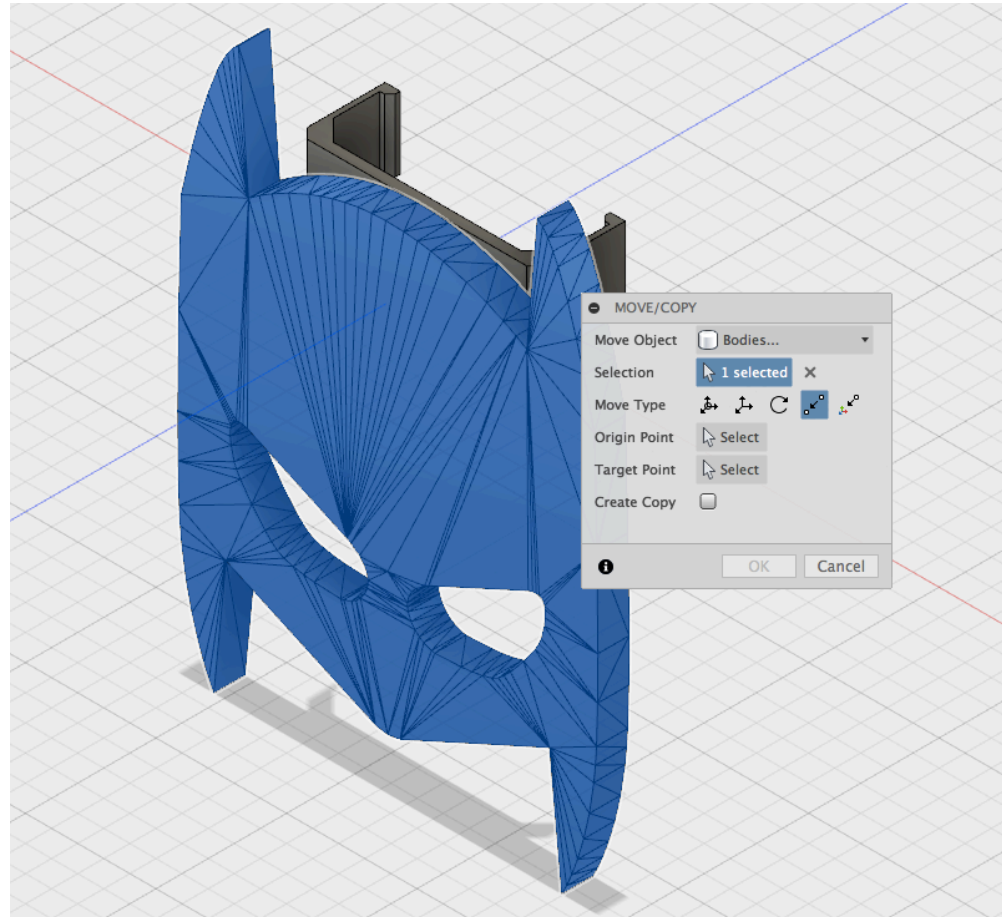
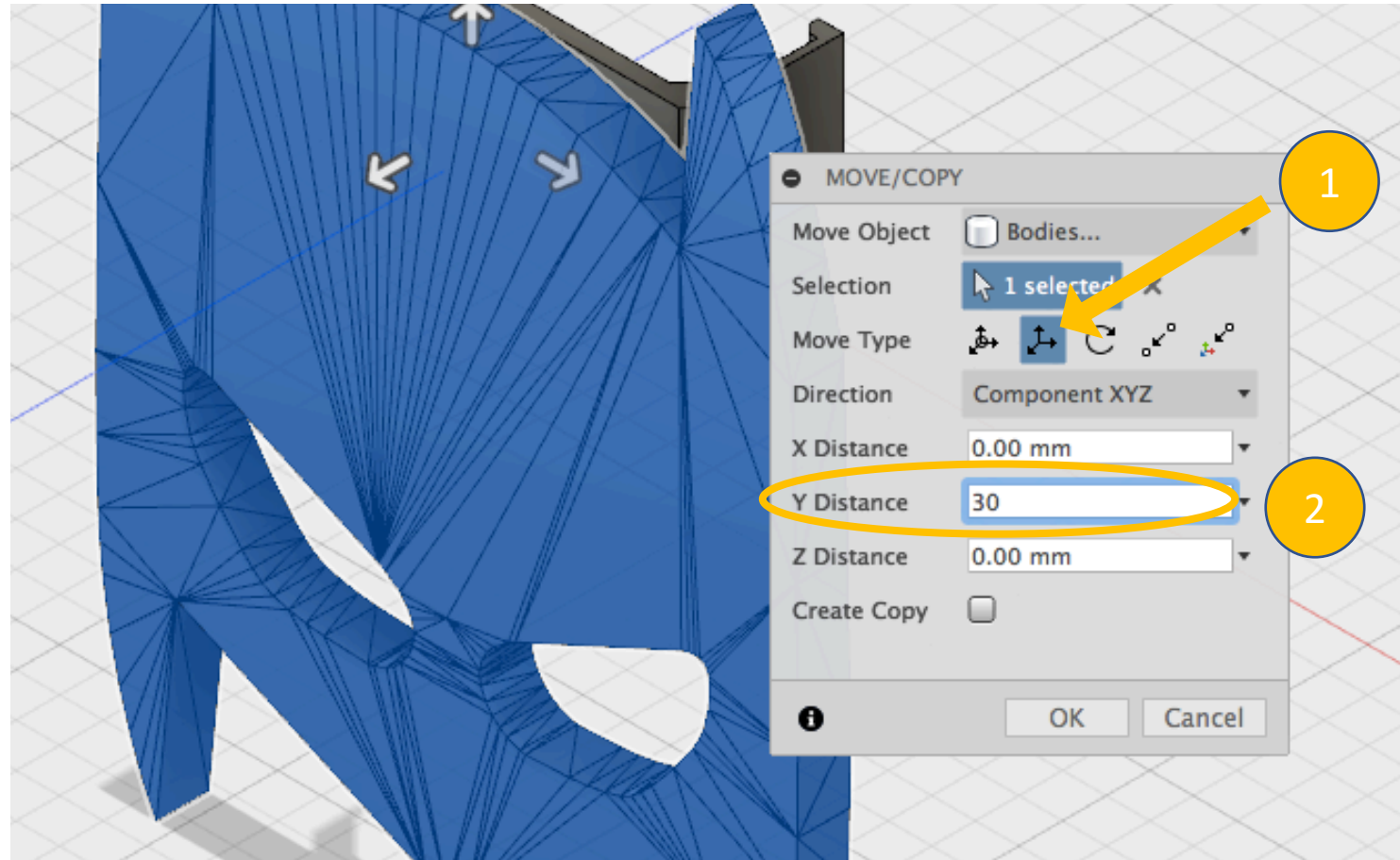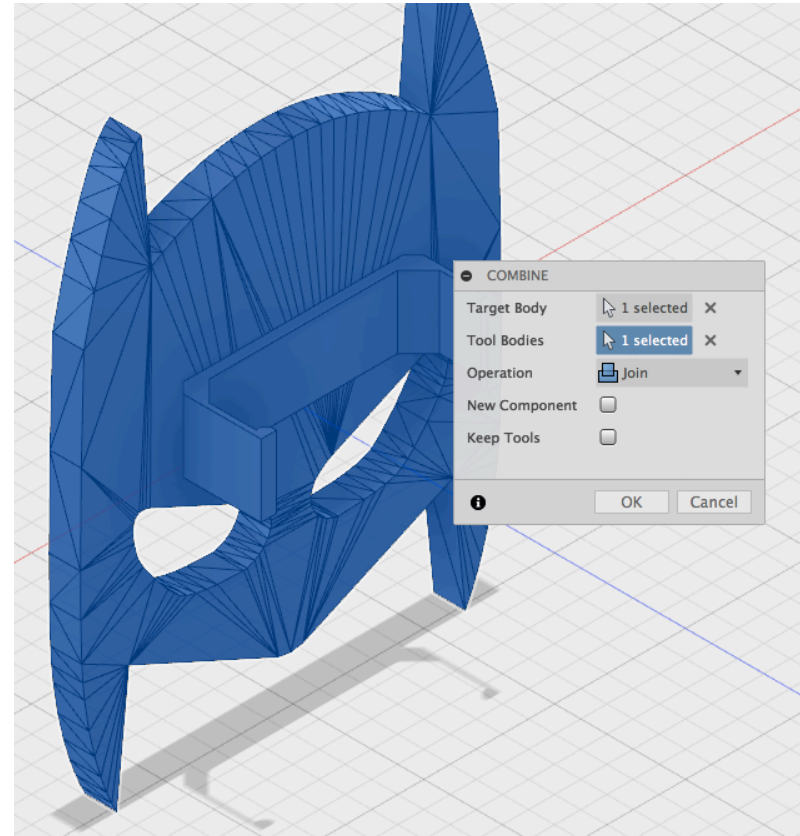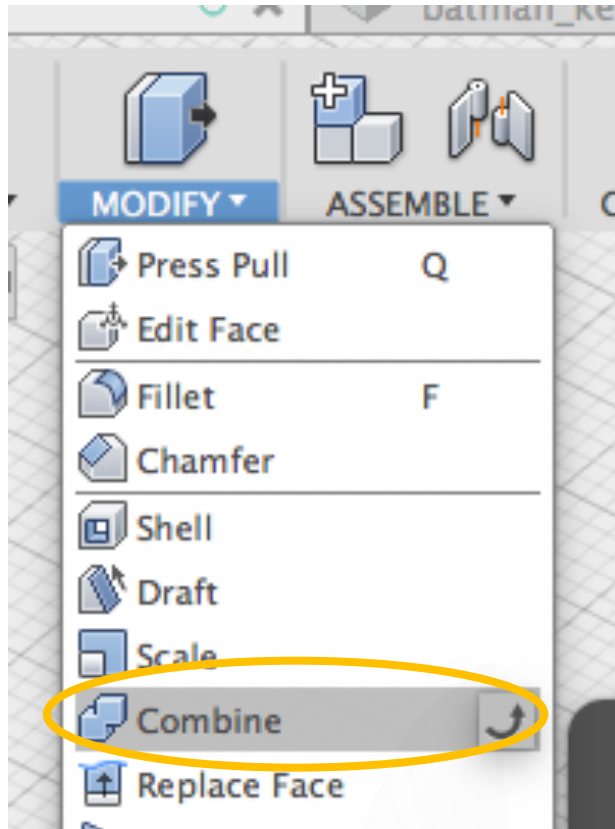Step 38: Click on ⚹ then key in "30" at "Y-Distance" to move the mask up by 30mm.
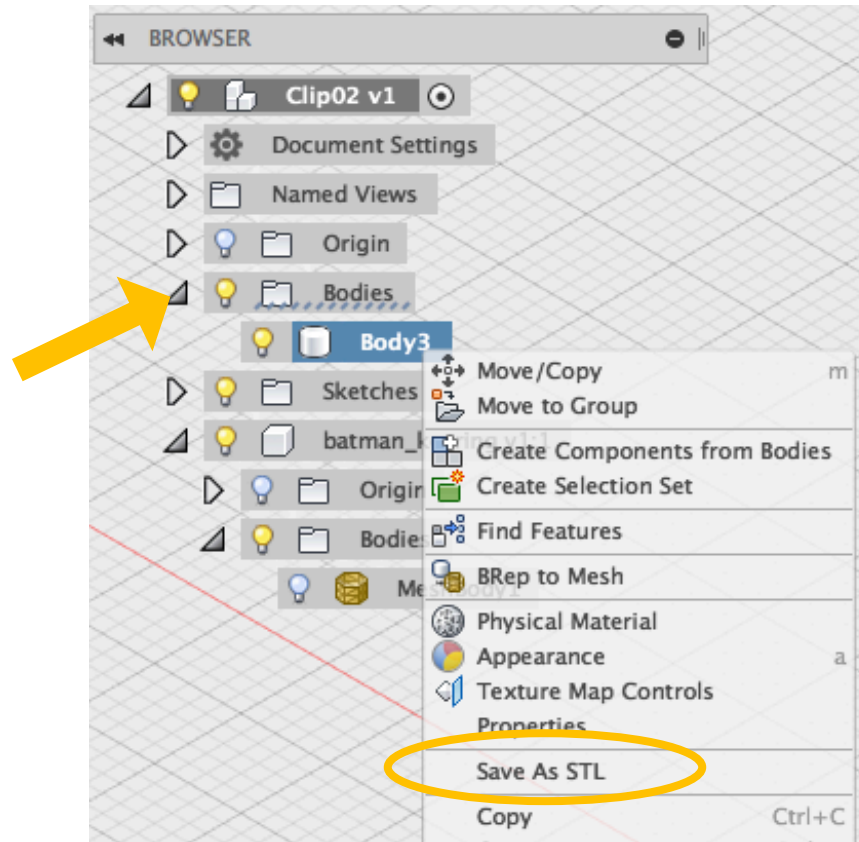
Step 39: Next, go to "Modify" > "Combine", select both the mask and the clip then hit "Enter".
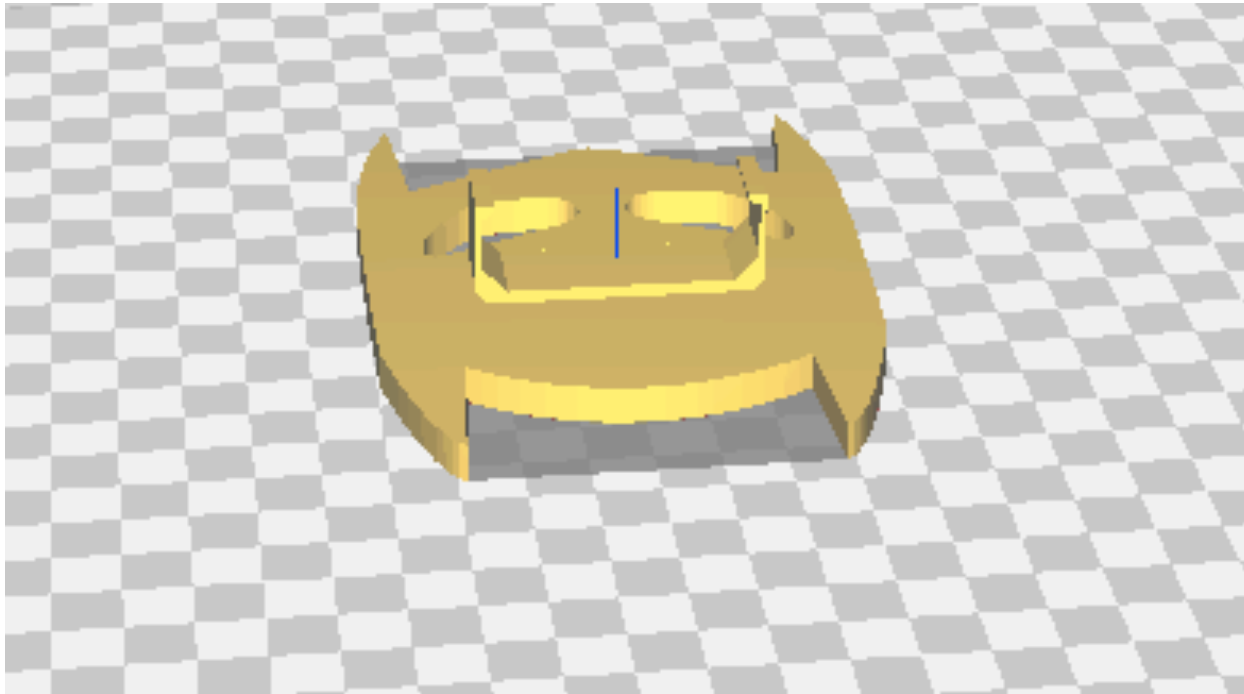
Step 40: Lastly, go to the browser, click ▷ to expand "Bodies" tab, right-click on "Body3" then select "Save as STL".

Step 41: As usual, import the STL file into Cura. Ensure the printing orientation is correct.

Step 42: Follow this printing setting then save the "G-code" file into a SD card before you send it to your 3D printer.

Step 43: Once you are done, replace it with the rero Head Module!
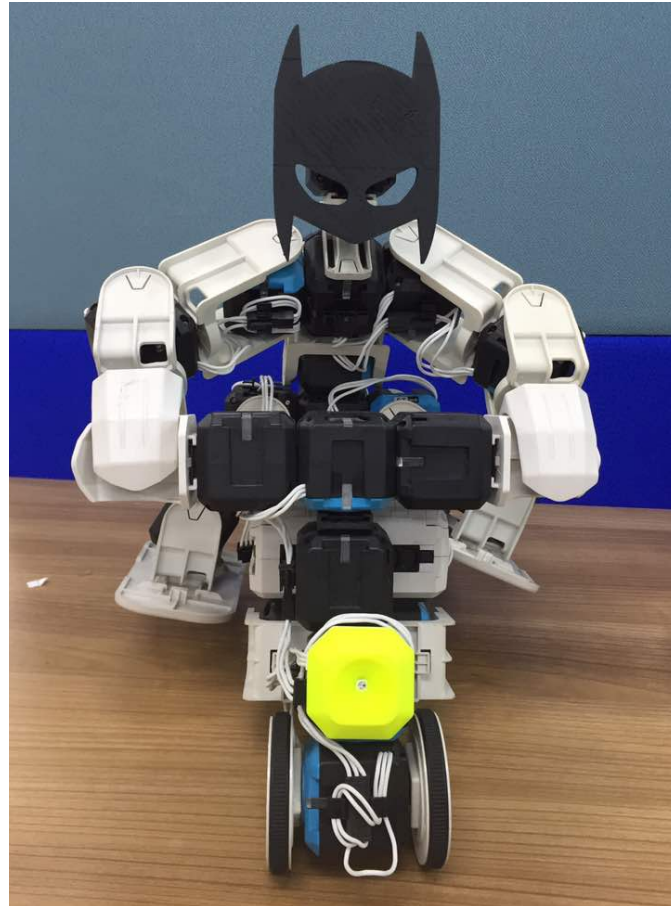
Challenge:

- Try search for a sword from www.thingiverse.com
- Combine the sword with the "clip" that you drawn.