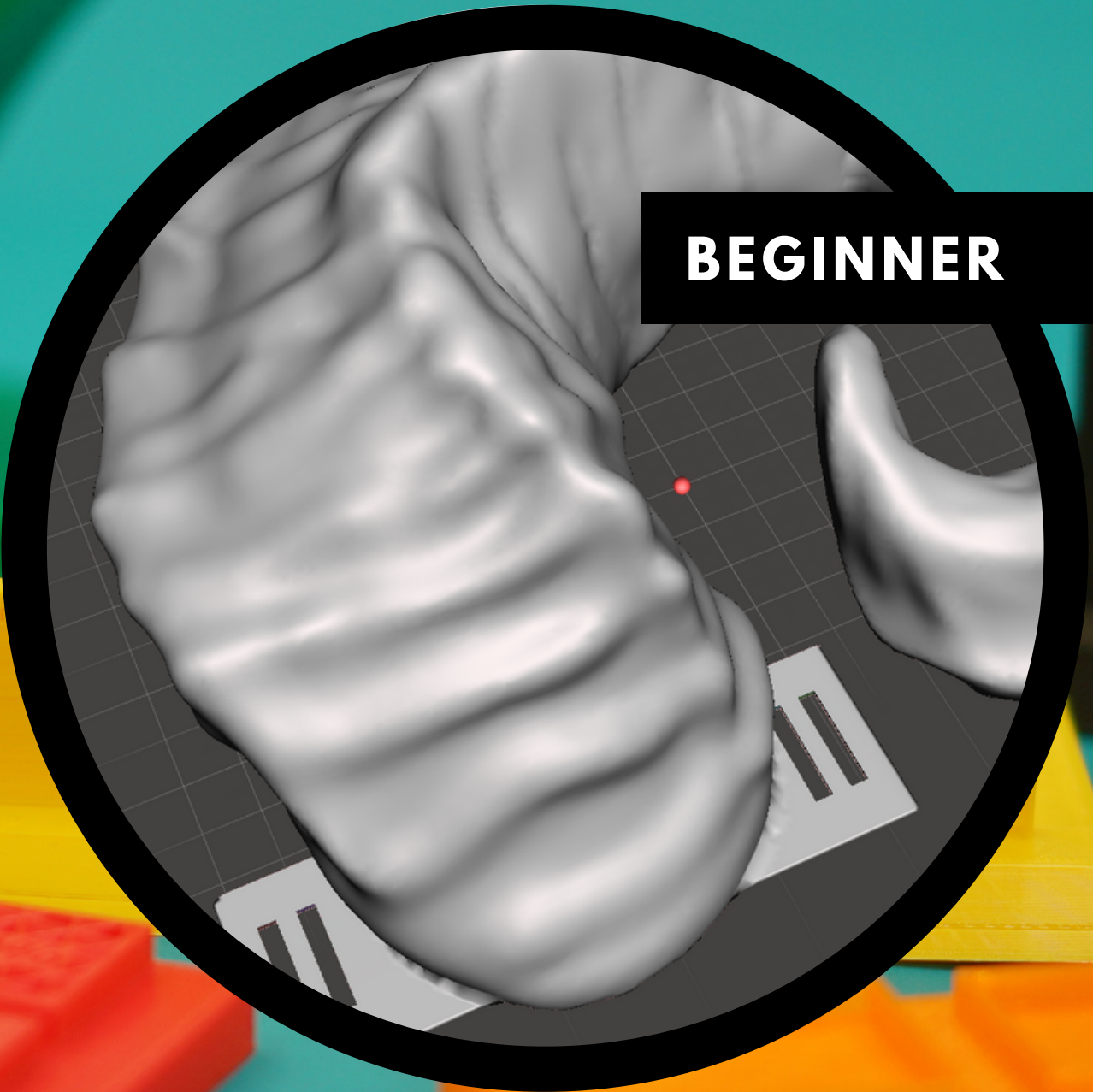


MAKER GUIDE

FINISHING HORNS IN MESHMIXER

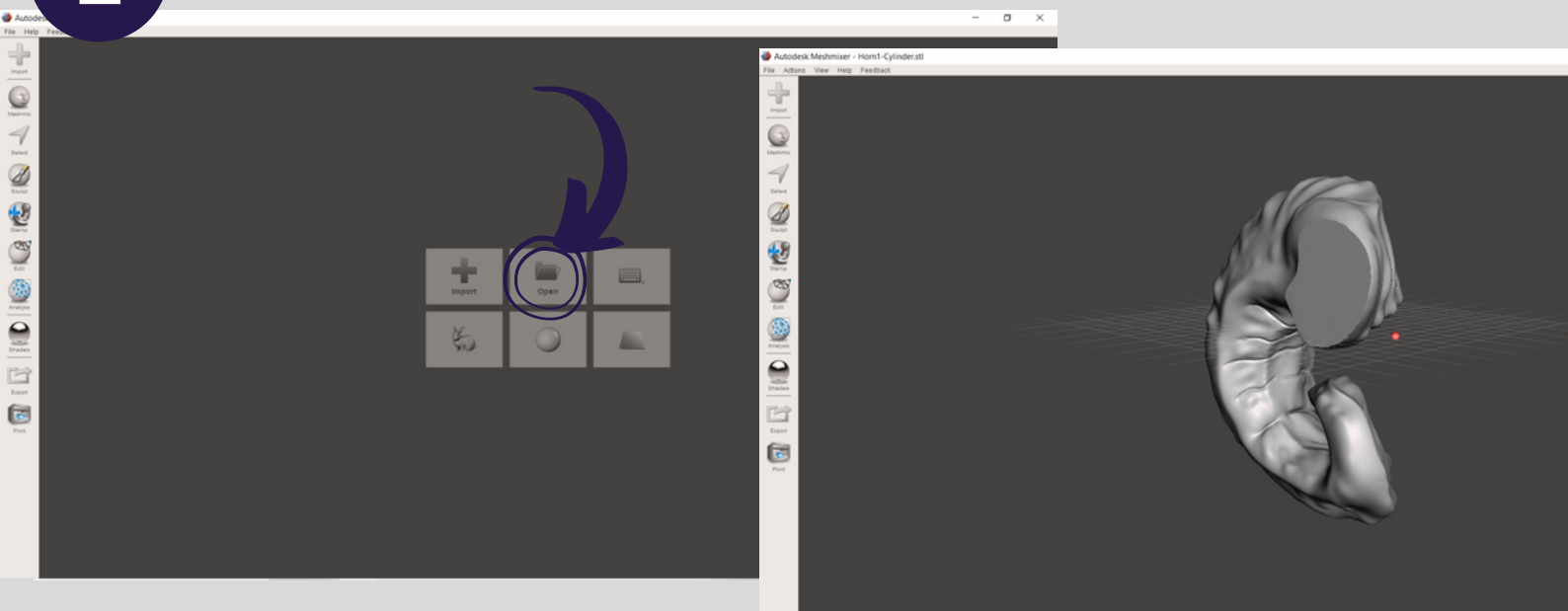
BEGINNER



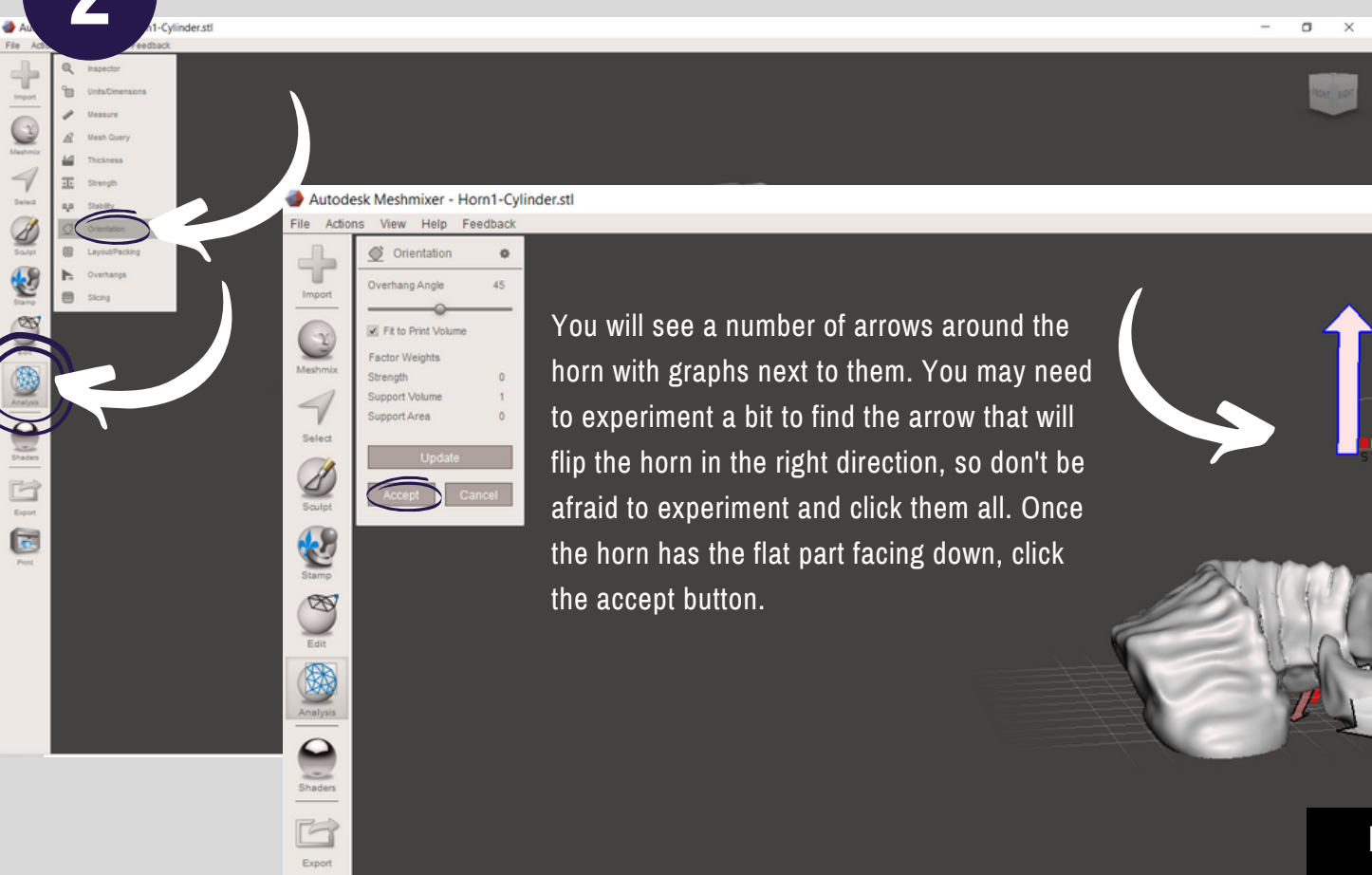


PAGE 1

1 Start by opening up Meshmixer and click the Open button to bring your horn in that you exported from Blender.



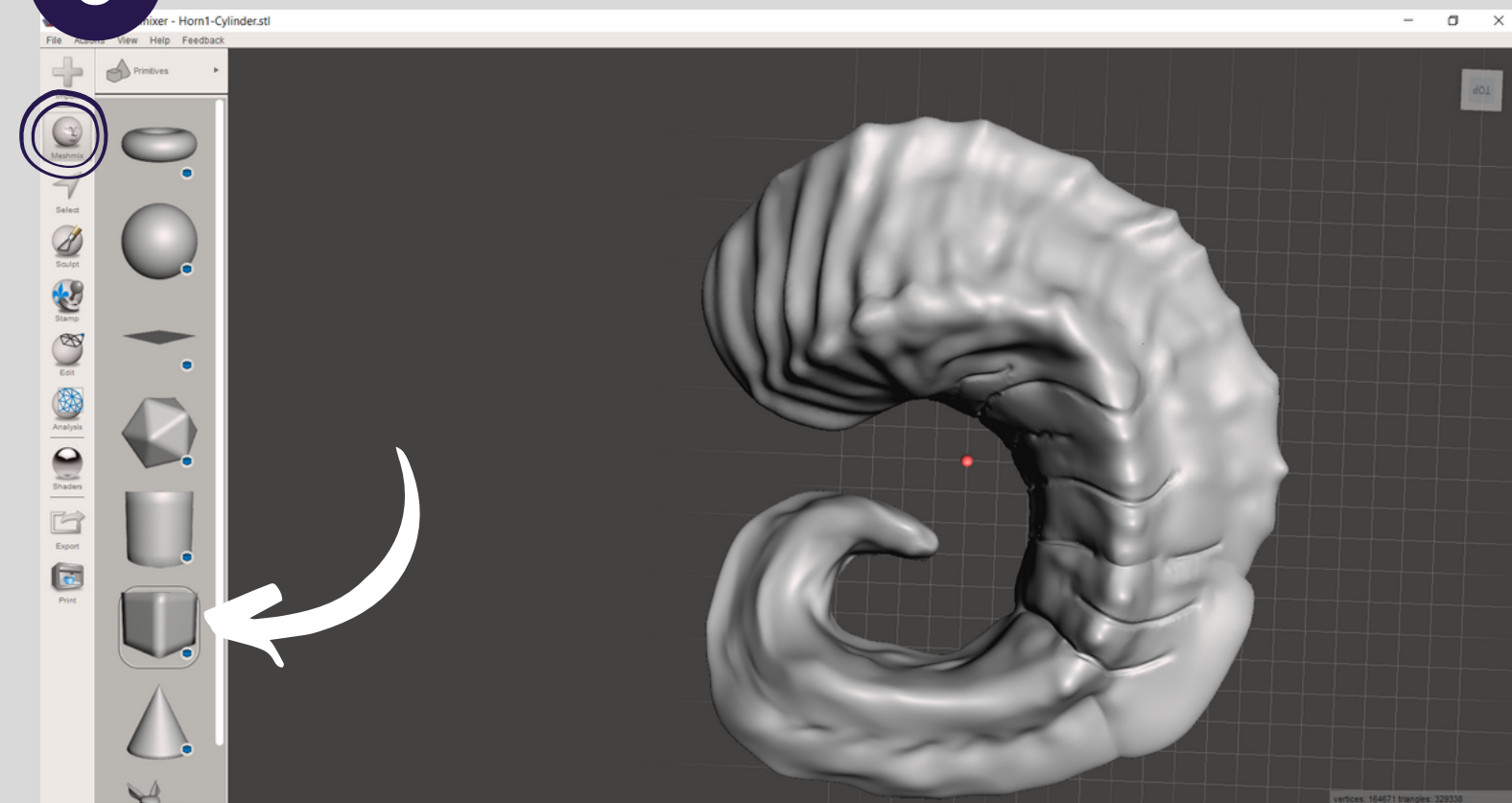
2 Next flip the model the right way using the **Orientation** tool which can be found in the Analysis menu.





PAGE 2

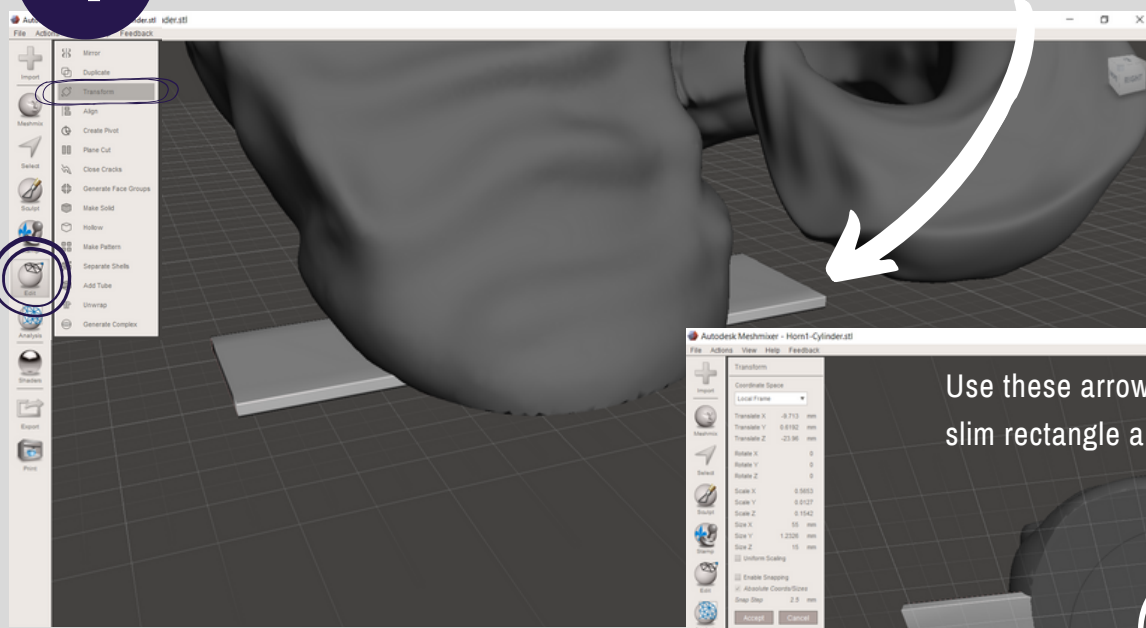
3 Next head to the Meshmixer menu (the one with the sphere with a face) and drag out a cube.



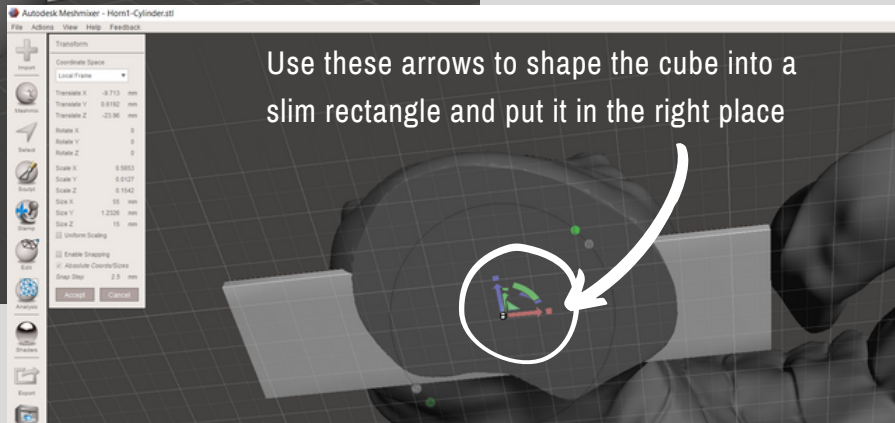


PAGE 3

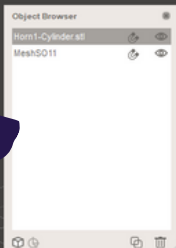
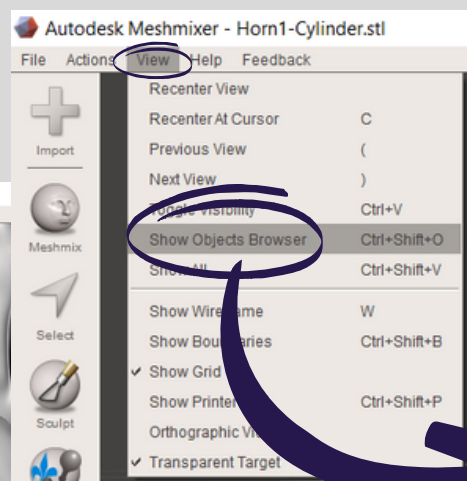
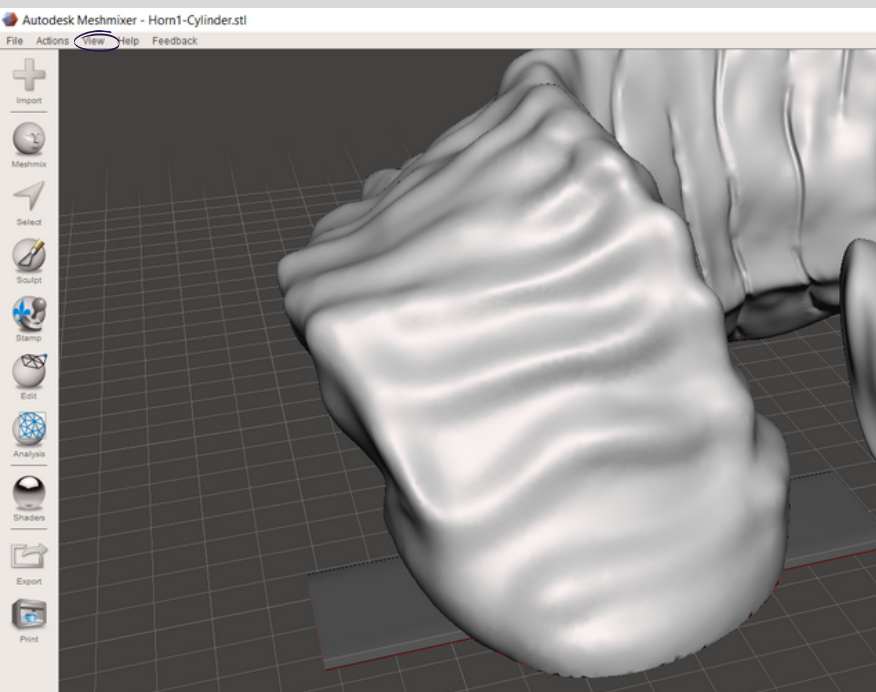
4 Next head to the **Transform** tool in the **Edit** menu. Use the tool to change the dimensions of your cube and turn it into a long rectangular shape (see below shape).



Use these arrows to shape the cube into a slim rectangle and put it in the right place



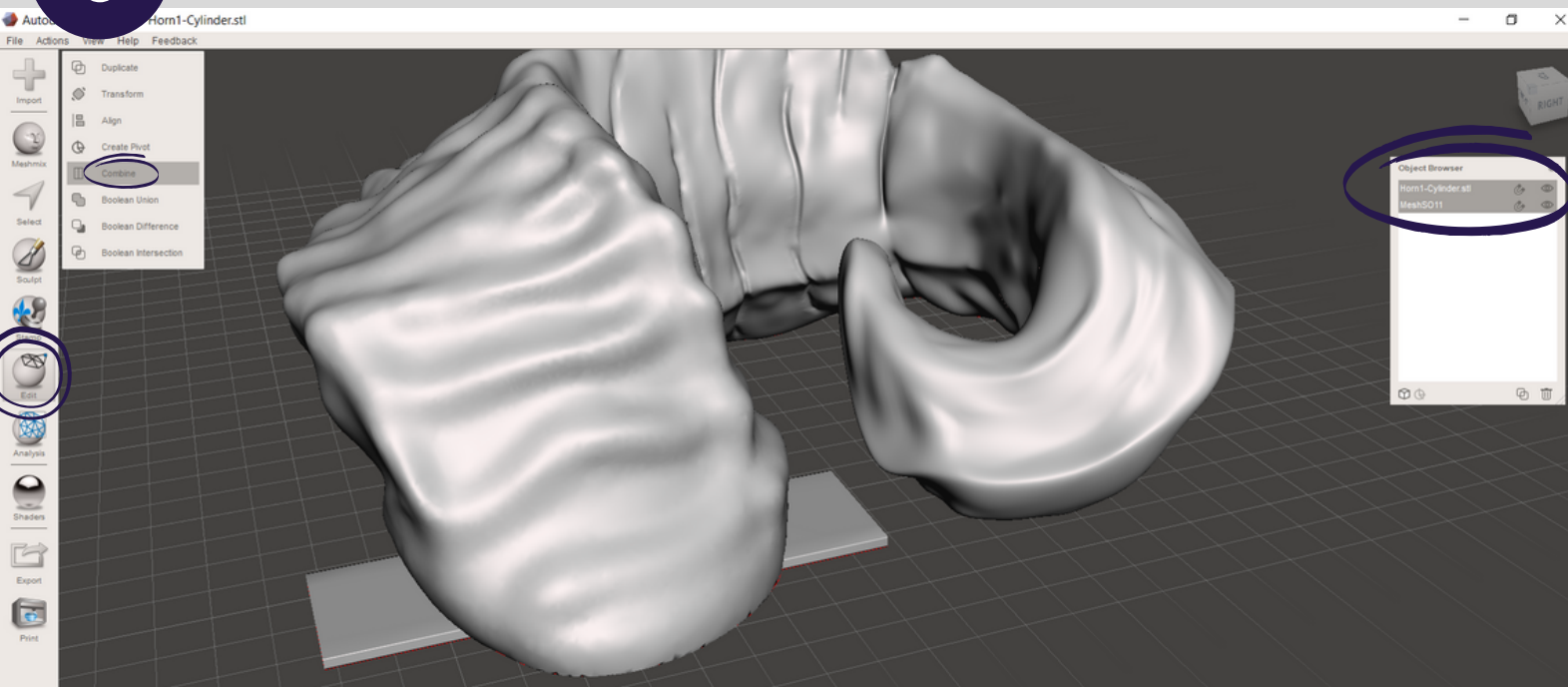
5 Next open the **Object Browser** by going to **View > Show Objects Browser**. In the **Object Browser** you should see your horn and the cube mesh.



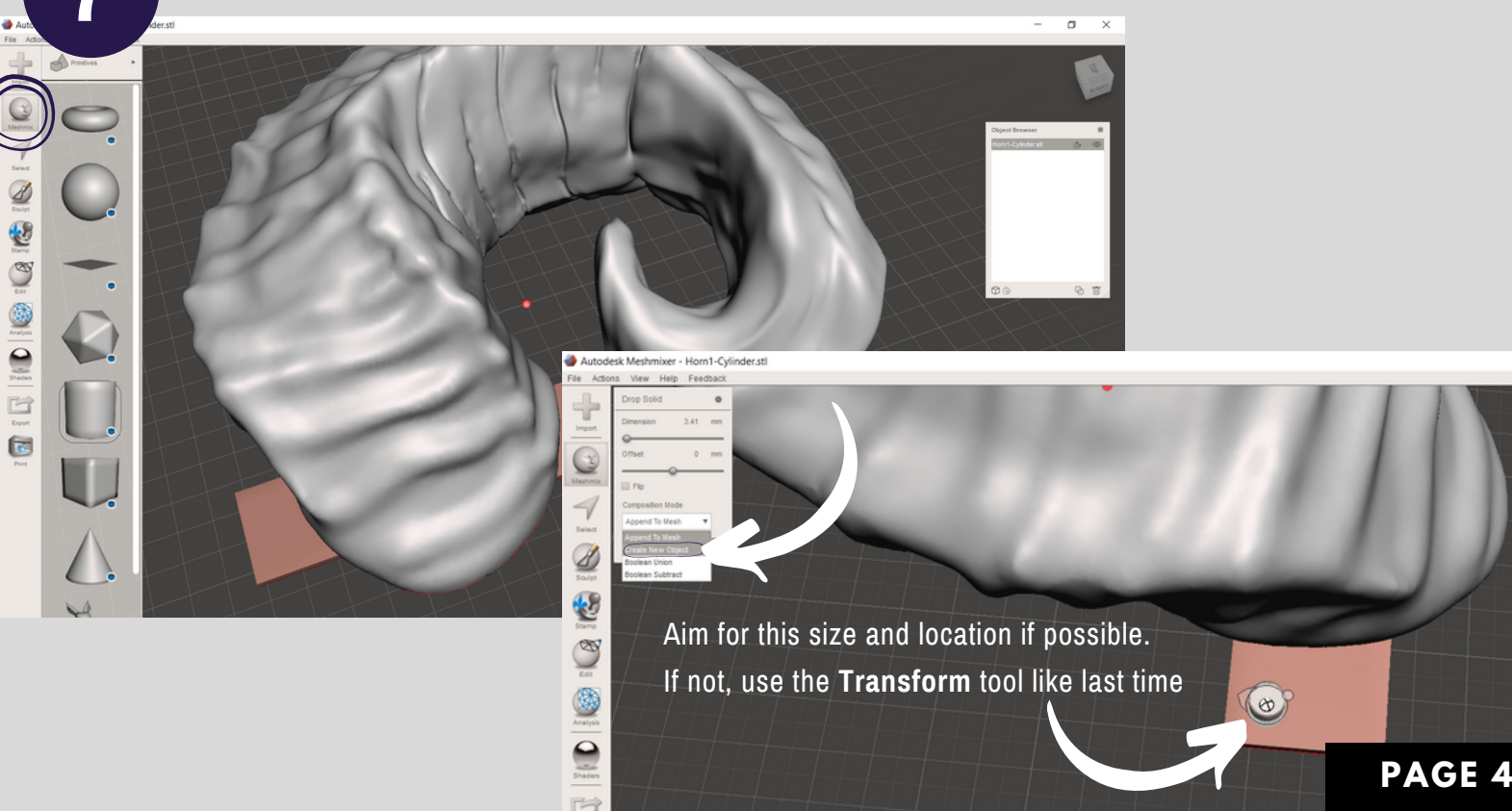


PAGE 4

6 Next head to the Edit menu again. Select both the Horn and mesh from the Object Browser and use the **Combine** tool.



7 Then head to the Meshmixer menu again and drag out a cylinder. If you can, try and shrink the cylinder and position it on the rectangle. Make sure you select *Create New Object* before confirming

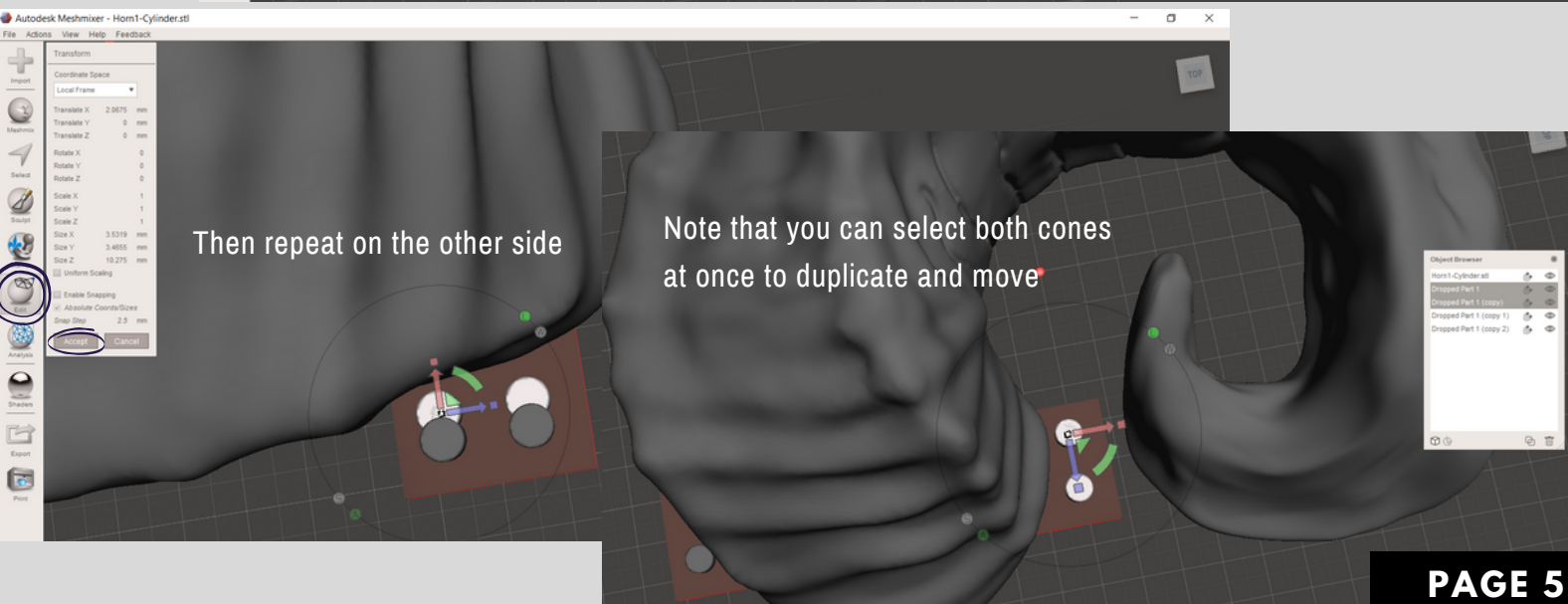
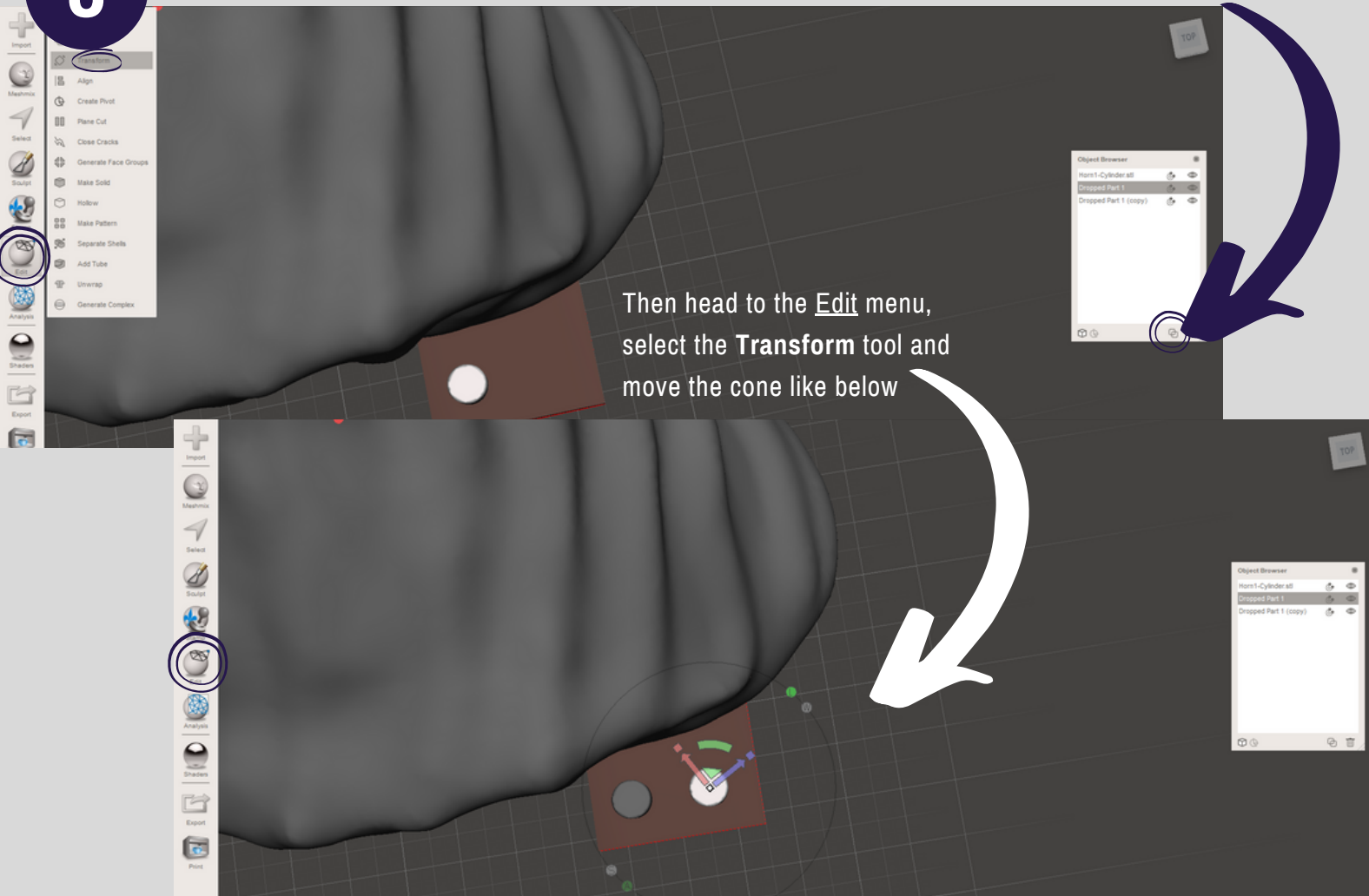




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Next select the cone in the Object Browser and click the two overlapping square button to duplicate it

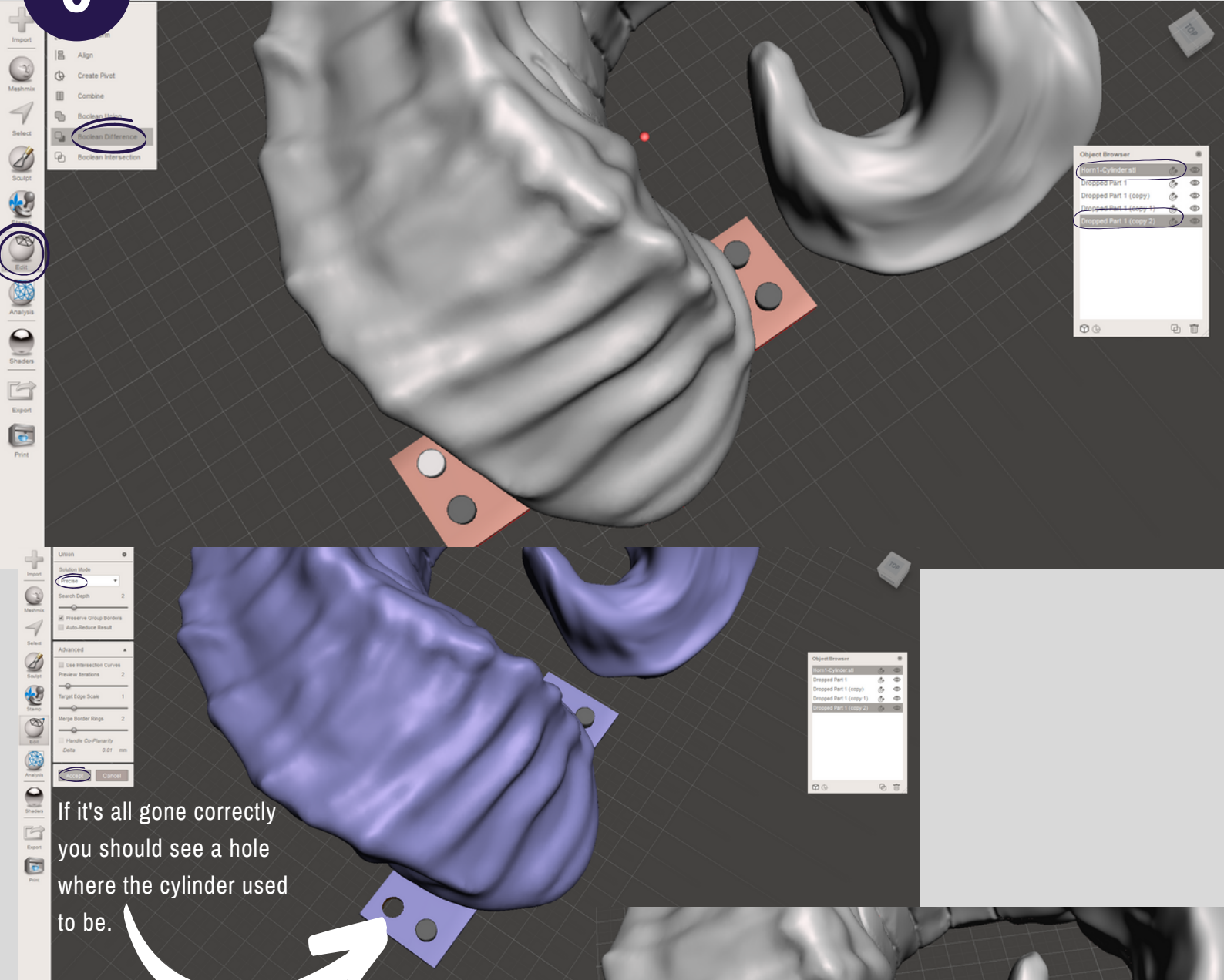




PAGE 6

9

Now it's time to create the sewing holes. First head to the Edit menu, select the horn and one cylinder and select the **Boolean Difference** tool.



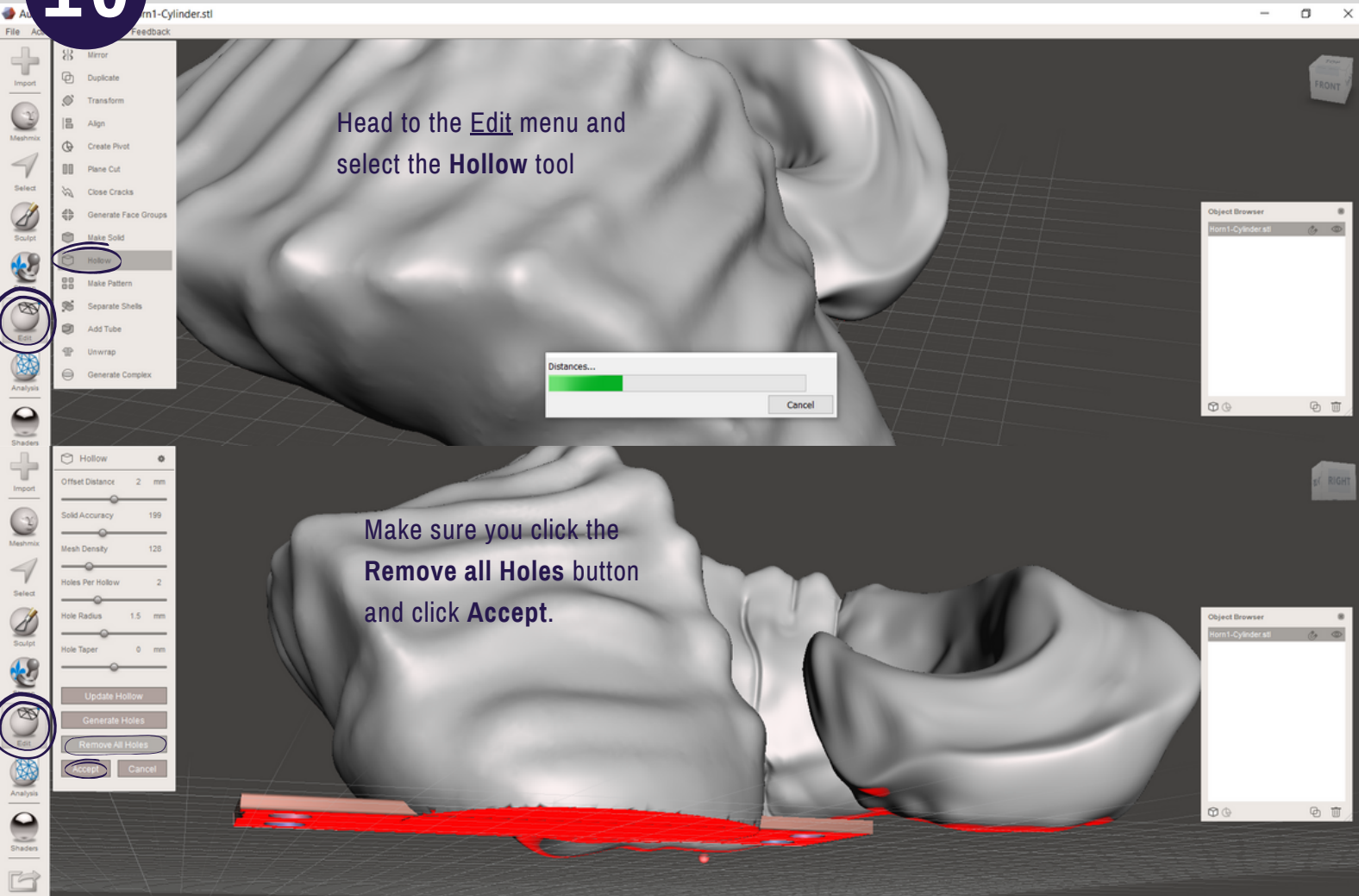
If it looks good click the Accept button.

Then repeat this process 3 more times to cut out the other 3 holes.

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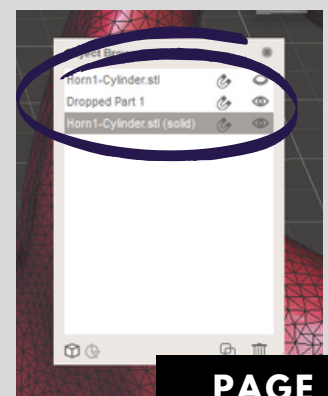
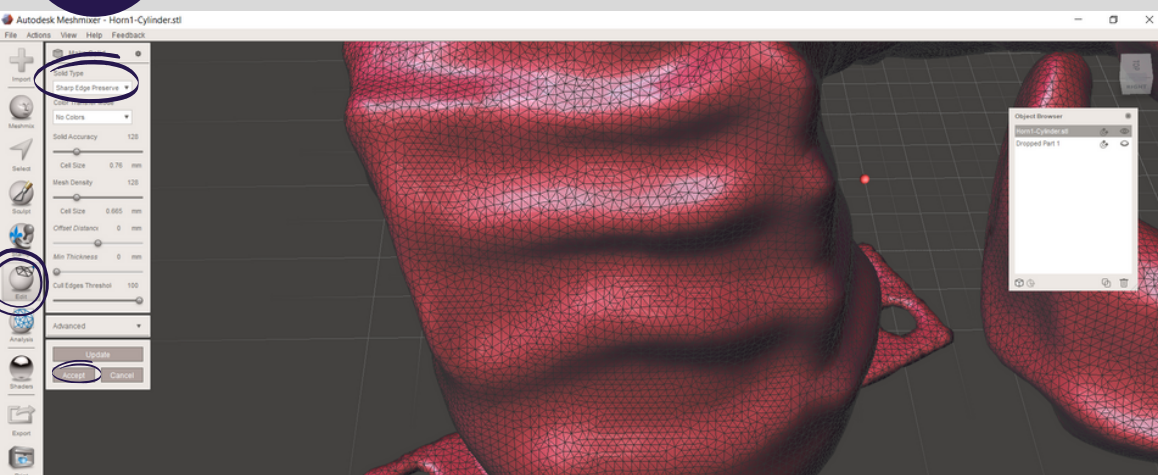
10

Next it's time to hollow out the model. This will make the horns lighter and also allow you to place lights inside them once finished. If you have no interest in lighting up your horn you can skip this step.



11

Head to the Edit menu and choose the **Make Solid** tool this time. Make sure the *Solid Type* is *Sharp Edge Preserve* and then click the Accept button. In the Object Browser, hide the version of your model that doesn't say (solid).

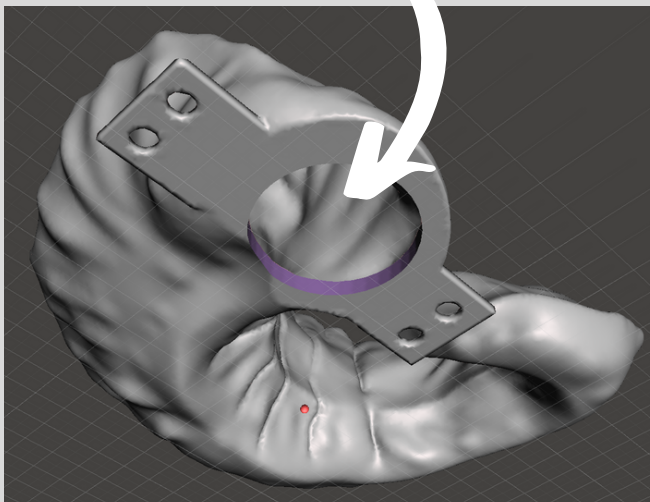




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12

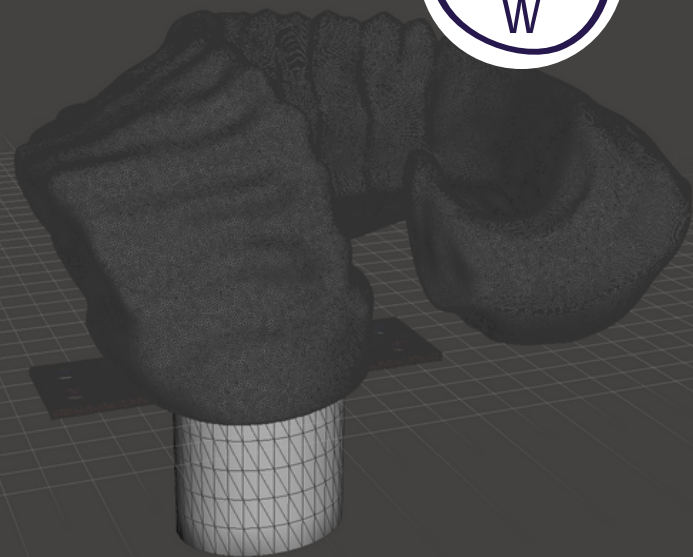
Insert another cylinder from the Meshmixer menu, this time a large one, and position it going into your horn (we're aiming for this). Once it's been placed and sized correctly press W to see the wireframe view.



Wireframe

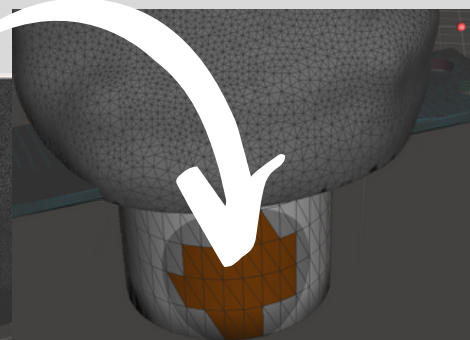
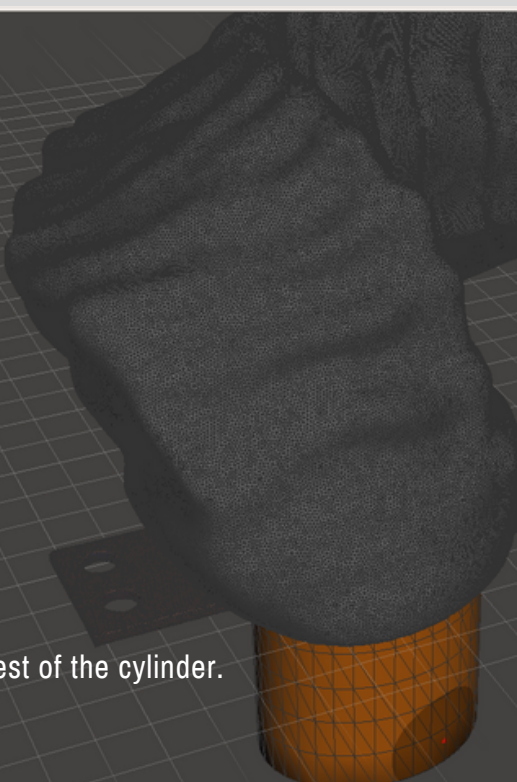
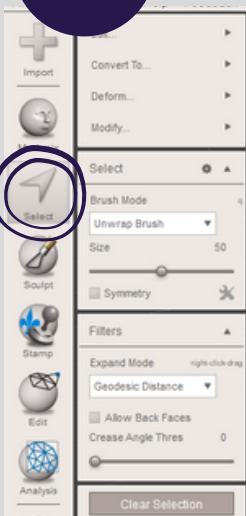
Shortcut

W



13

Head to the select menu and just press anywhere on the cylinder like so



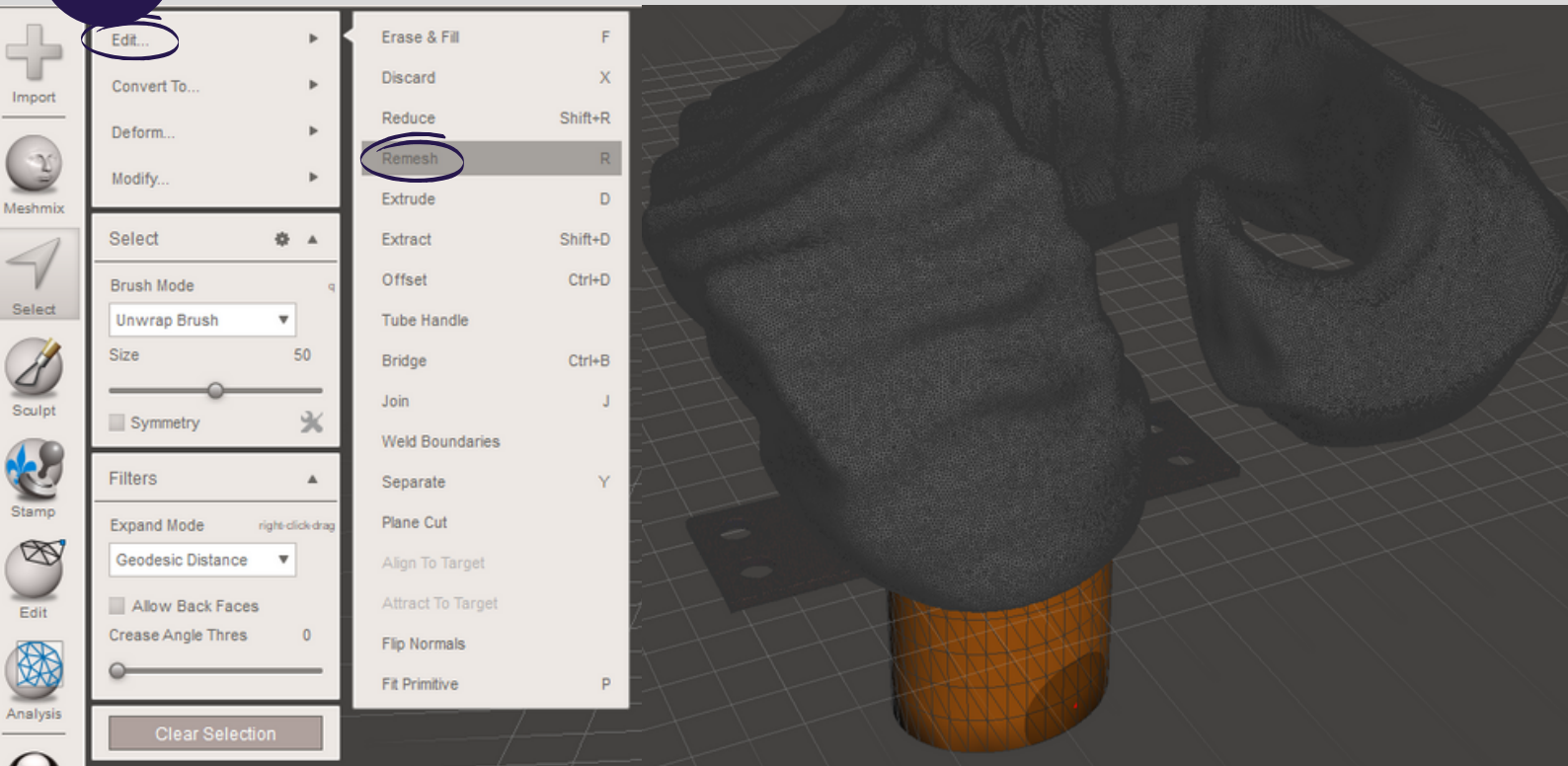
Then press Ctrl + A to select the rest of the cylinder.



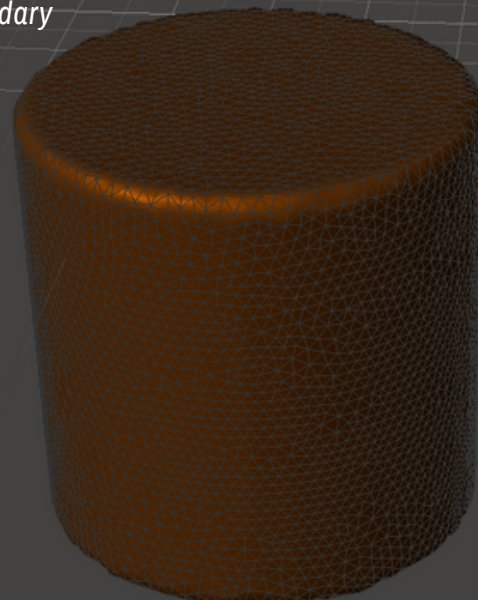
PAGE 9

13

Once you've selected the whole cylinder head to Edit > Remesh



There are a lot of options in the Remesh menu but the ones to check are:
Remesh Mode should be *Target Edge Length*
 Tick the *Smooth Group Boundaries* section
Boundary Mode should be *Fixed Boundary*
 Then click Accept

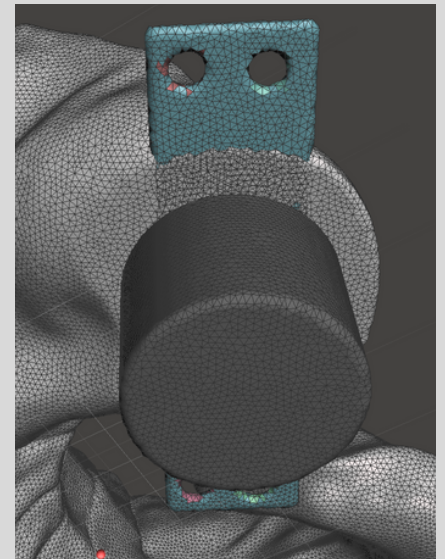
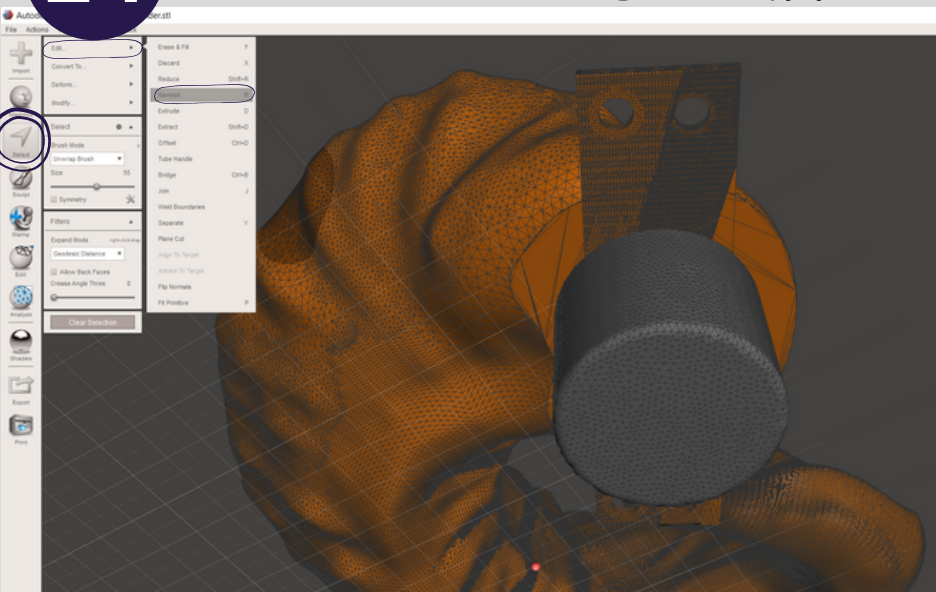




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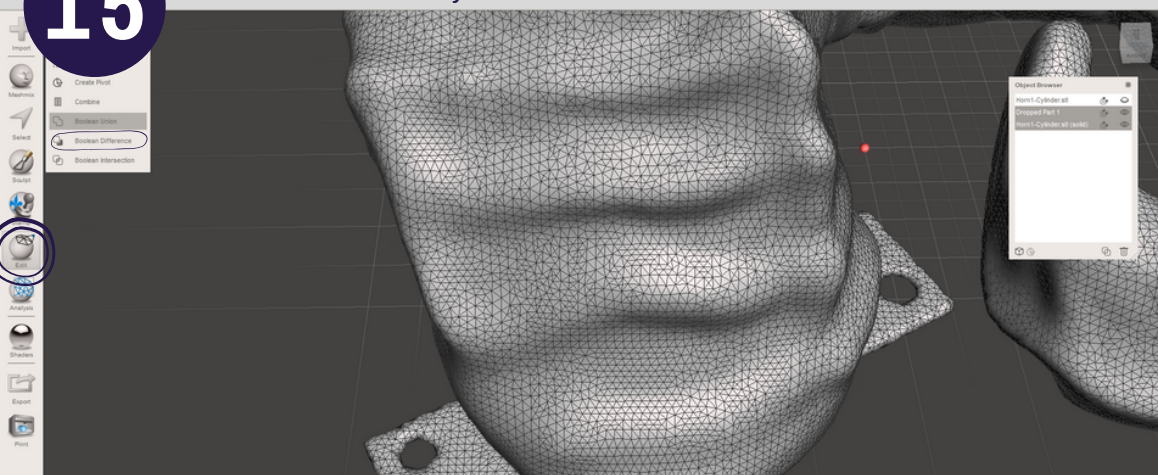
14

Now repeat the process for the horn. The aim is to get the wireframes to mostly match. Don't worry too much about the mesh becoming a little lumpy, your unlikely to notice it when 3D printing.



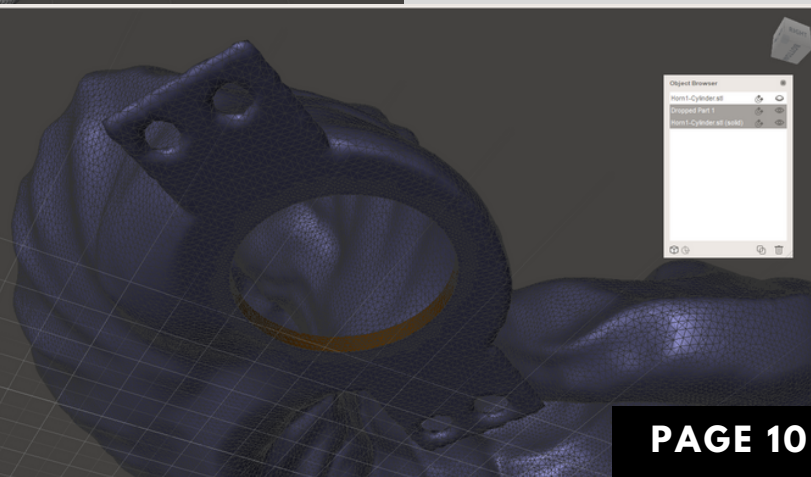
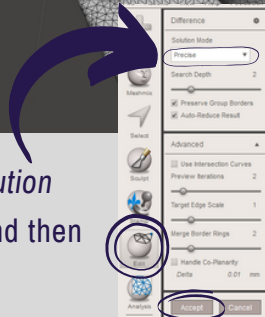
15

Finally open the Object Browser again (View > Show Objects Browser), head to the Edit menu, Select the horn and cylinder and select **Boolean Difference**.



If everything went well you should have a dark blue horn with a hole in the bottom.

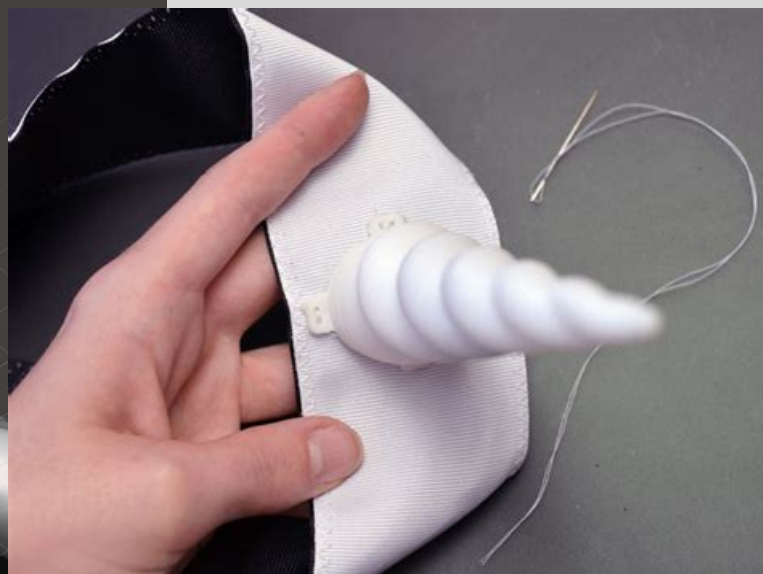
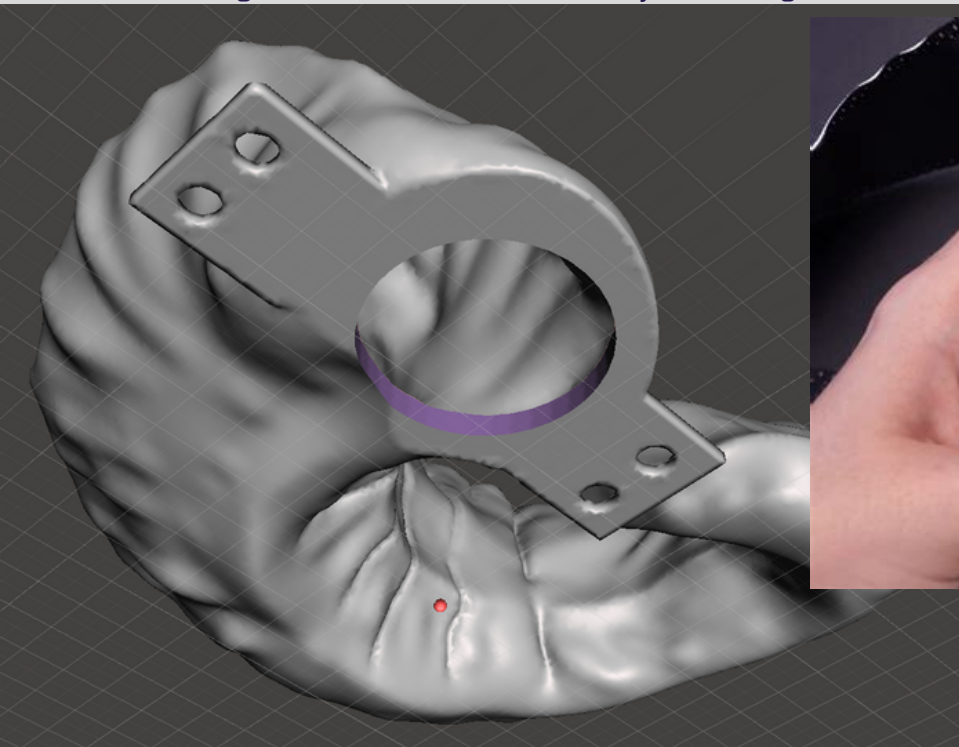
Make sure the *Solution Mode* is *Precise* and then press Accept.





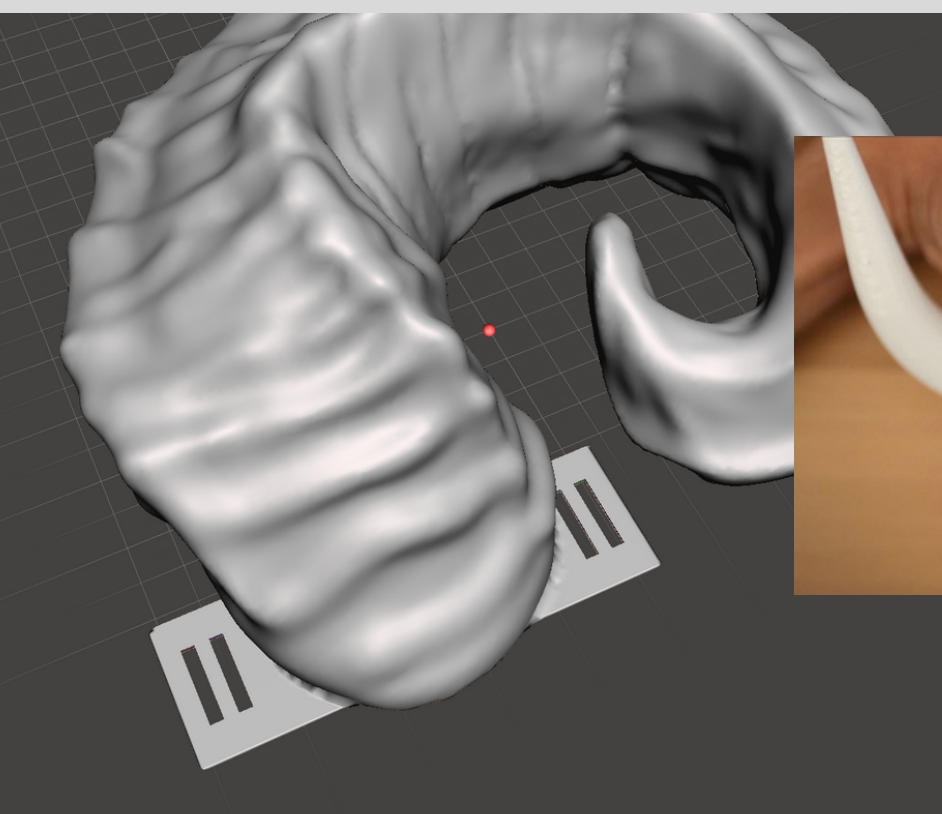
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The last step is to print out your horn! Make sure you keep a Meshmixer version of the file so you can go back and edit the holes if they are too big or too small.



Check out this Adafruit tutorial for more ideas on what to do with your horns.

learn.adafruit.com/3d-printed-unicorn-horn
learn.adafruit.com/simple-led-unicorn-horn/
learn.adafruit.com/3d-printed-led-fire-horns



You can also experiment with different hole shapes and different ways of attaching your horn to a headband.