Directions for Creating Team Shipping Element in OnShape
Robotics and Engineering
Marist School

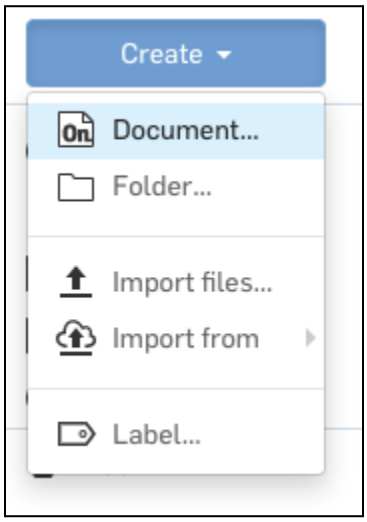
Description:

These directions will walk through the process of using OnShape to create a Team Shipping Element for the FTC FREIGHT FRENZY Game 2021. The directions will also outline how to export the part as a Collada file for 3D printing.

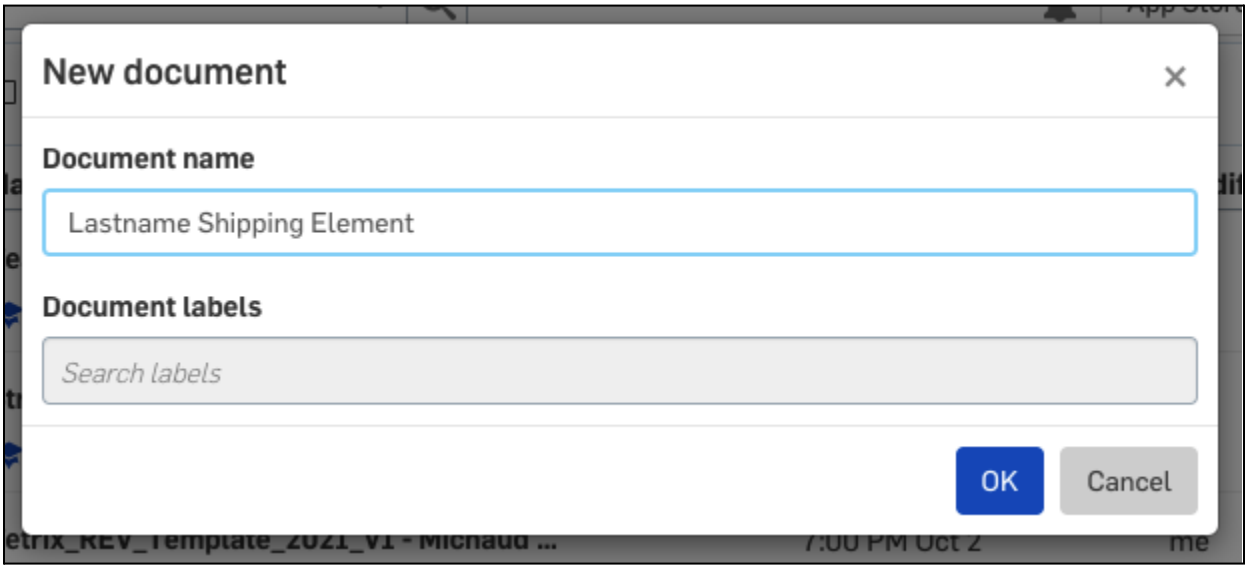
The team shipping element can be no smaller than 3x3x4 inches and no larger than 4x4x8 inches. We will make a conic shaped element that is 3 and ½ inches wide and about 7 inches tall.

Process:

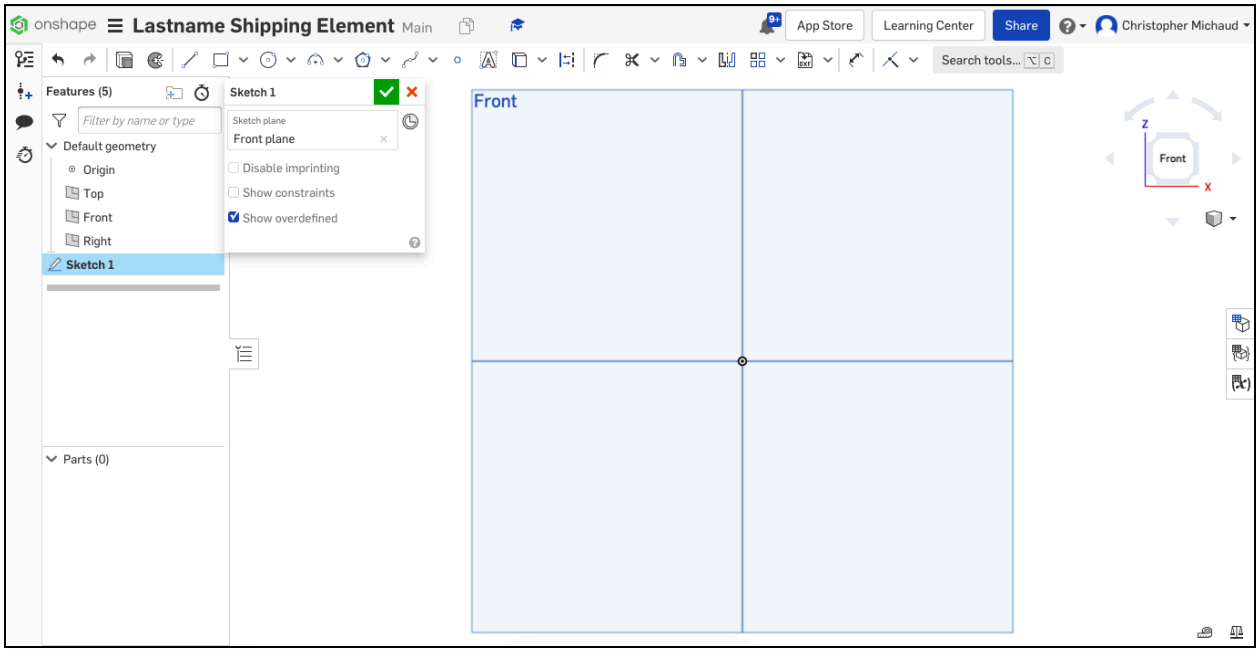
1. Log into OnShape and select “Create - Document”



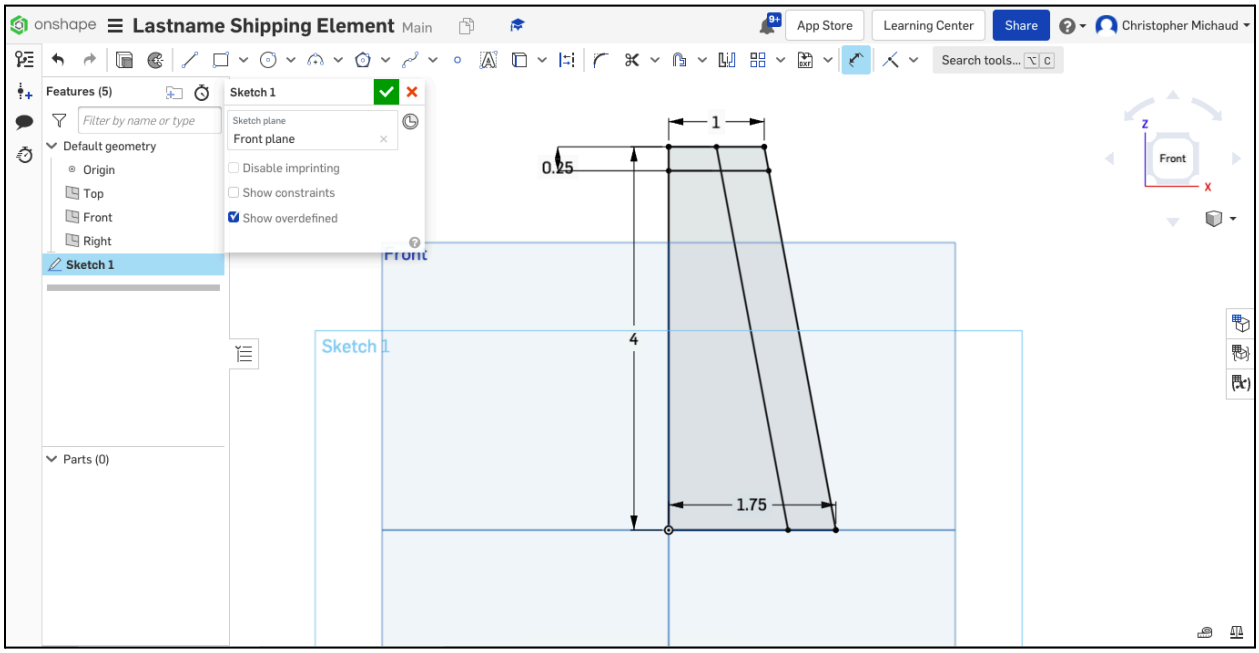
2. Name the document “Lastname Shipping Element”



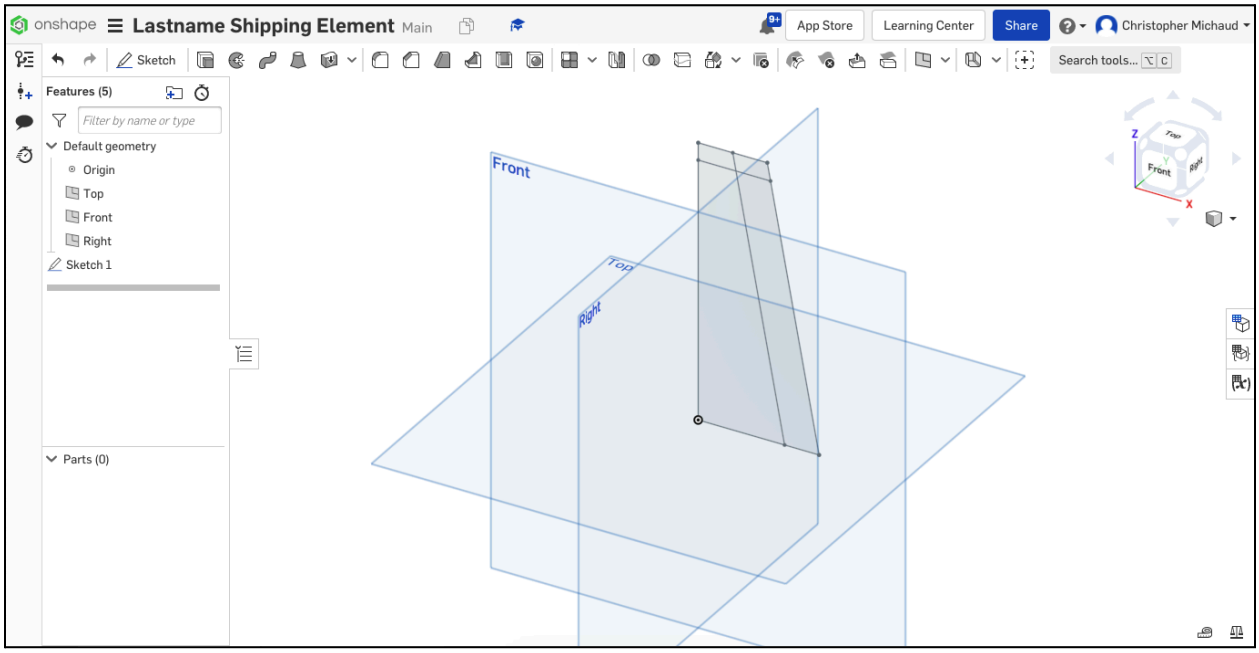
3. Select “Sketch” and then click the Front Plane. Then click the “Front” on the view cube to setup the first sketch.



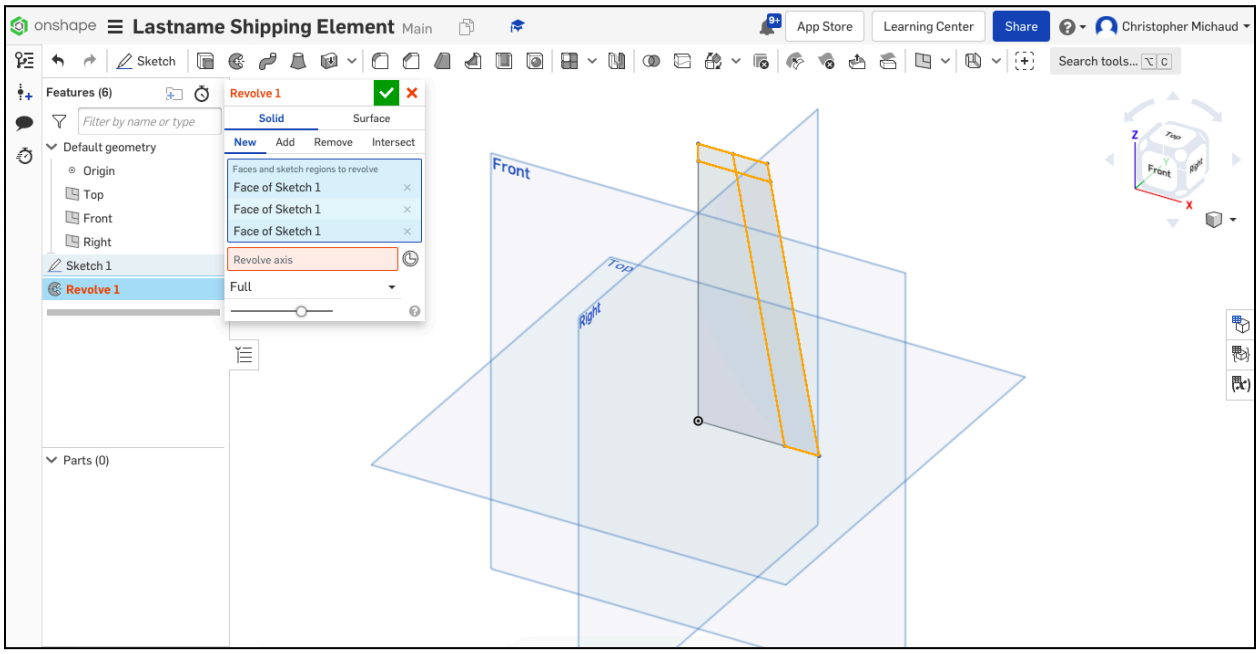
4. Use the line and dimensions tool and make the shape below:



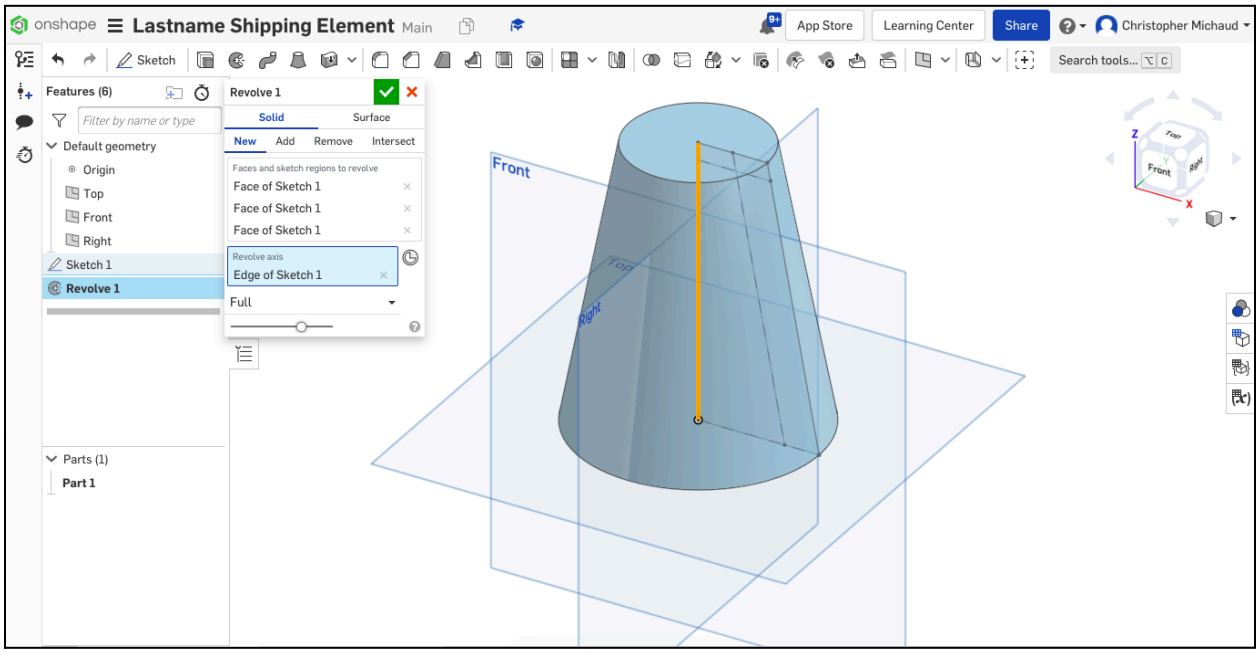
5. Click the Green Check mark to accept the sketch and then click the corner of the View Cube.



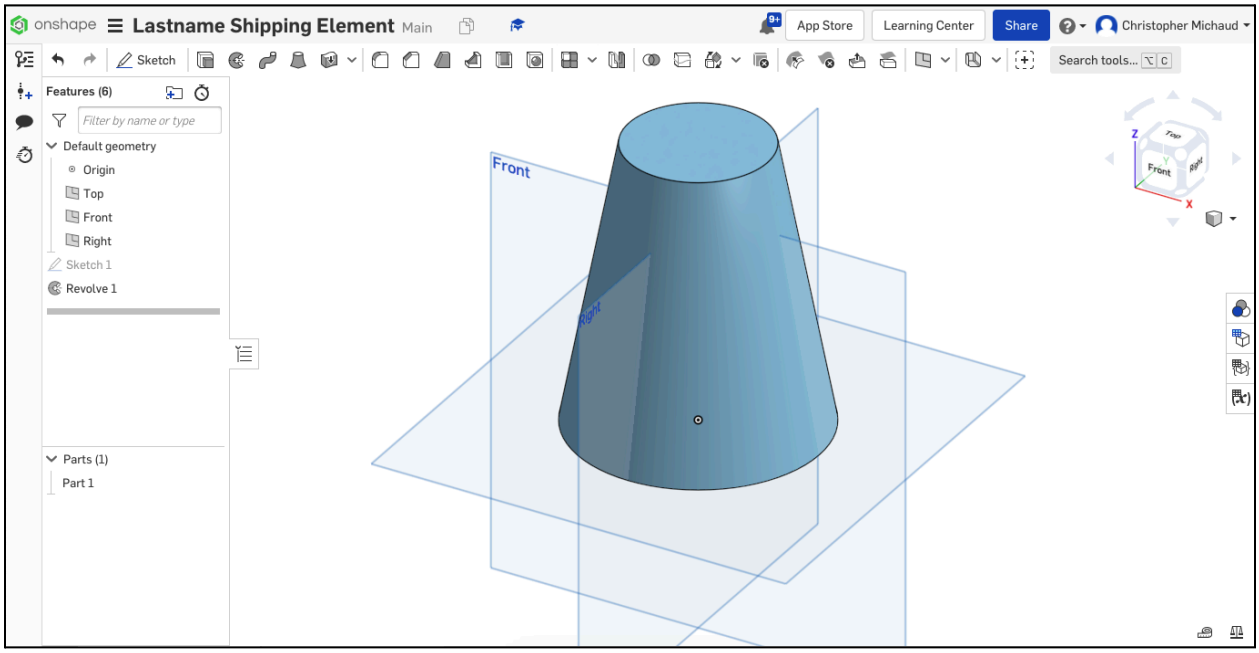
6. We are now going to use the Revolve Tool. The Revolve Tool rotates a shape around an axis. Click the Revolve Tool (to the right of “Extrude”). Then select the faces on the top and right of the shape.

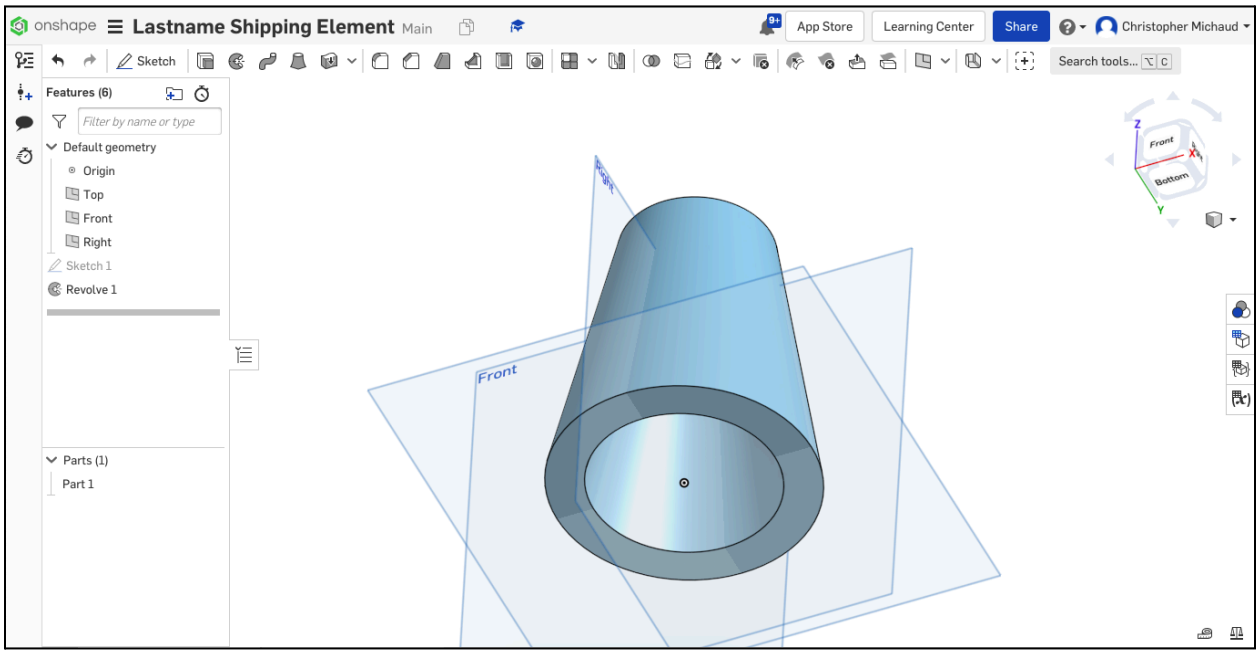


7. Now click the pink rectangle and then select the “Y Axis”. That is the rotate around axis.

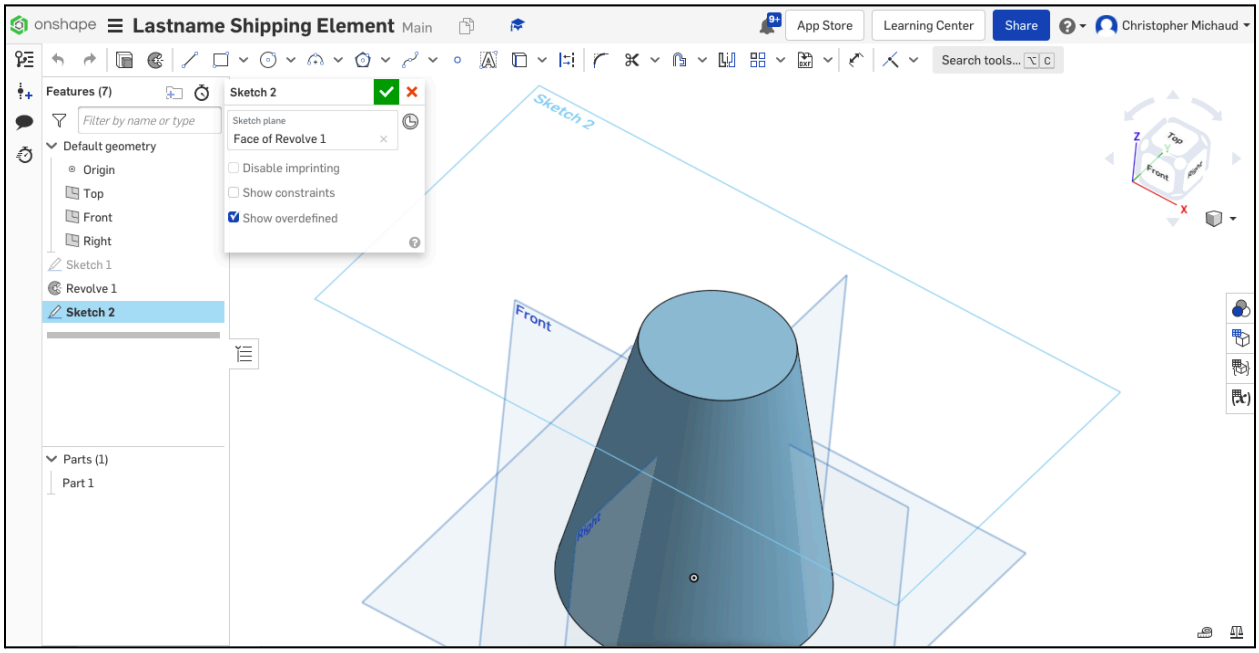


8. Click the green check mark to accept the revolve. Note that the bottom of the shape is open so these team markers can stack on each other.

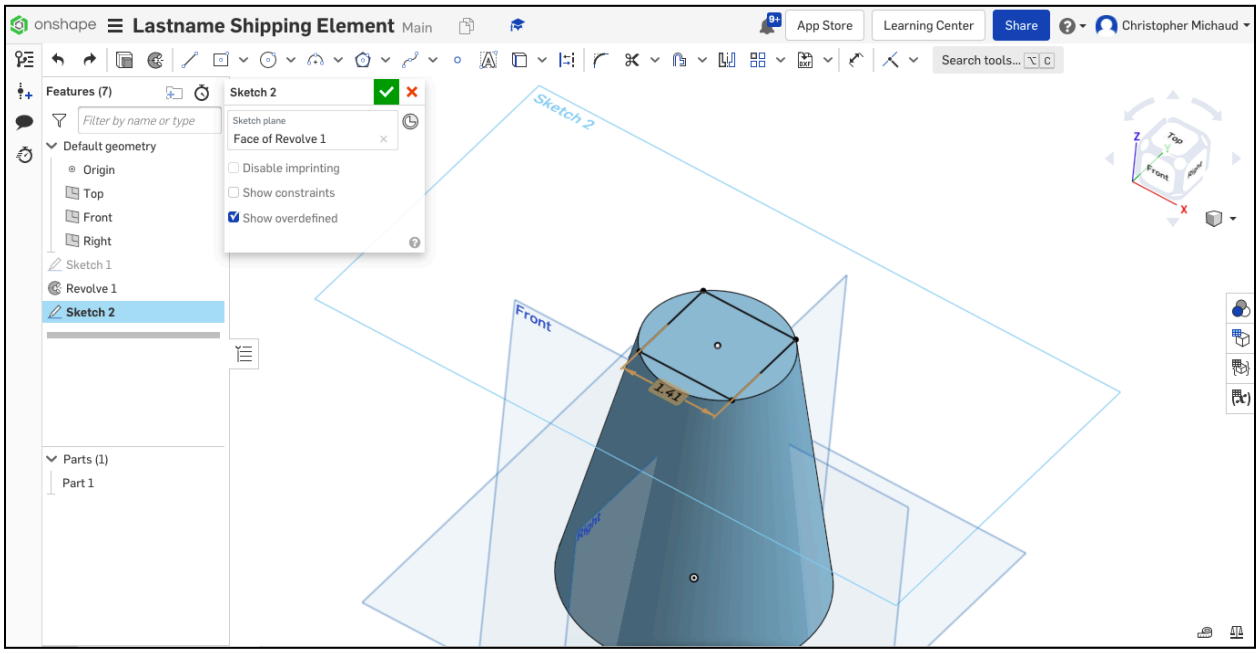




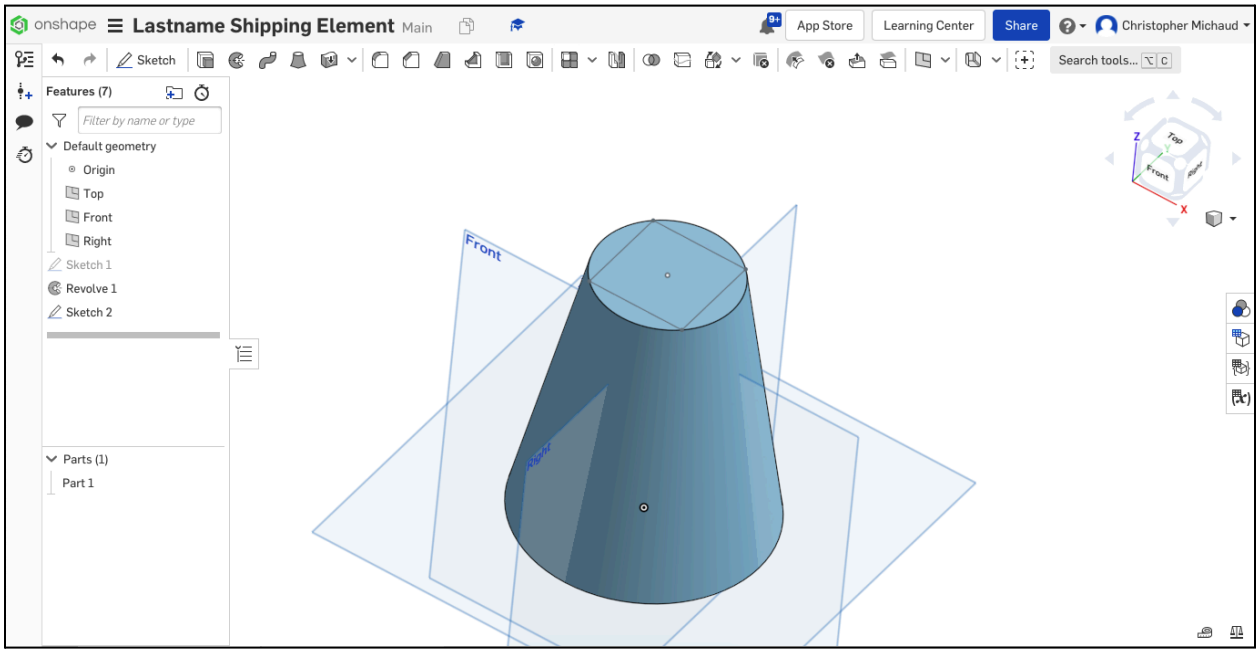
9. We are now going to add a cube to the top of the shape to put the vision target. Rotate to the top of the shape and right click on the top circle and select “New Sketch”



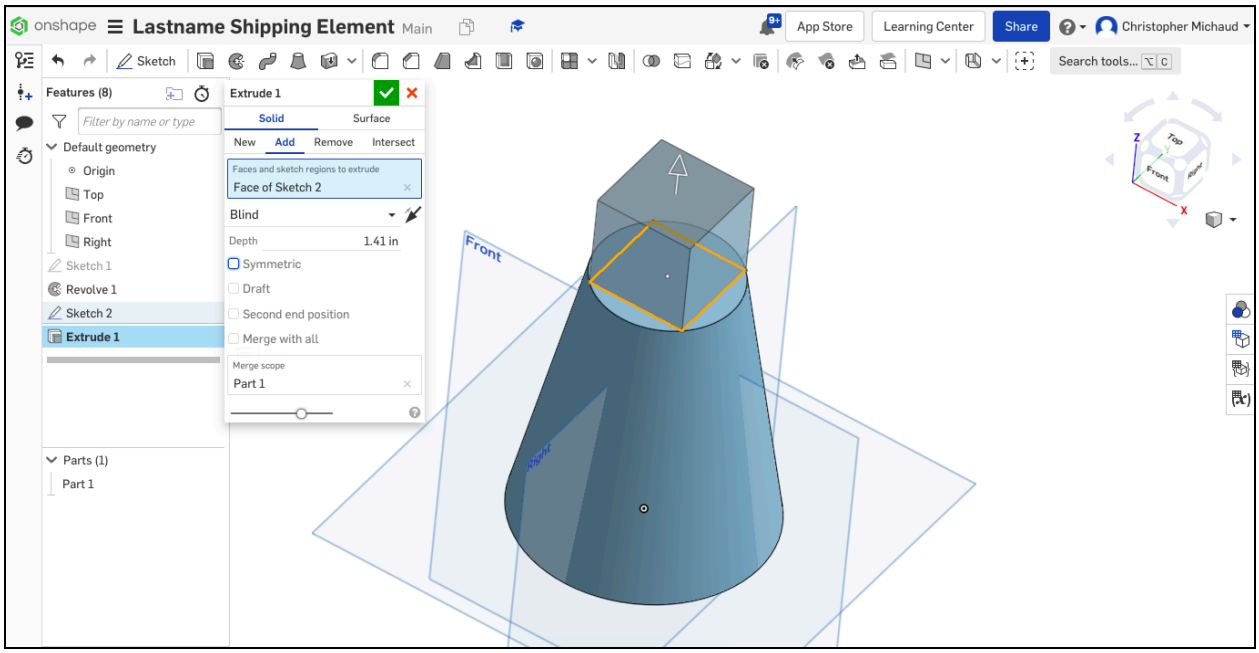
10. Click the Rectangle Tool and select “Center Rectangle”. Create an inscribed Rectangle with a side length of 1.41. (Why do you think I chose 1.41 for the side length?)



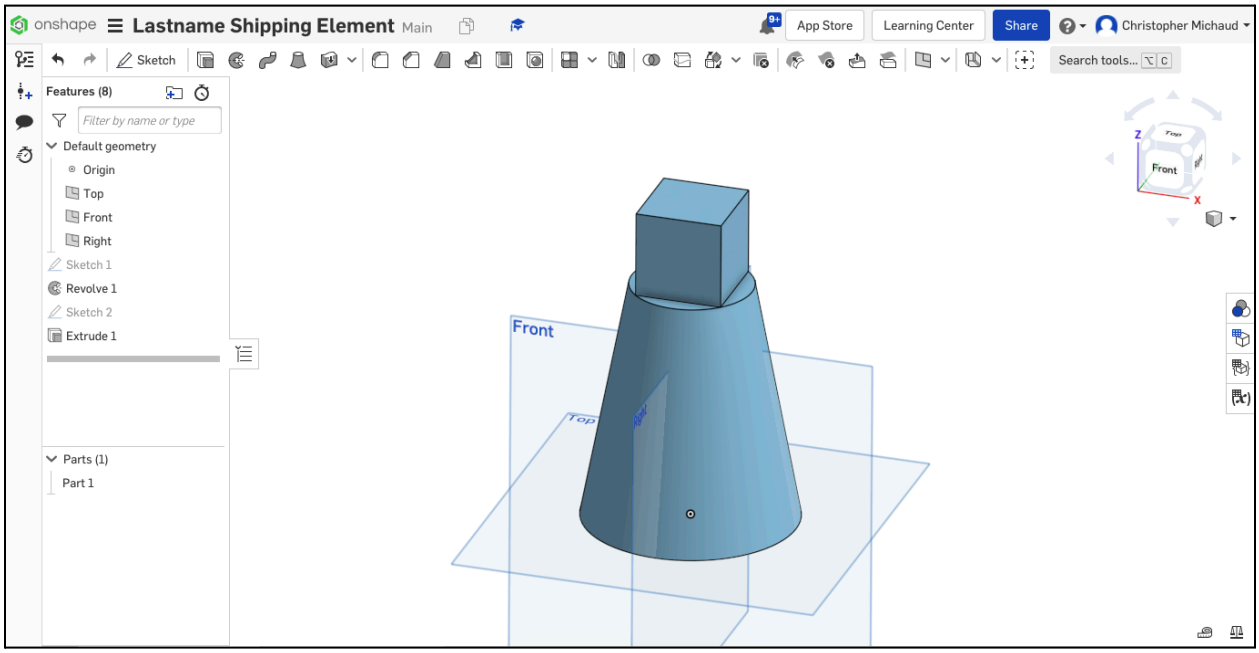
11. Click the green checkmark to accept the sketch.



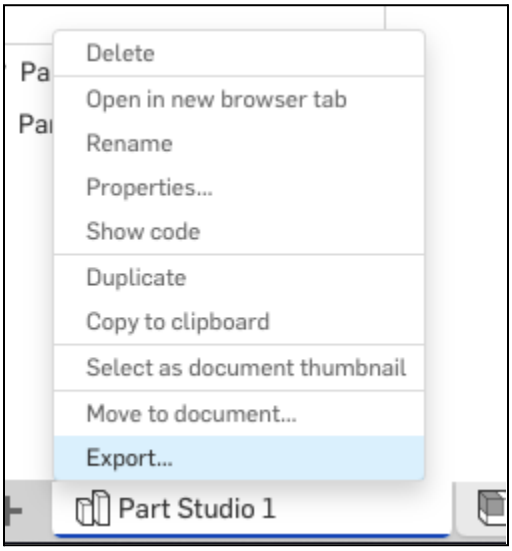
12. Use the Extrude tool and extrude the square to 1.41 inches high. Click the green check mark to accept the extrude.



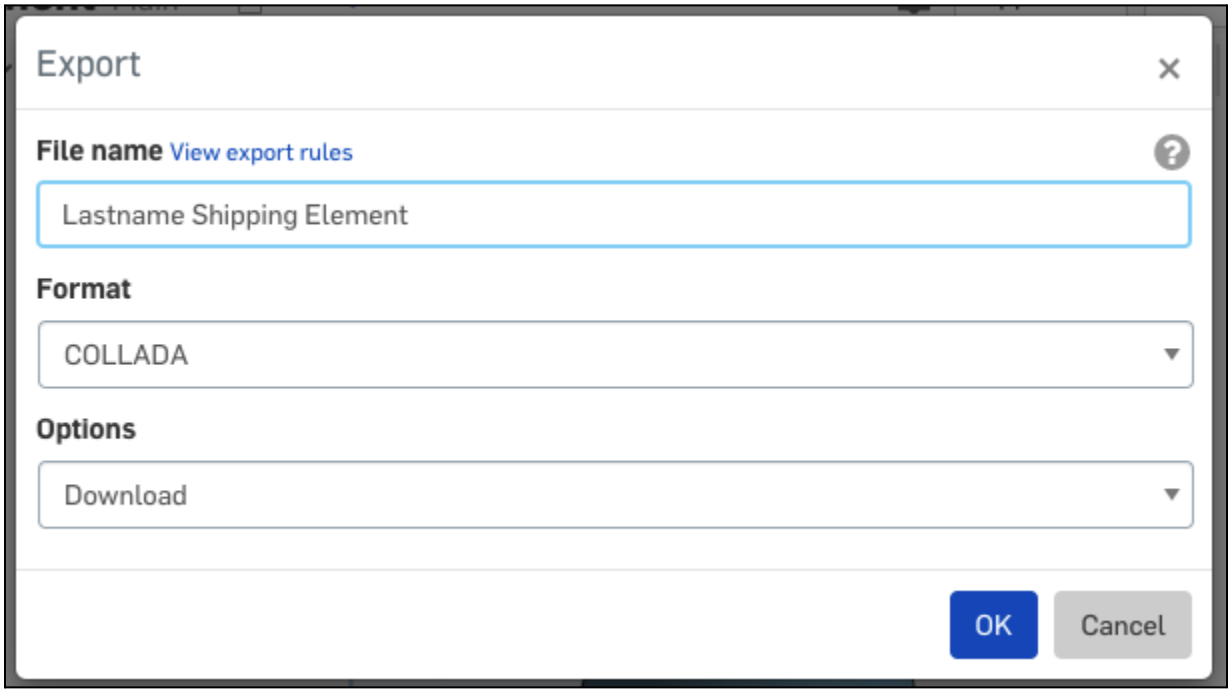
13. Your shape is ready for 3D Printing!



14. To export for 3D printing, right click on the “Part Studio 1” and select “Export”



15. Name the export “Lastname Shipping Element”. Make sure the download type is set to “COLLADA”. Then click “OK”.



16. Email the downloaded “Collada” file to yourself and then you can open the file on one of the 3D Printer computers. See Mr. Michaud if you want to 3D print your work.

17. To submit your work, take a screenshot and place it on your Weekly Google Slide deck that documents your work.