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# Fusion 360 CAD Tutorial

## Project 1: Holder for Capsule and Rocket

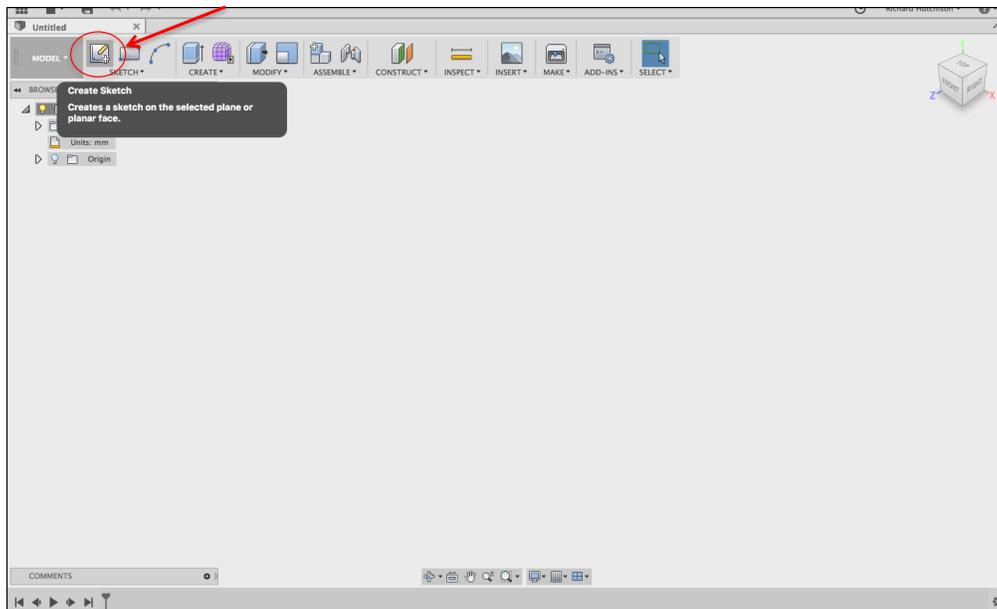


**2017-05-22**

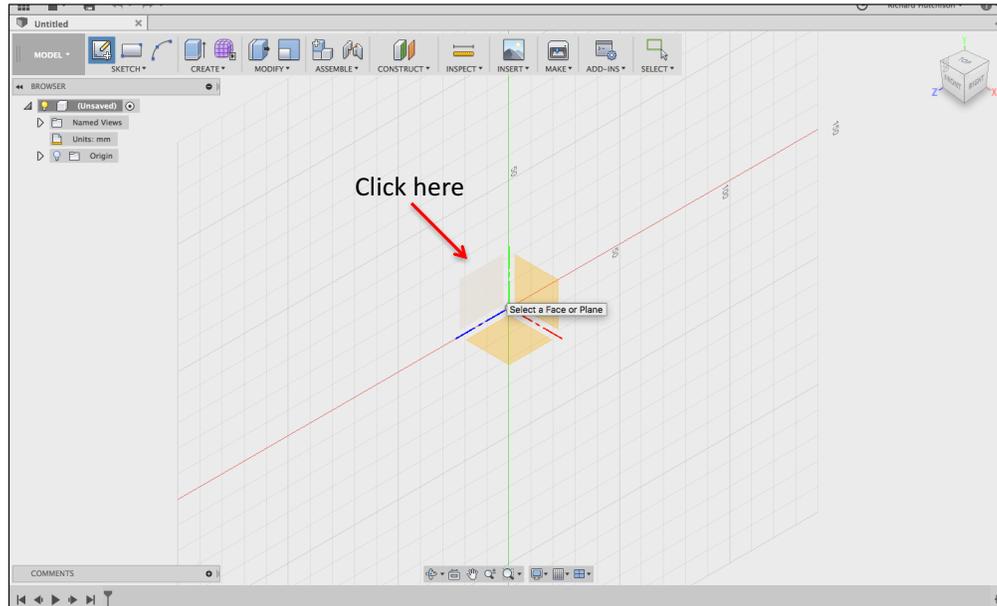
**Richard Hutchison**



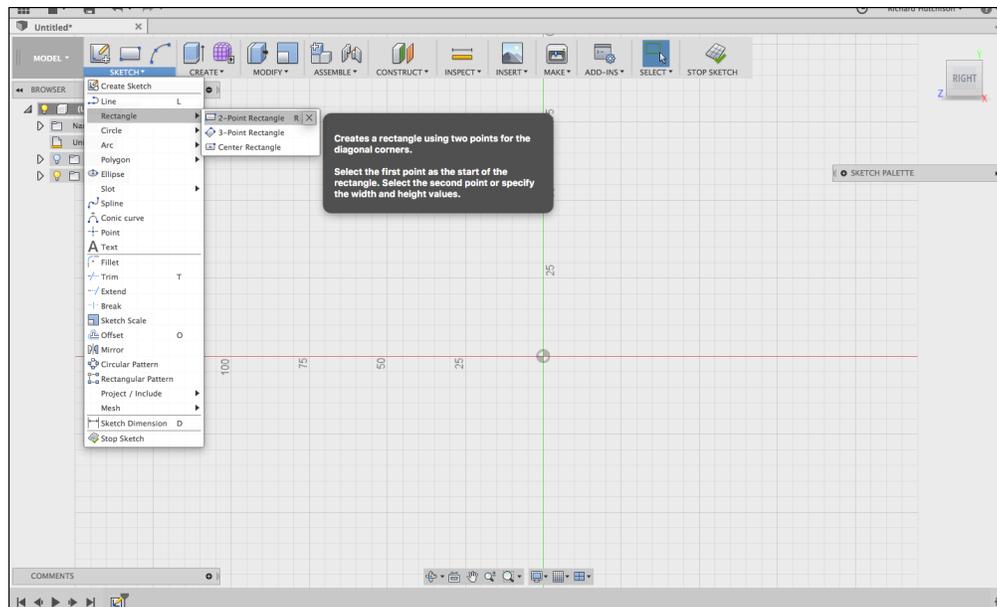
### Step 1 - Make a Sketch



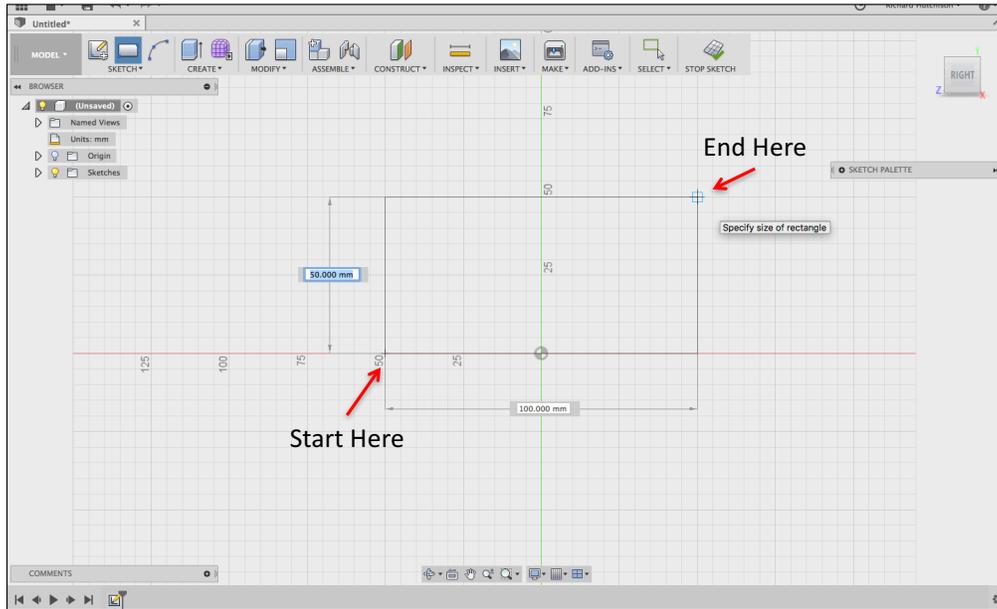
## Step 2 - Select the ZY sketch plane



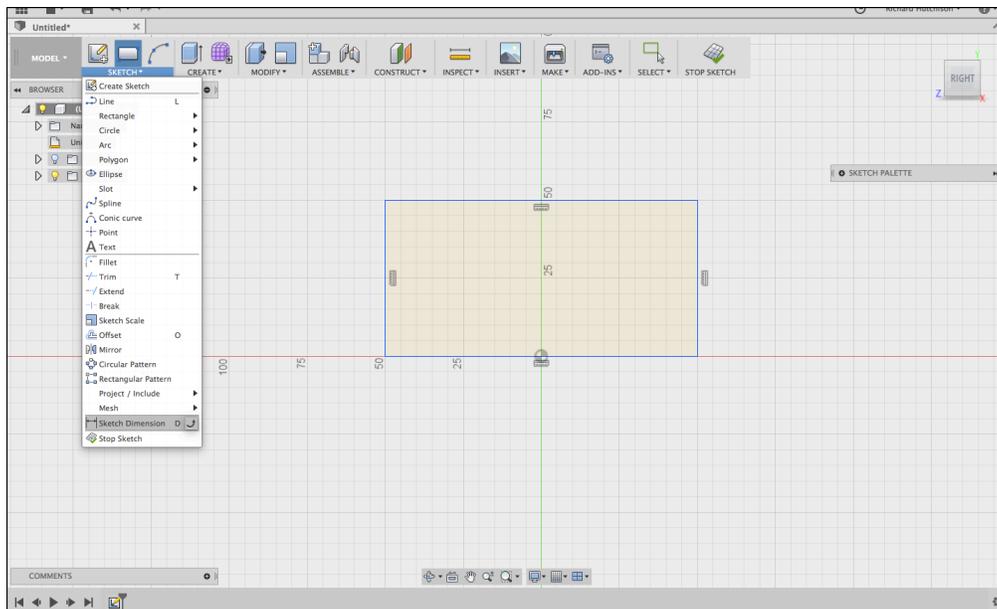
## Step 3a - Make a 2-Point Rectangle 100mm wide, 50mm tall



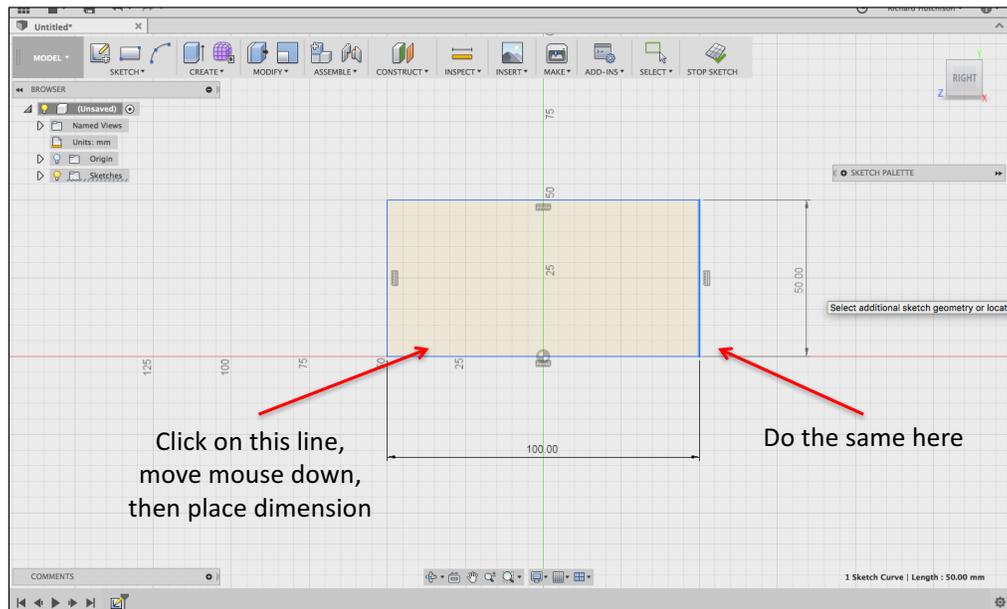
### Step 3b - Make a 2-Point Rectangle 100mm wide, 50mm tall



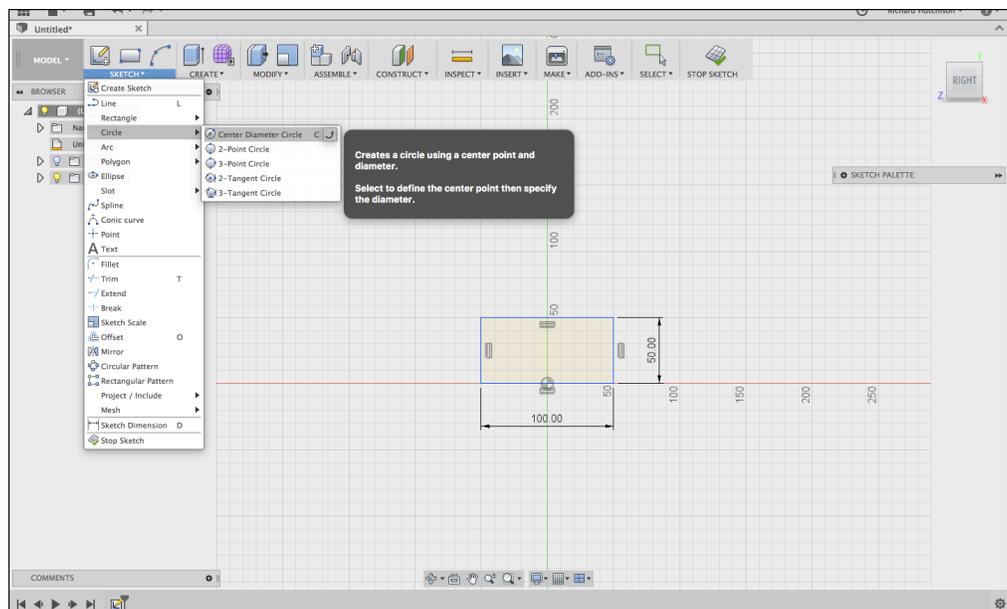
### Step 4a - Dimension the rectangle



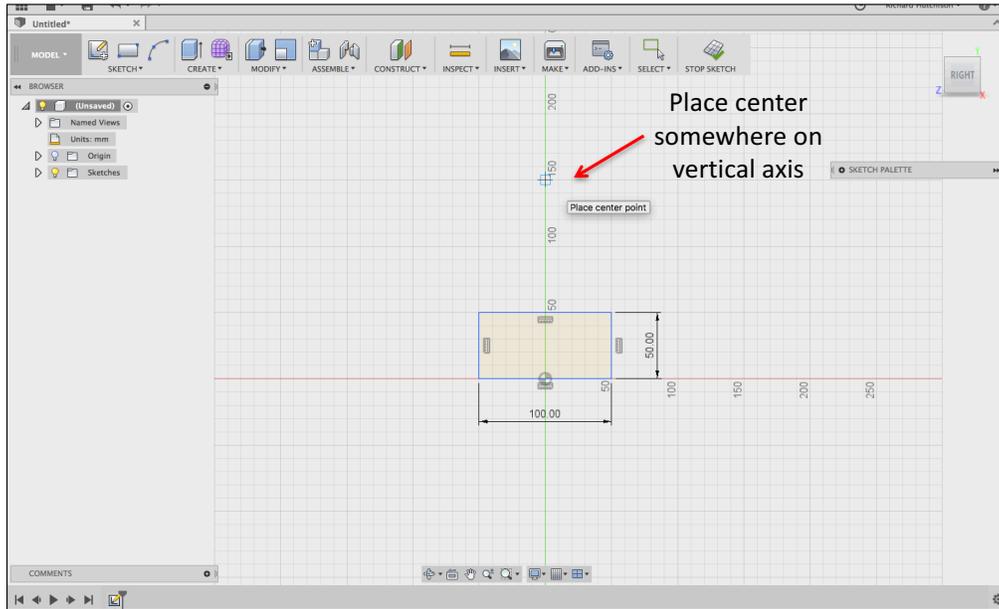
## Step 4b - Dimension the rectangle



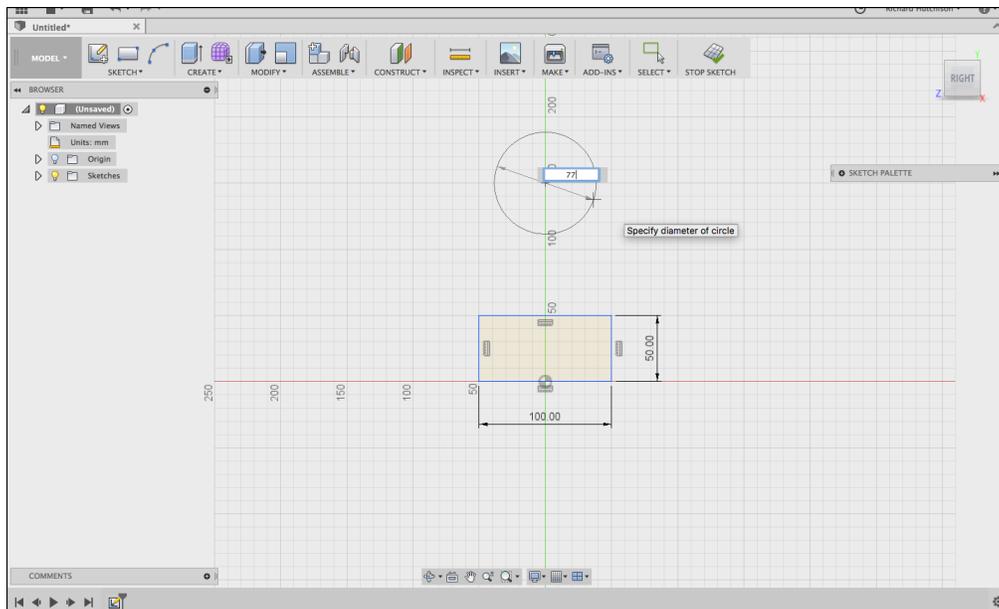
## Step 5a - Make a Circle with a diameter of 77mm above the rectangle



### Step 5b - Make a Circle with a diameter of 77mm above the rectangle

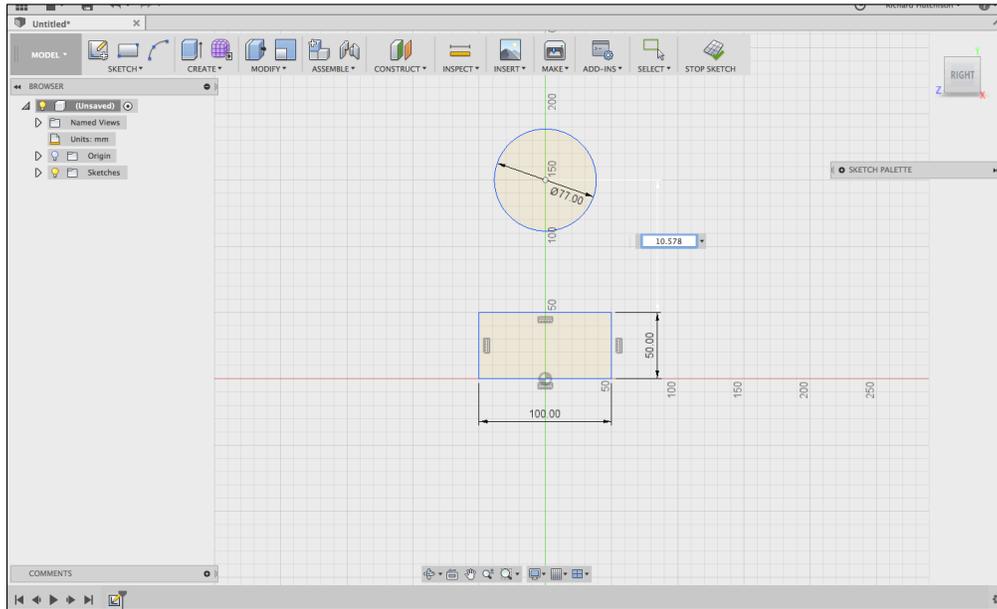


### Step 5c - Make a Circle with a diameter of 77mm above the rectangle

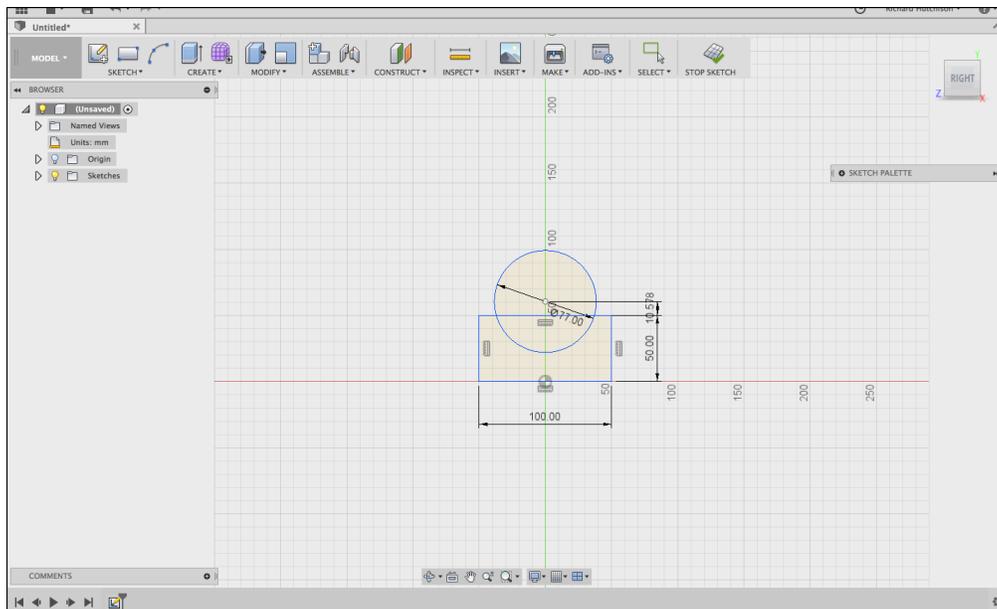




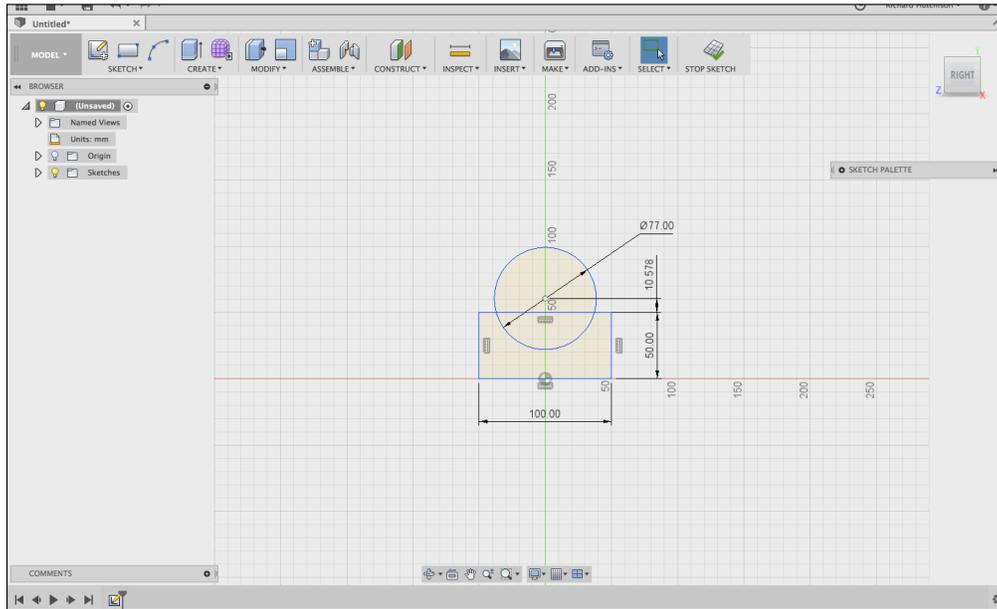
### Step 8a - Type in 10.578 and Press Enter



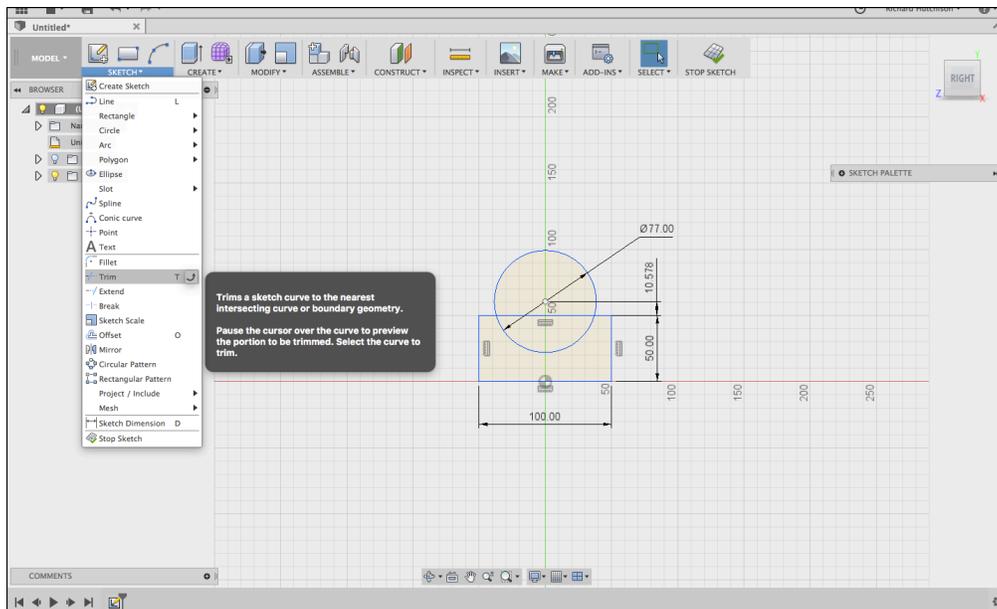
### Step 8b - Type in 10.578 and Press Enter



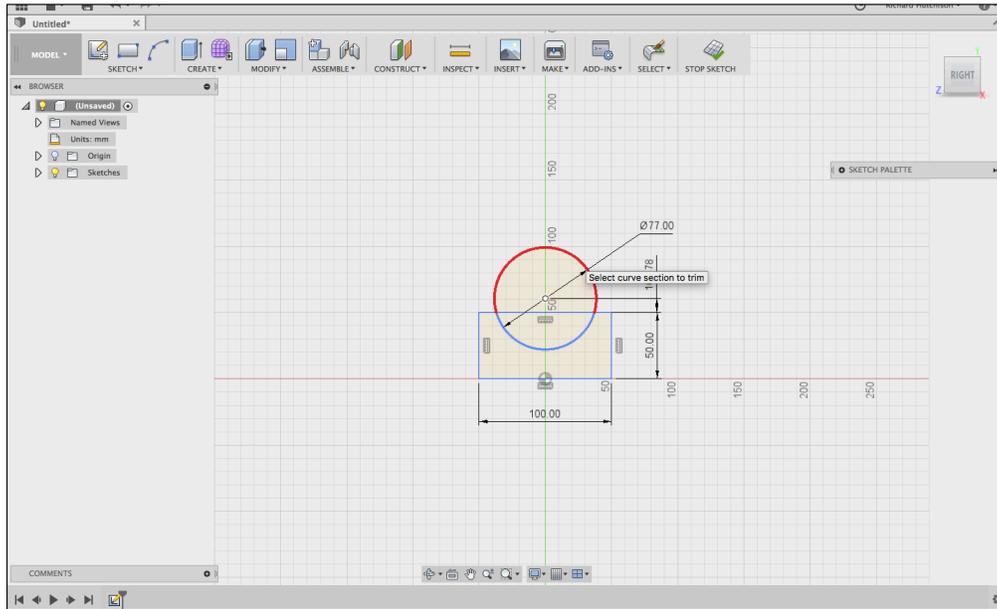
### Step 8c - Click and drag dimension values so they are out of the way



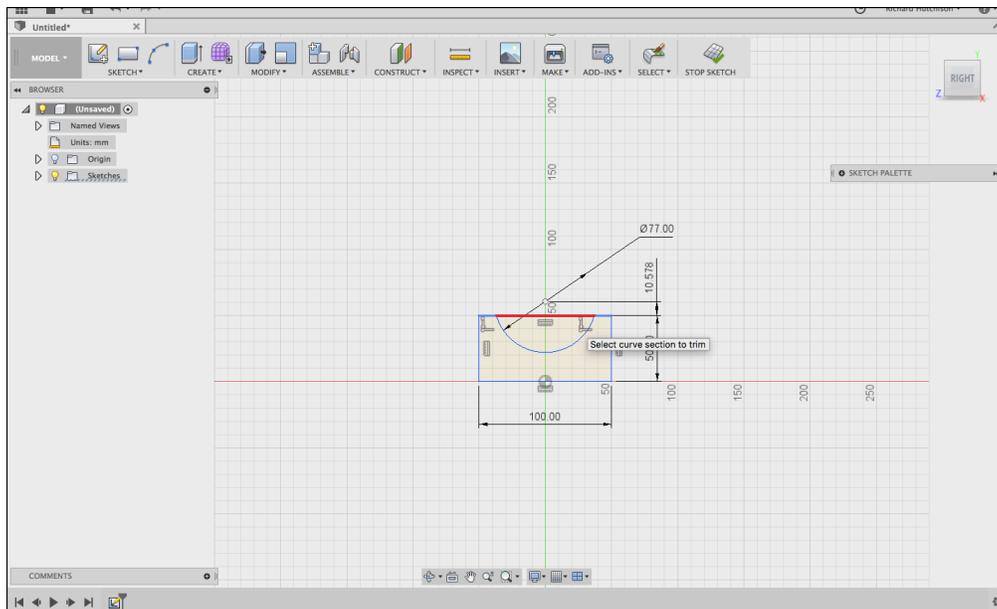
### Step 9a - Select Trim



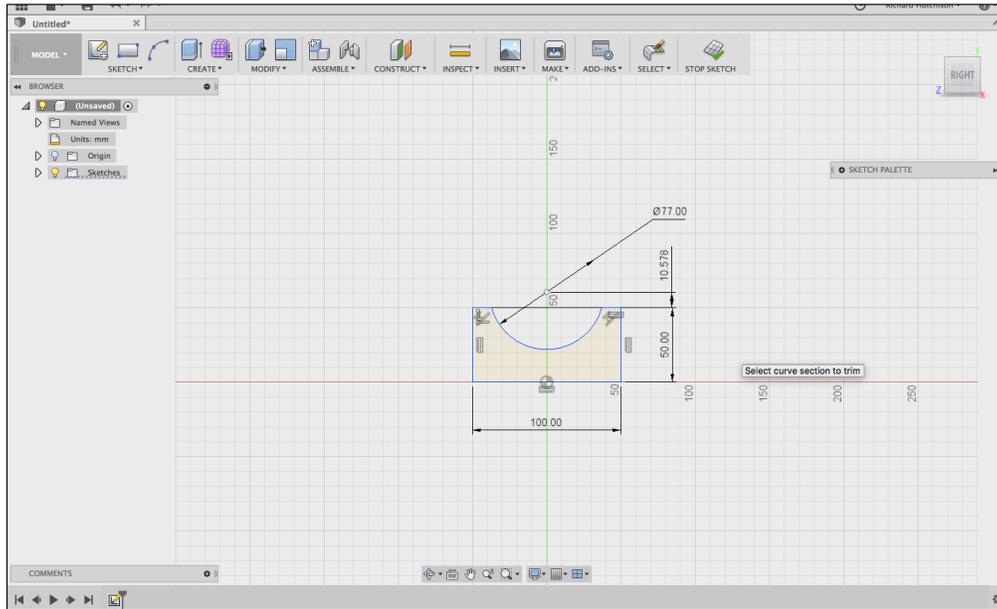
### Step 9b - Trim the top of the circle and rectangle



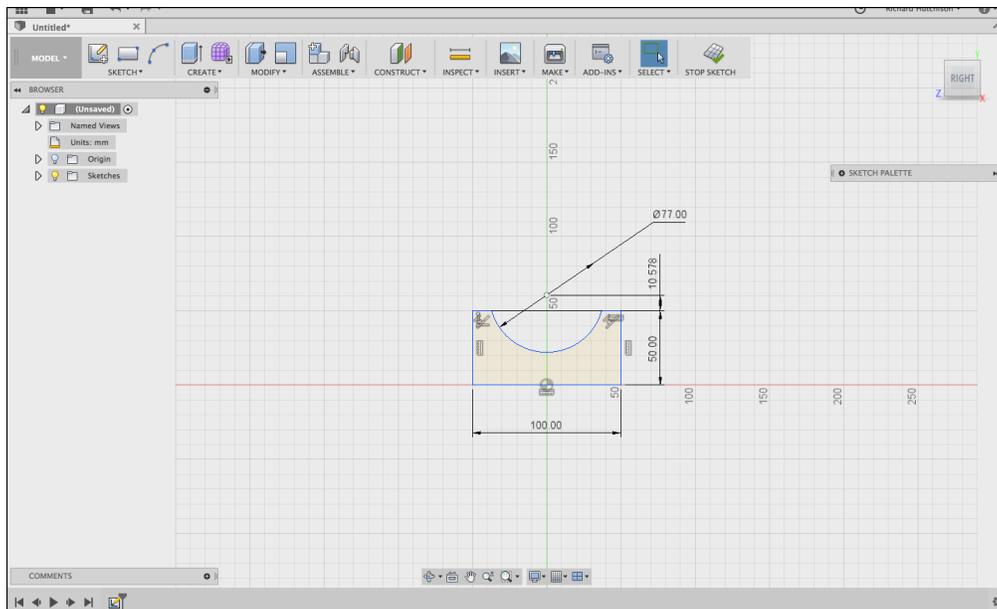
### Step 9c - Trim the top of the circle and rectangle



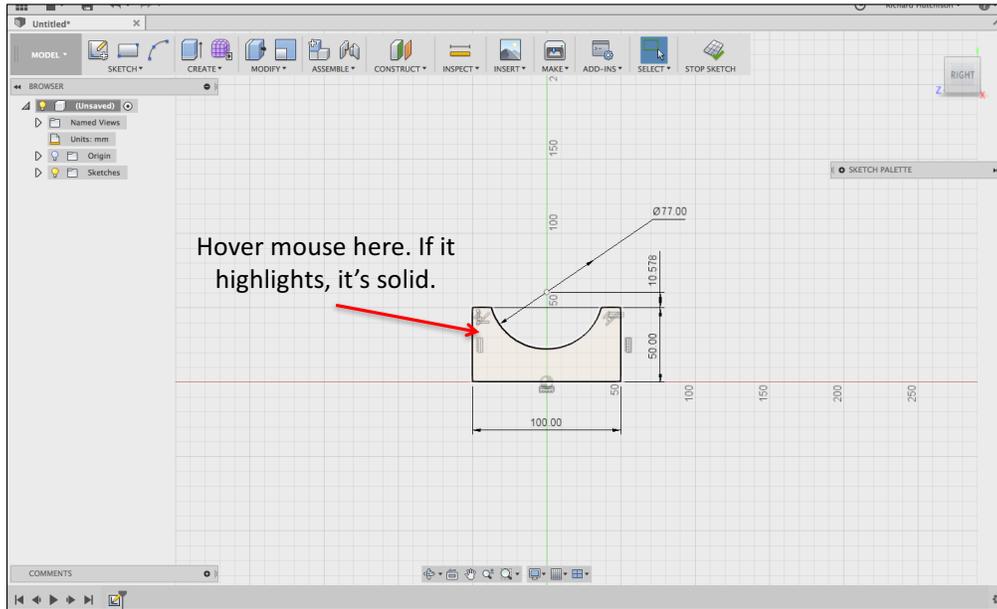
### Step 9d - Trim the top of the circle and rectangle



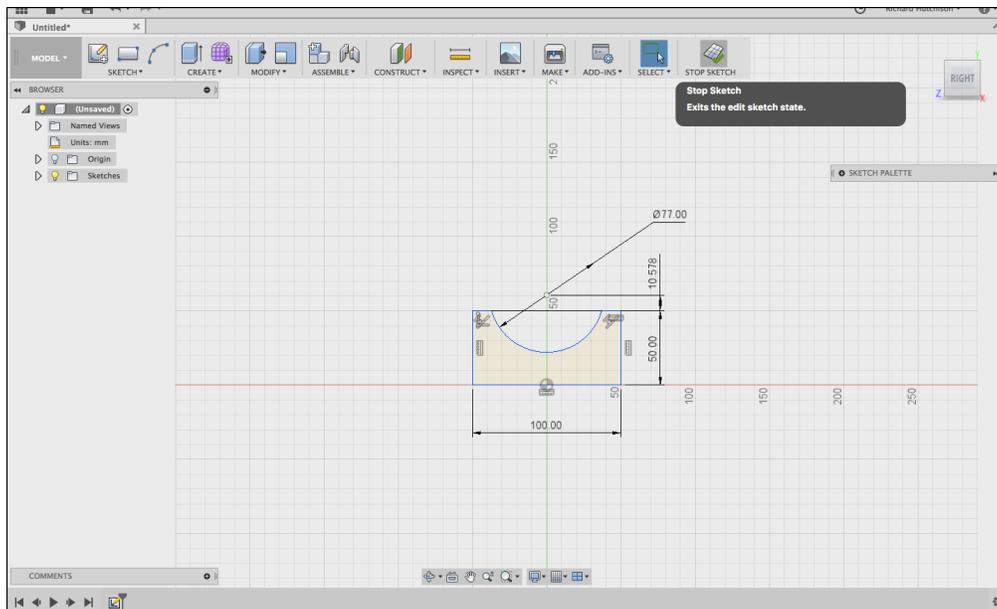
### Step 10a - Check that your sketch is closed, if it's orange it is good



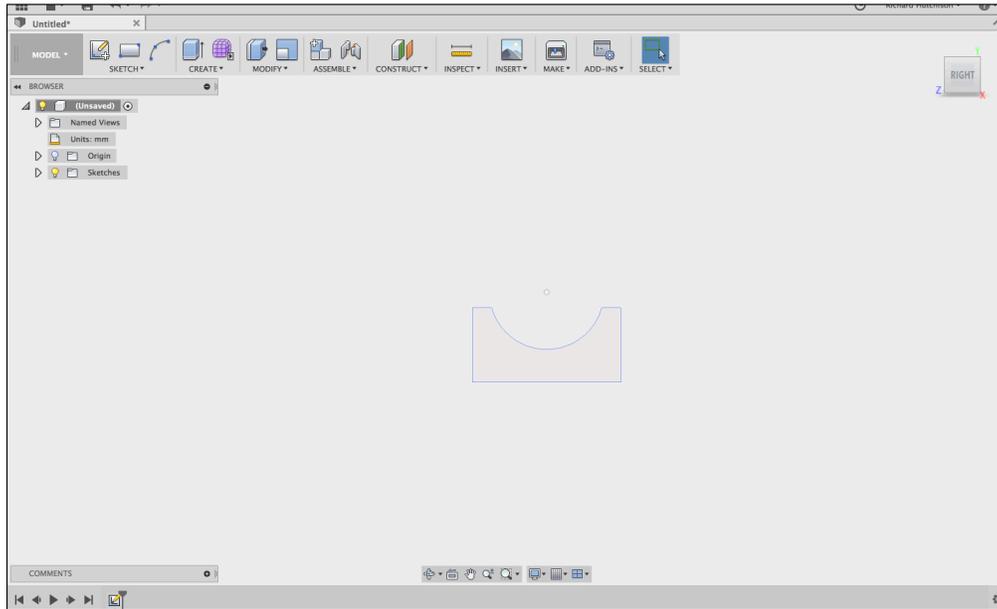
### Step 10b - Or you can put your mouse over it and it will highlight



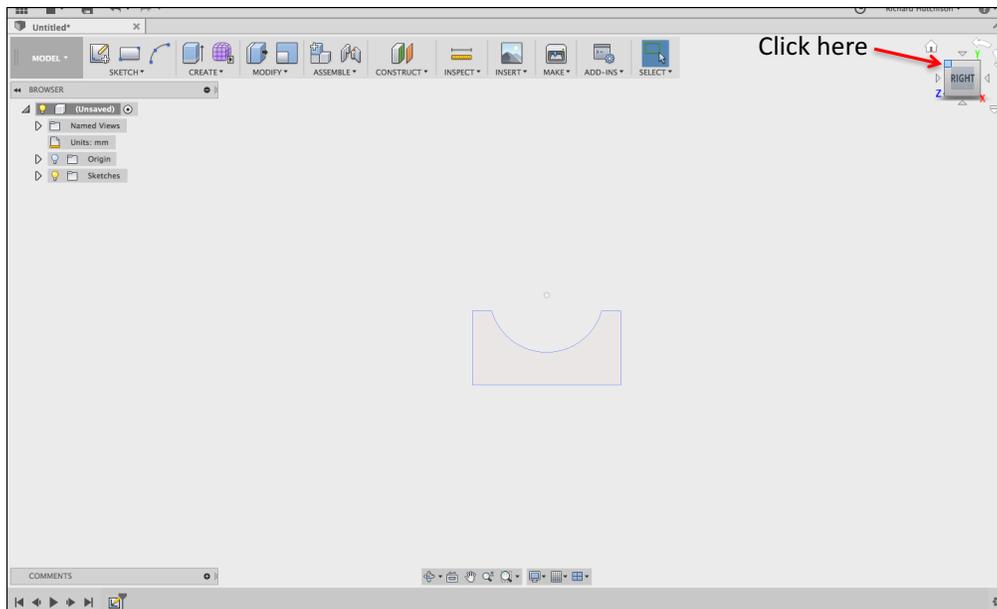
### Step 11a - Stop sketch



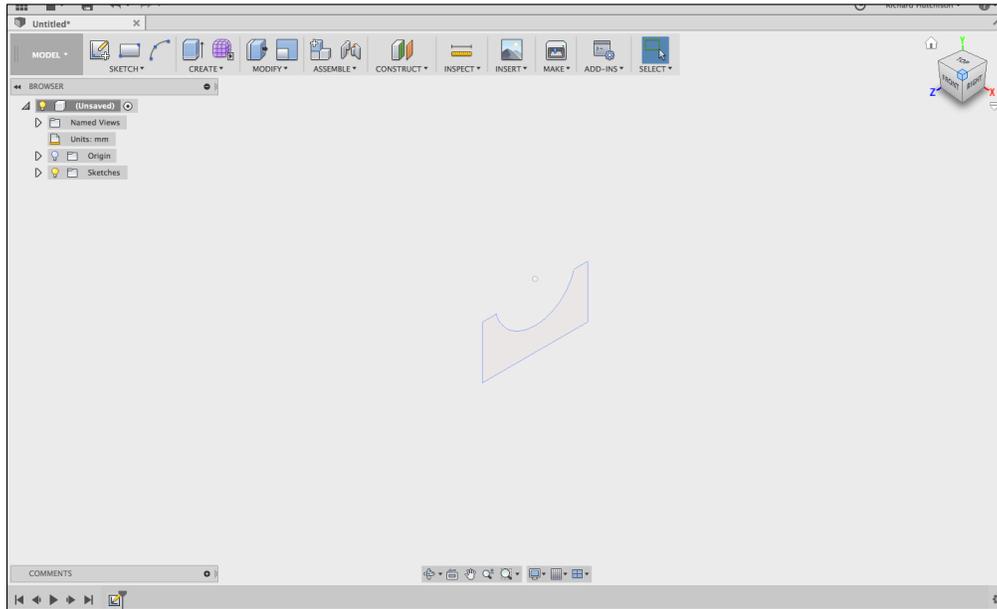
### Step 11b - Stop sketch



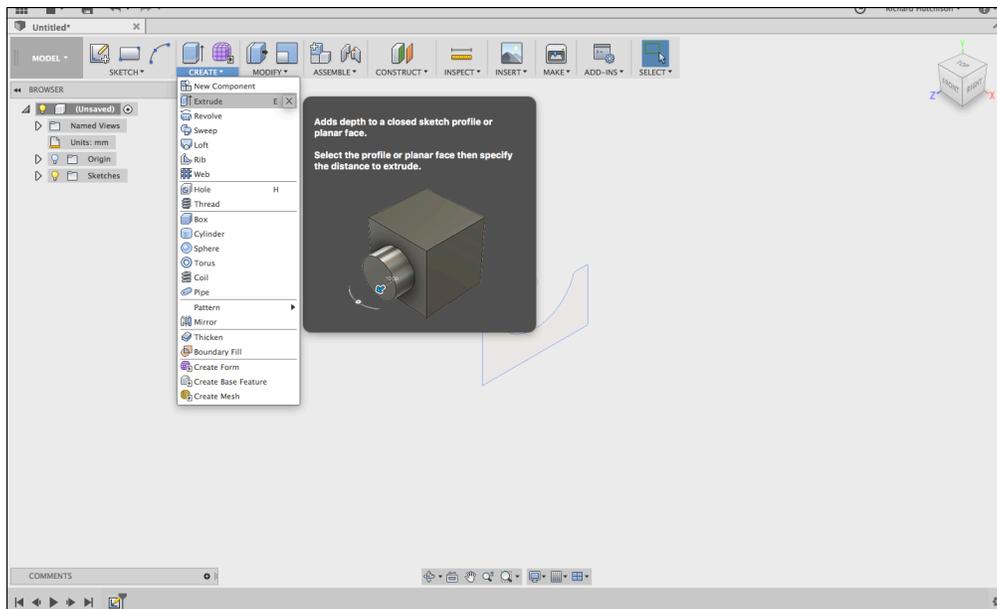
### Step 12a - Use the ViewCube to view from top left corner



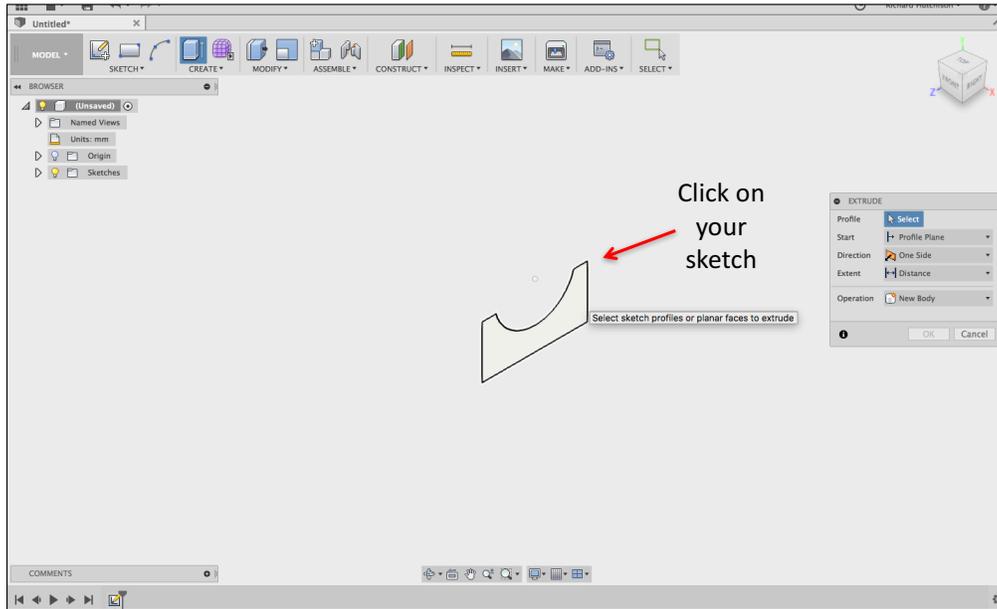
### Step 12b - Use the ViewCube to view from top left corner



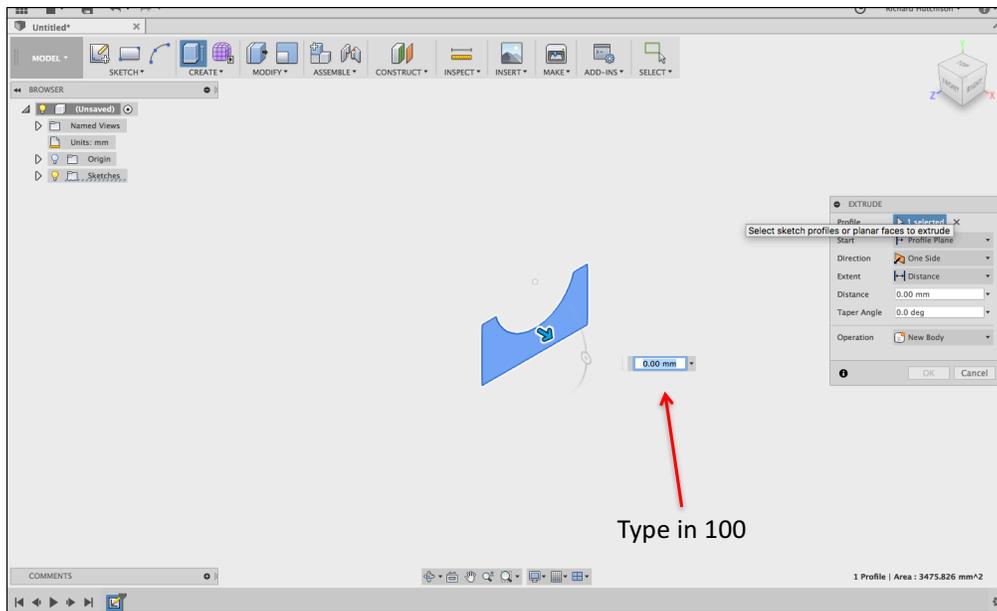
### Step 13 - Select Extrude



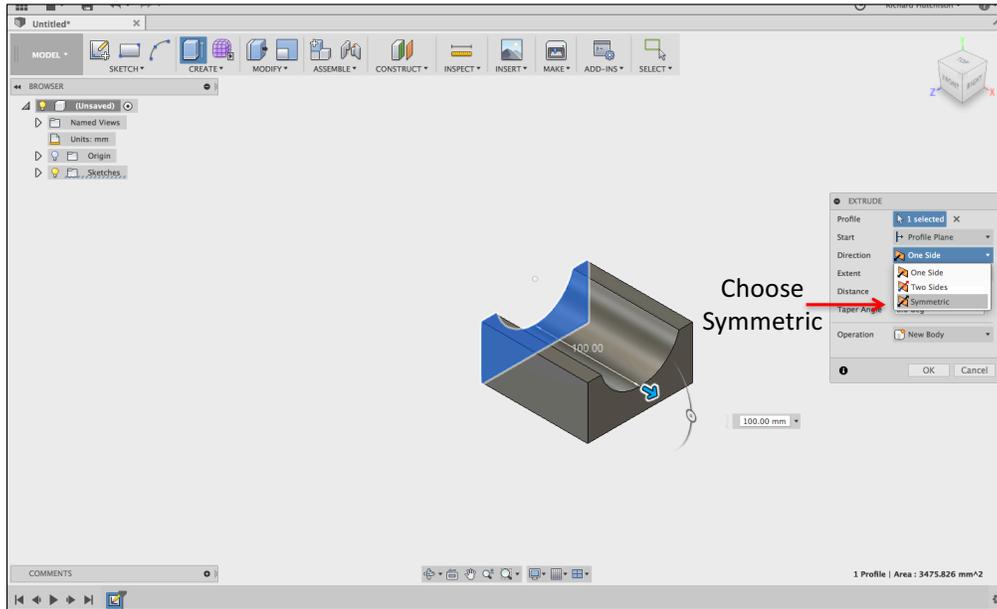
### Step 14a - Click on your sketch



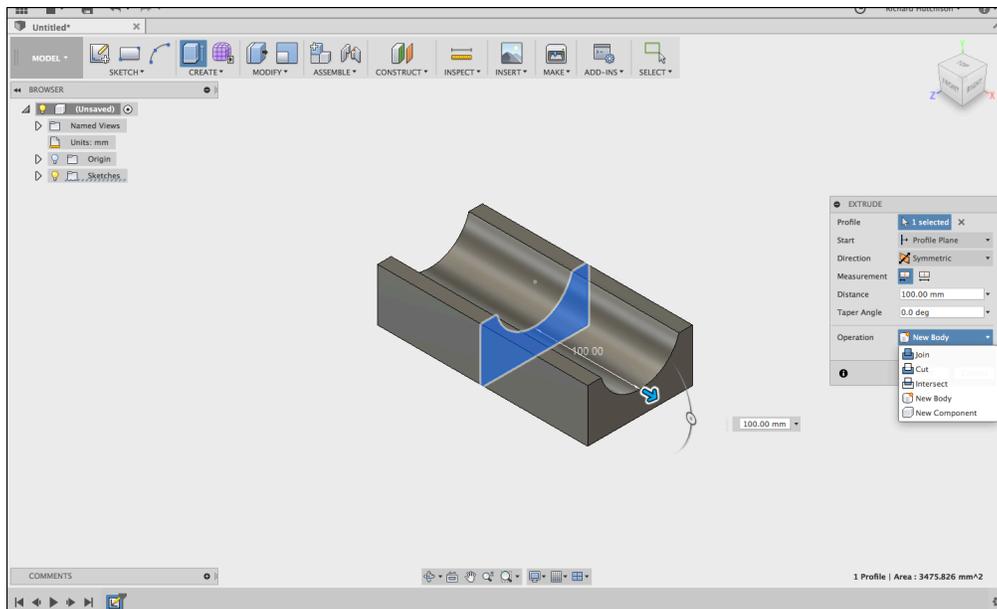
### Step 14b - Click on your sketch



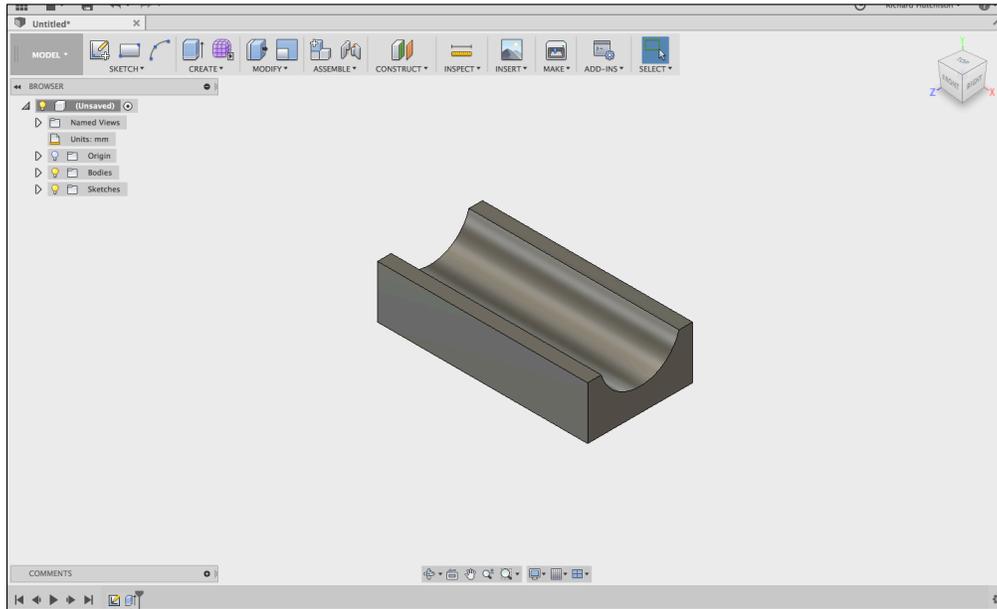
### Step 15a - Type in 100mm and select Symmetric for Direction



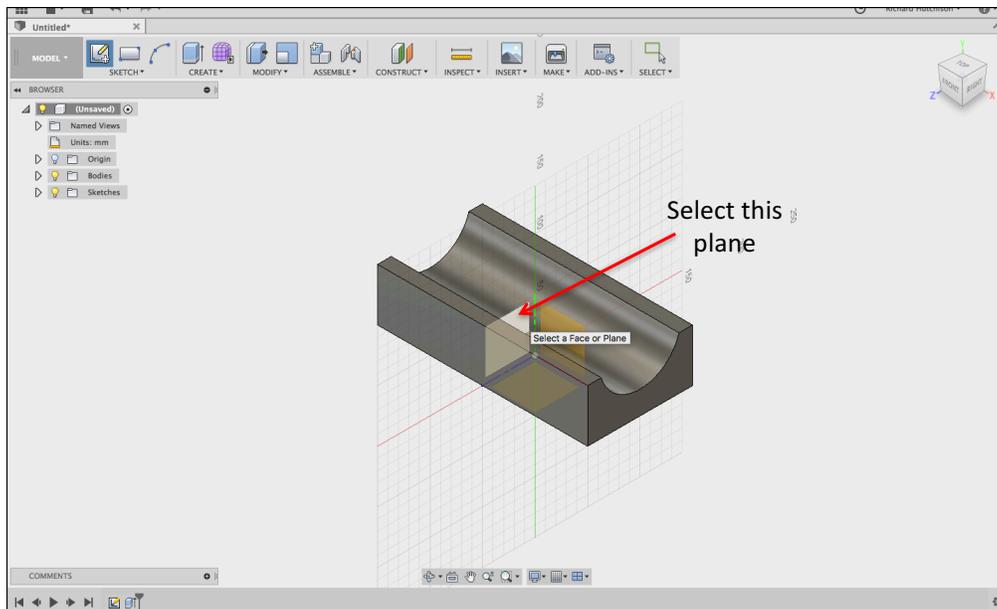
### Step 15b - Type in 100mm and select Symmetric for Direction



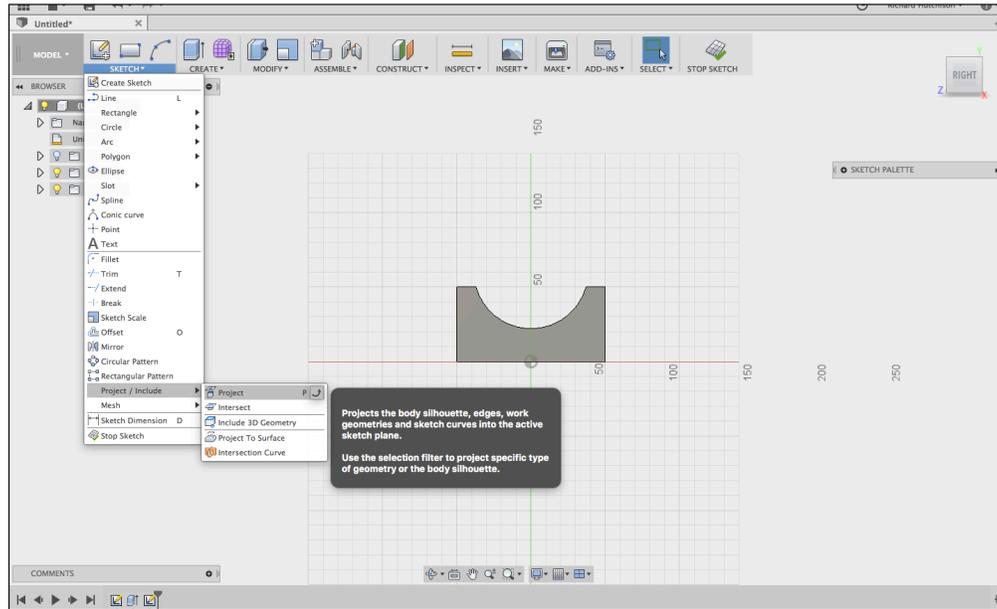
### Step 15c - Click OK



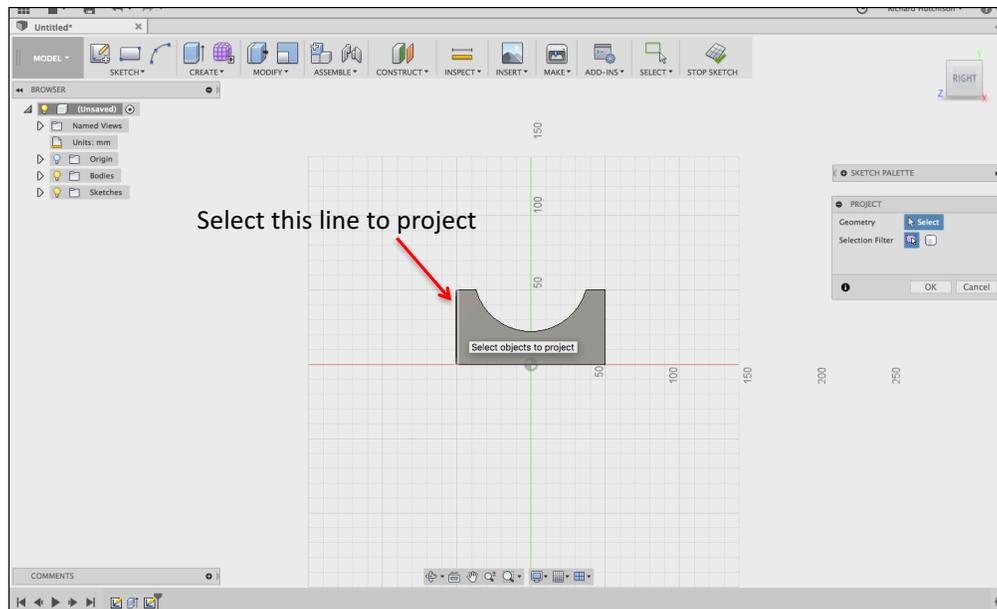
### Step 16 - Create a new sketch on the ZY-Plane



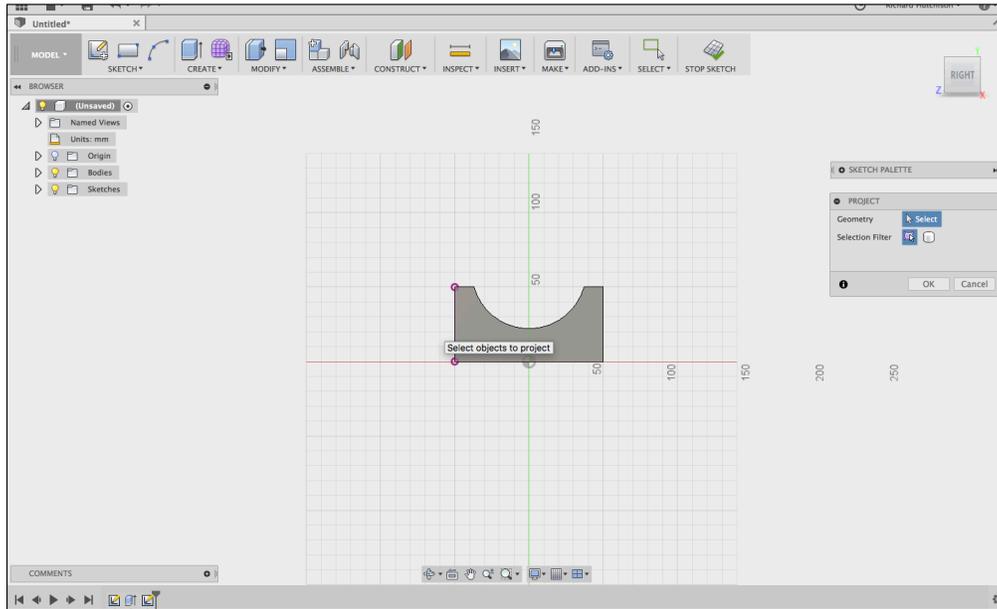
## Step 17 - Select Project



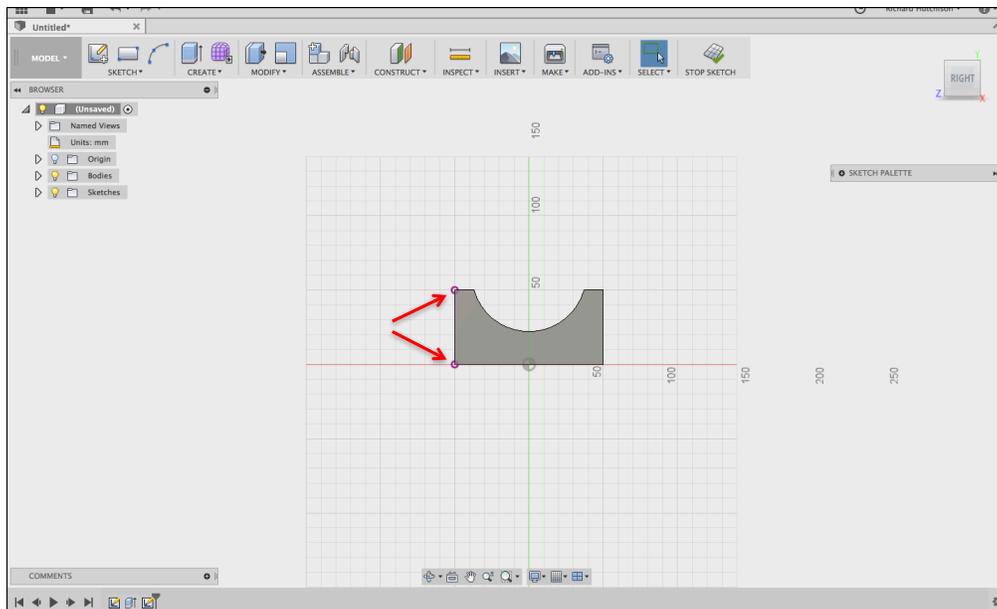
## Step 18a - Click on the left side of your first sketch



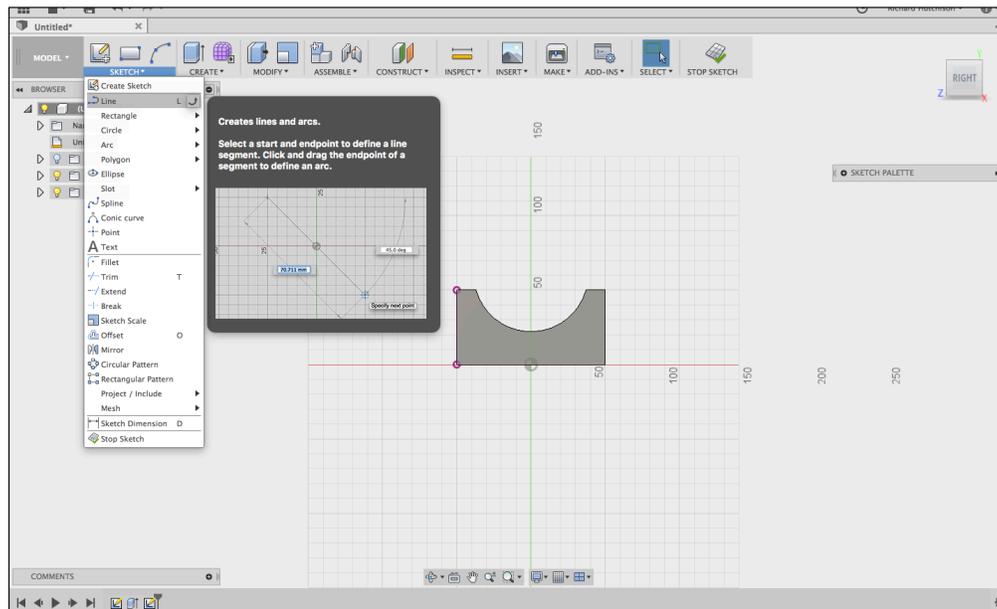
### Step 18b - Click on the left side of your first sketch, then OK



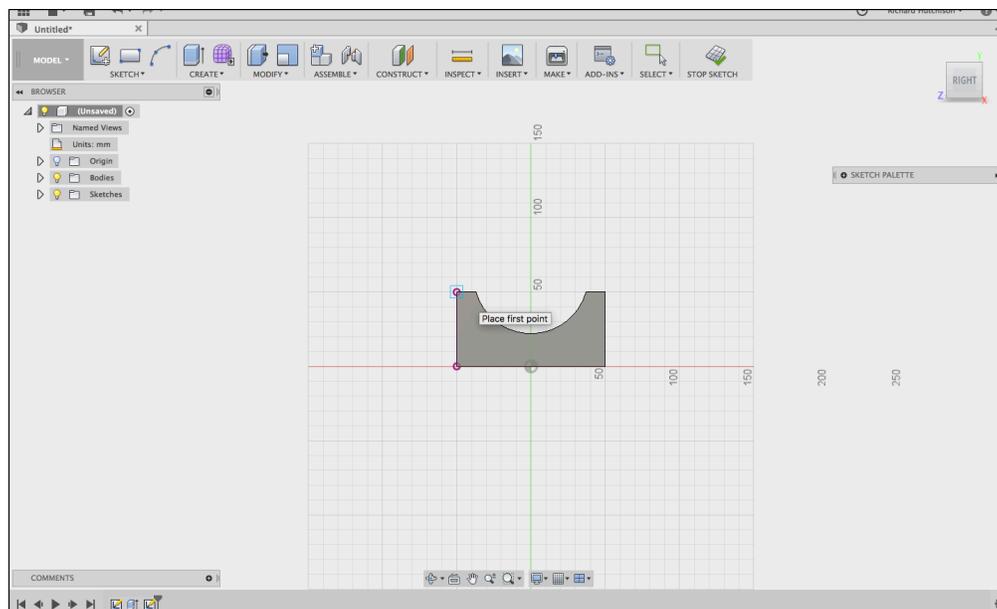
### Step 18c - The projected line should have 2 purple circles



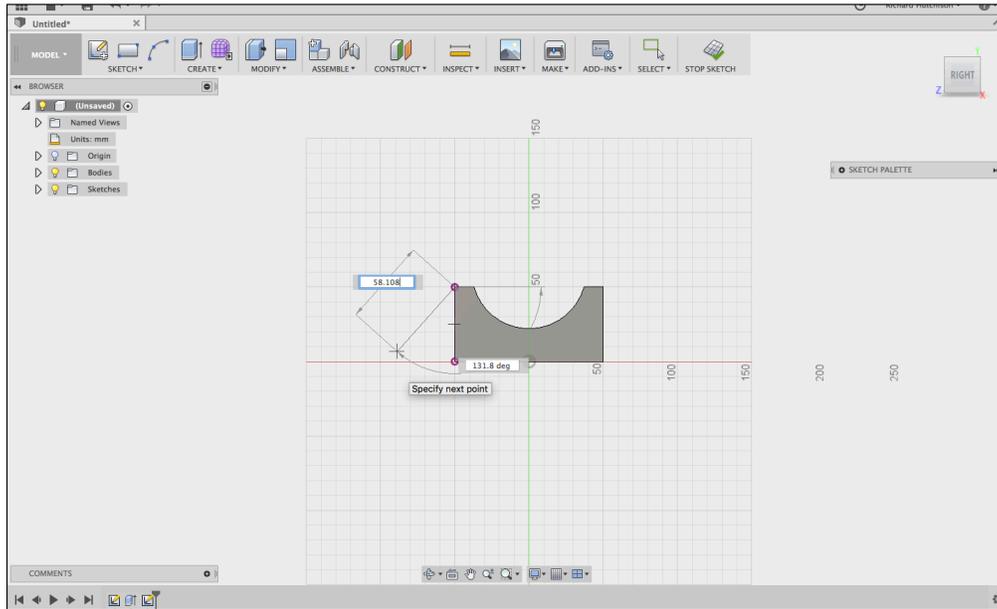
### Step 19a - Make a line 58.108mm long from the top to the axis



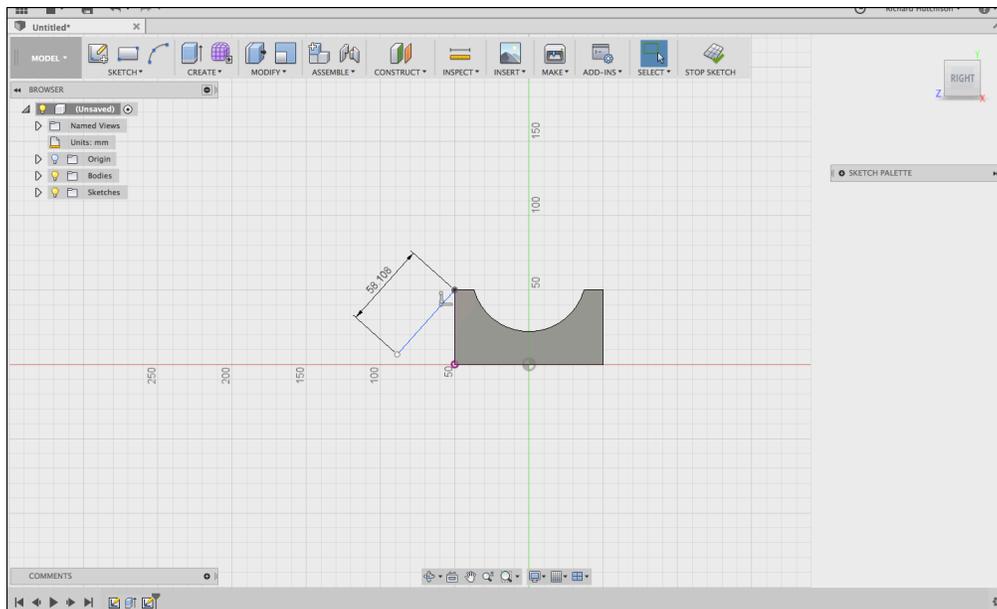
### Step 19b - Make a line 58.108mm long from the top to the axis



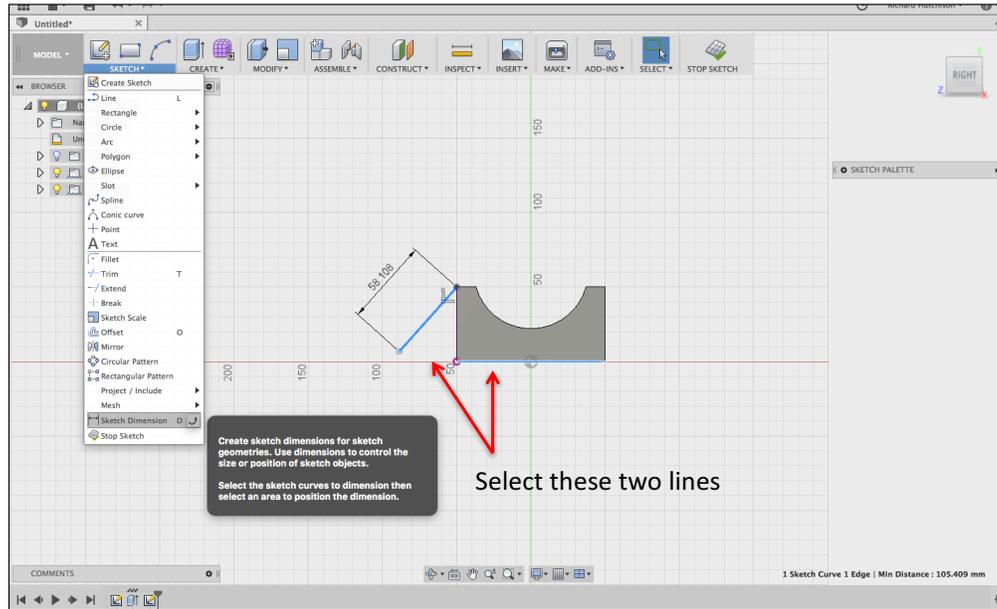
### Step 19c - Make a line 58.108mm long from the top to the axis



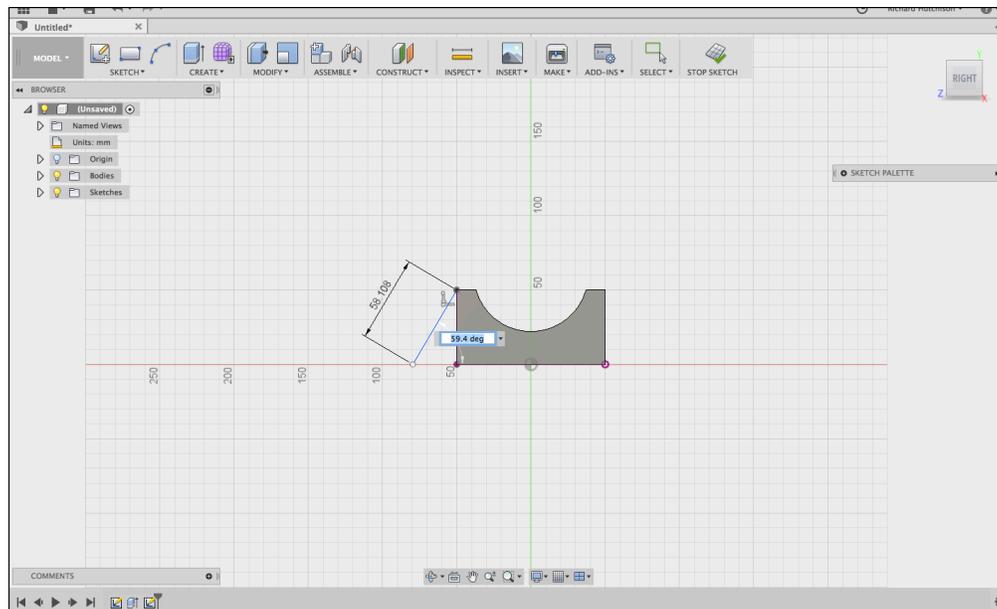
### Step 19d - Make a line 58.108mm long from the top to the axis



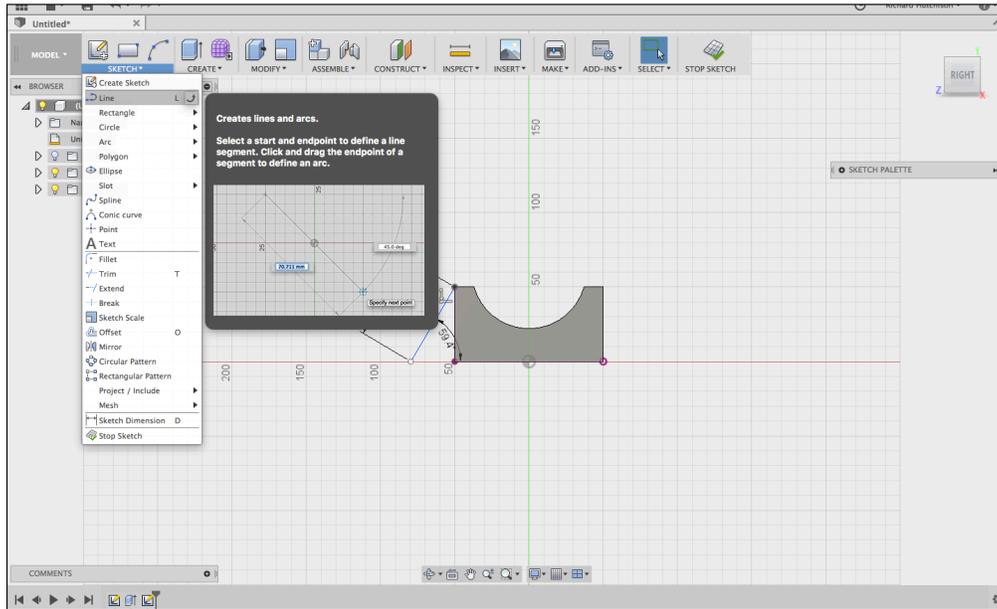
## Step 20a - Dimension the line to have a 59.4 angle to the axis



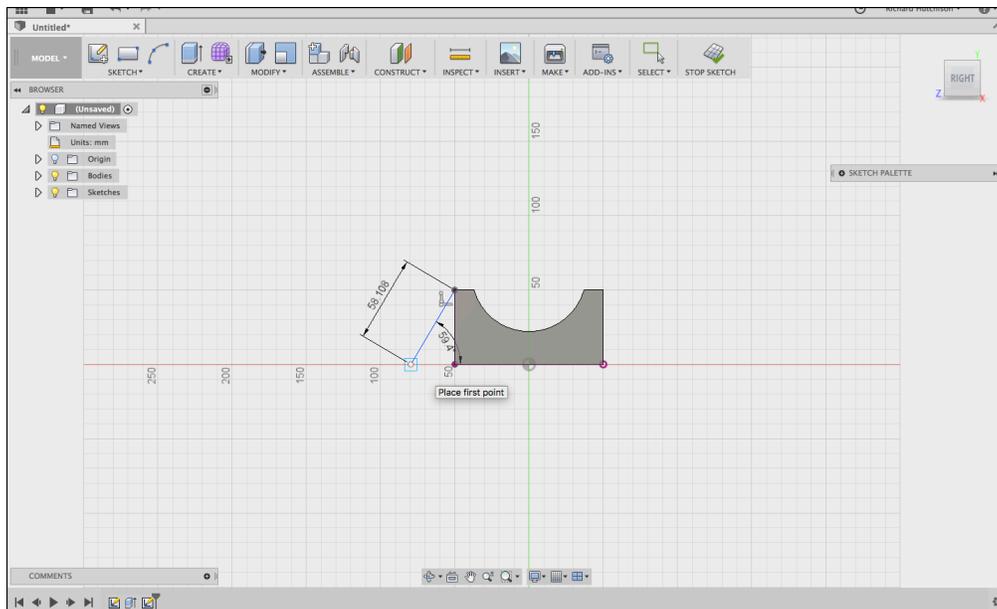
## Step 20b - Dimension the line to have a 59.4 angle to the axis



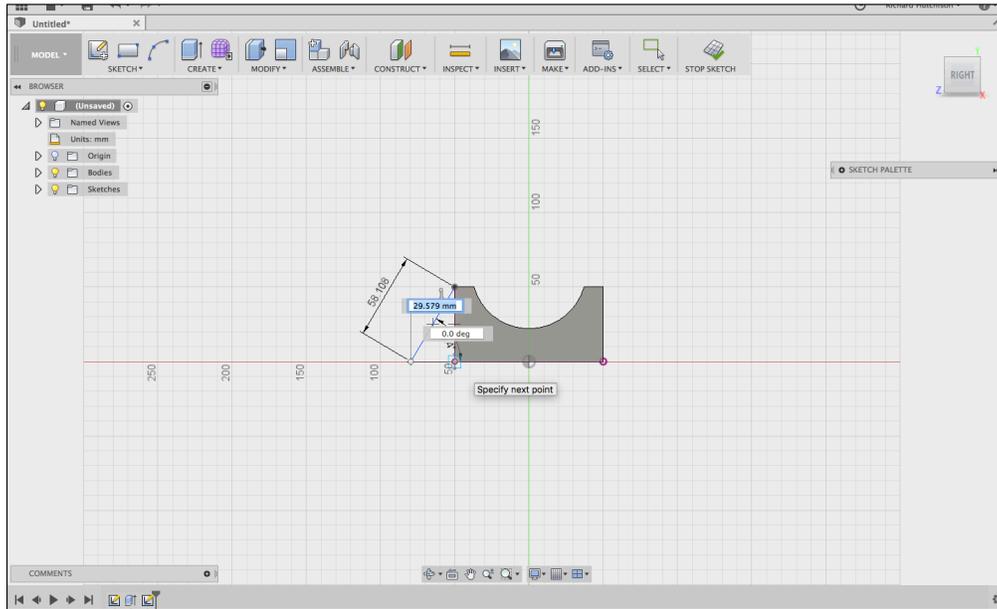
### Step 21a - Complete the triangle with another line



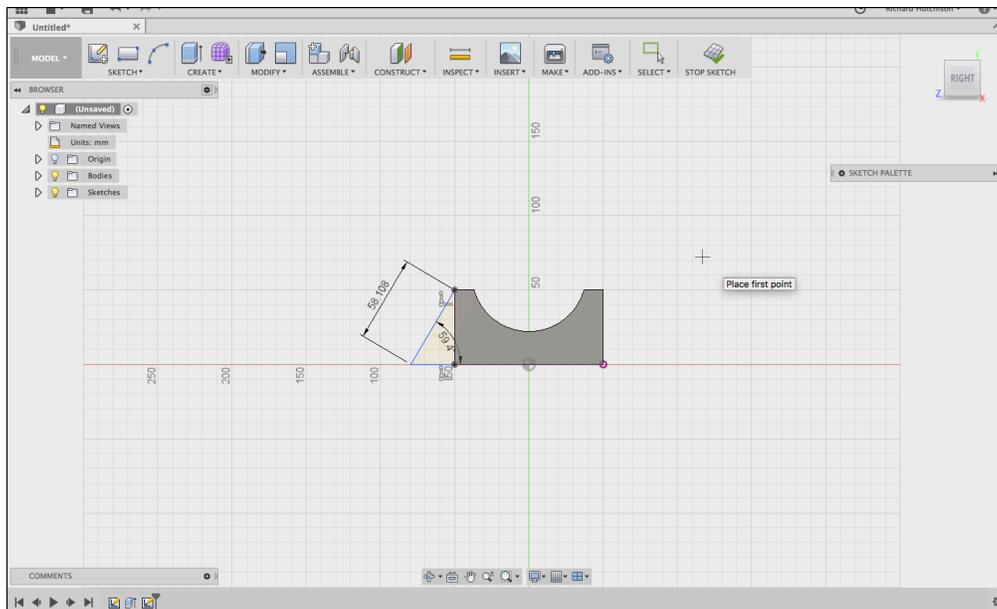
### Step 21b - Complete the triangle with another line



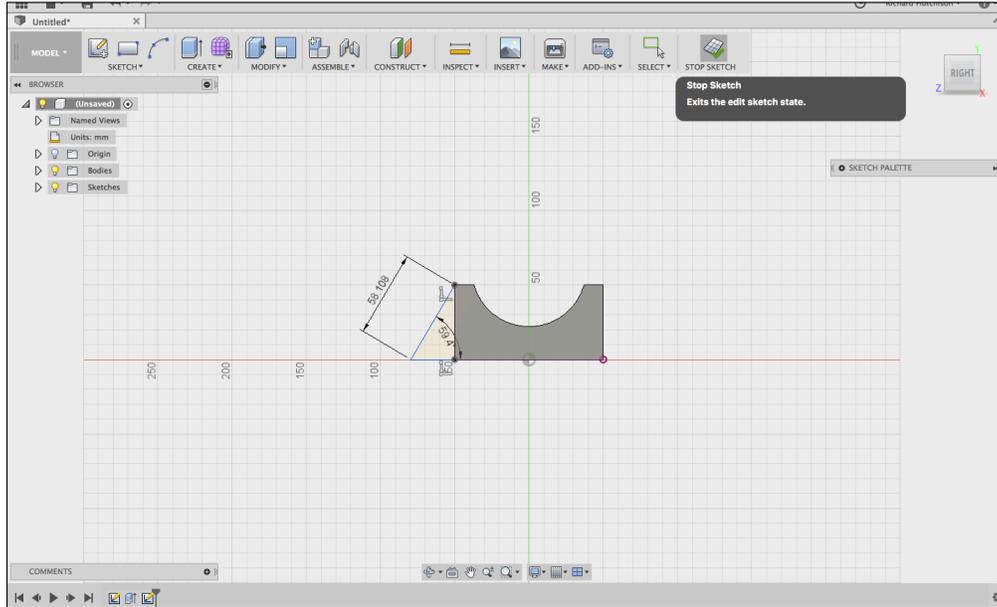
### Step 21b - Complete the triangle with another line



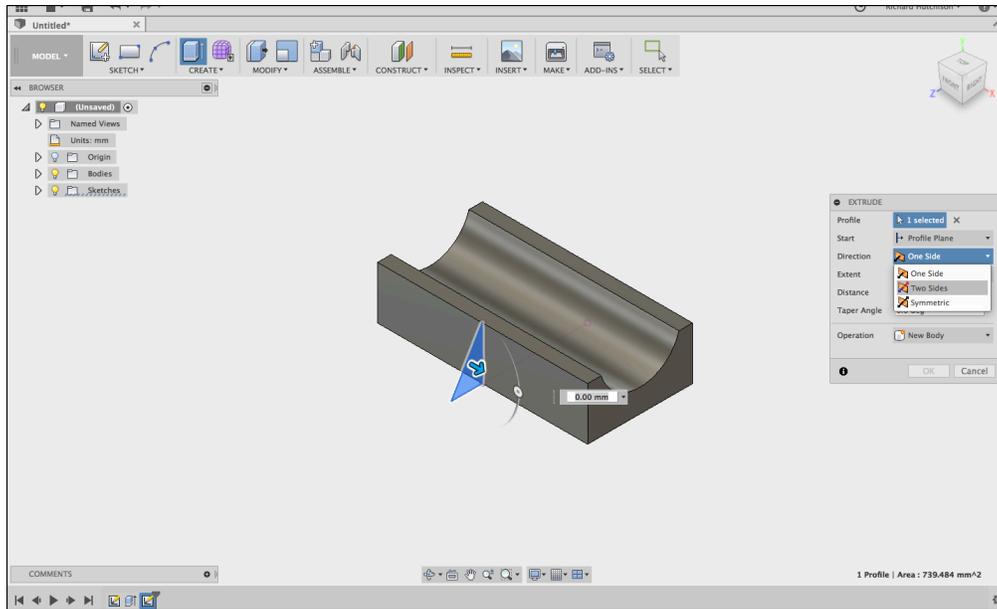
### Step 21c - Complete the triangle with another line



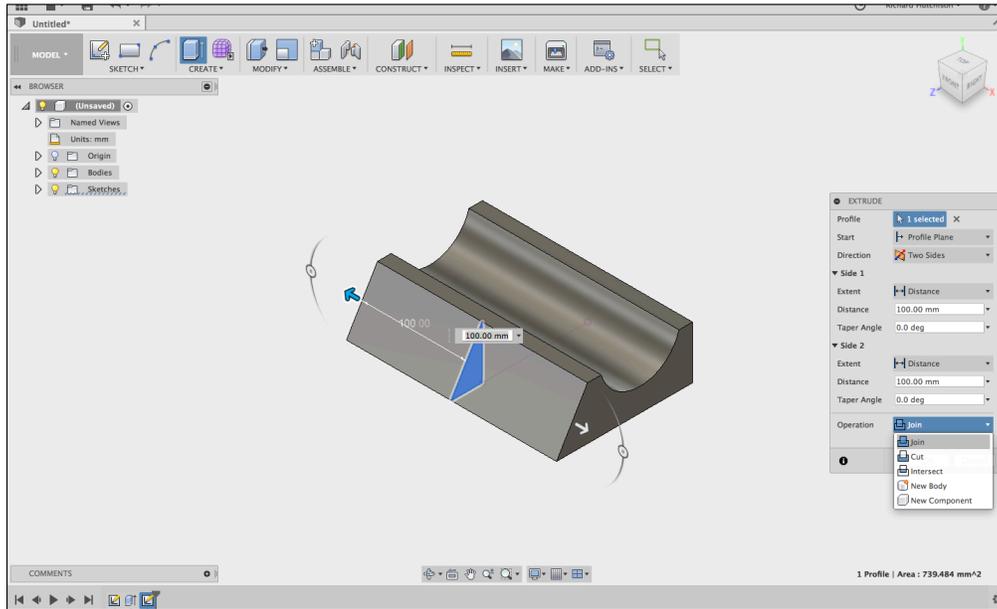
### Step 22 - Stop Sketch



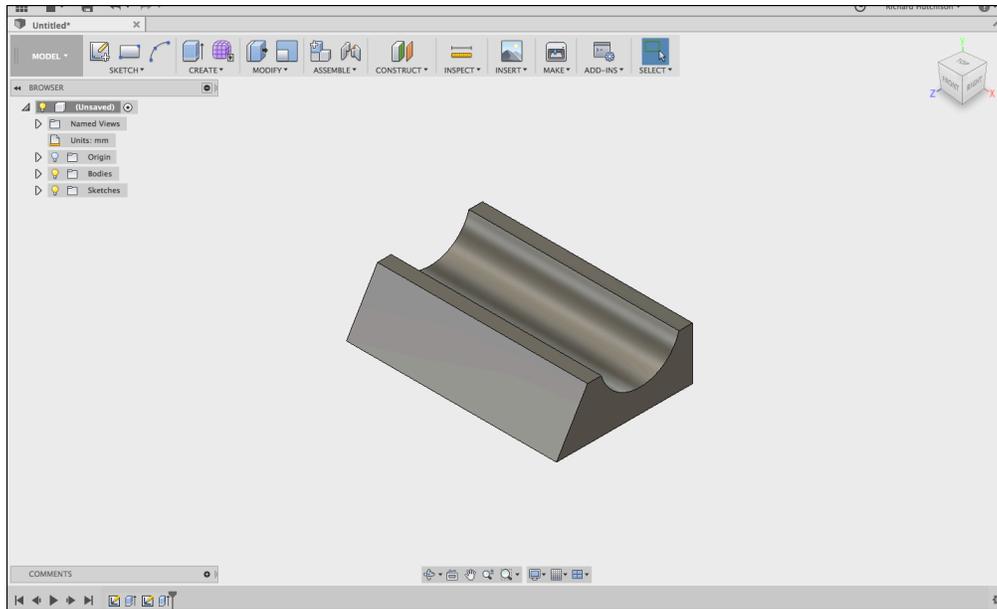
### Step 23a - Extrude the triangle sketch to match the body



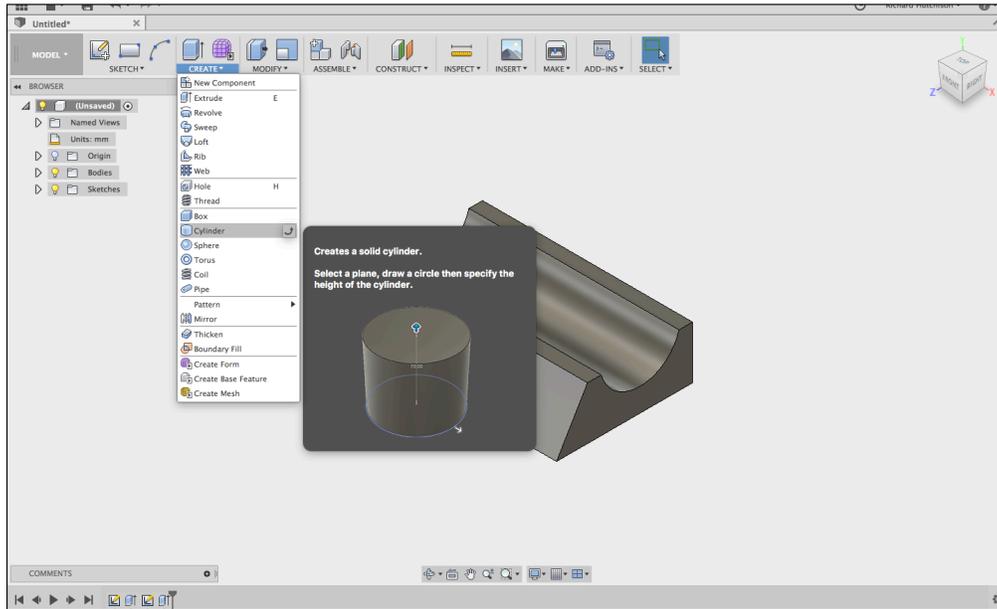
### Step 23b - Make sure "Join" is selected



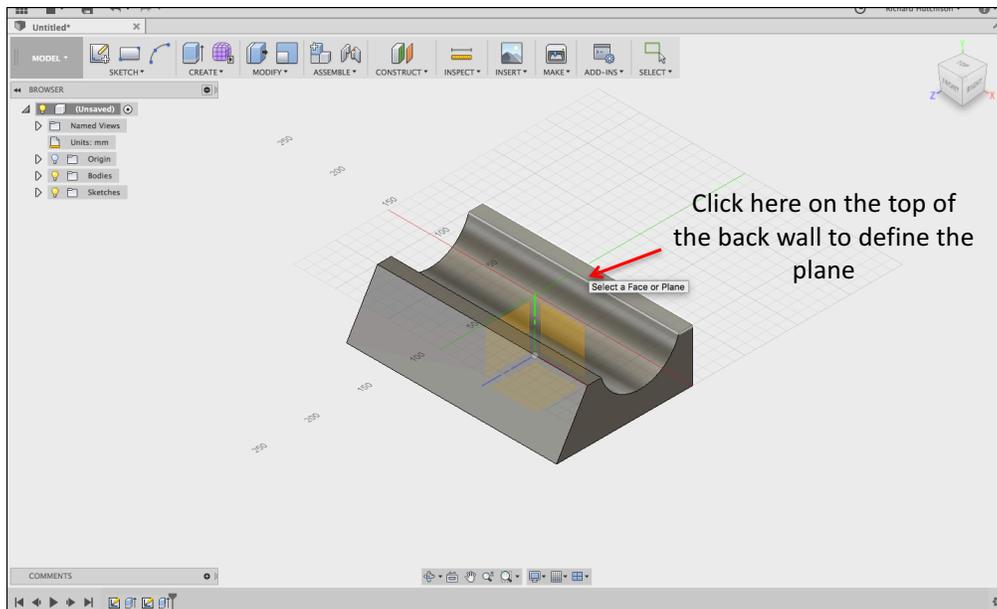
### Step 23c - Click Ok



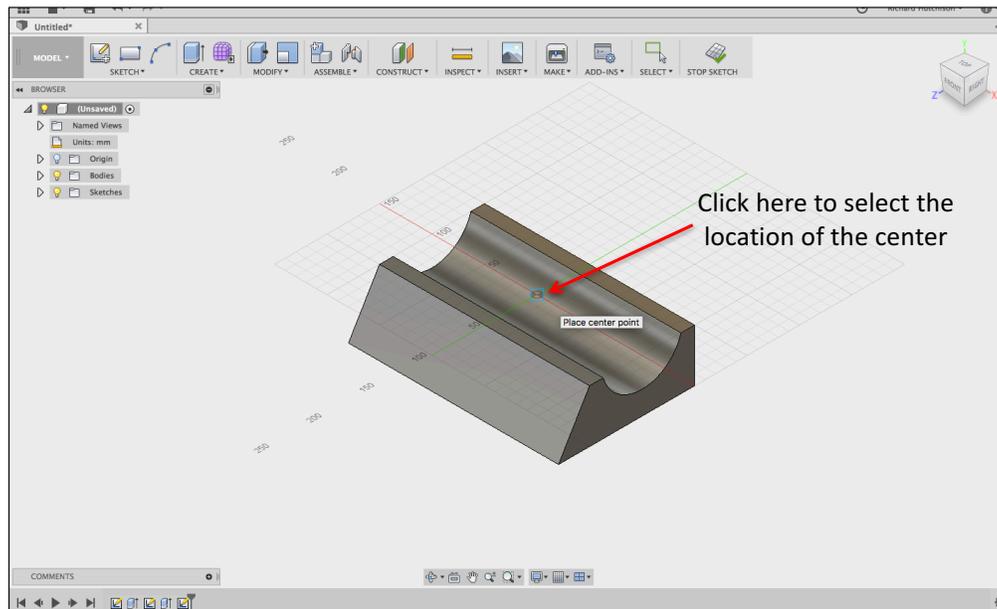
### Step 24a - Create a cylinder on the top of the holder



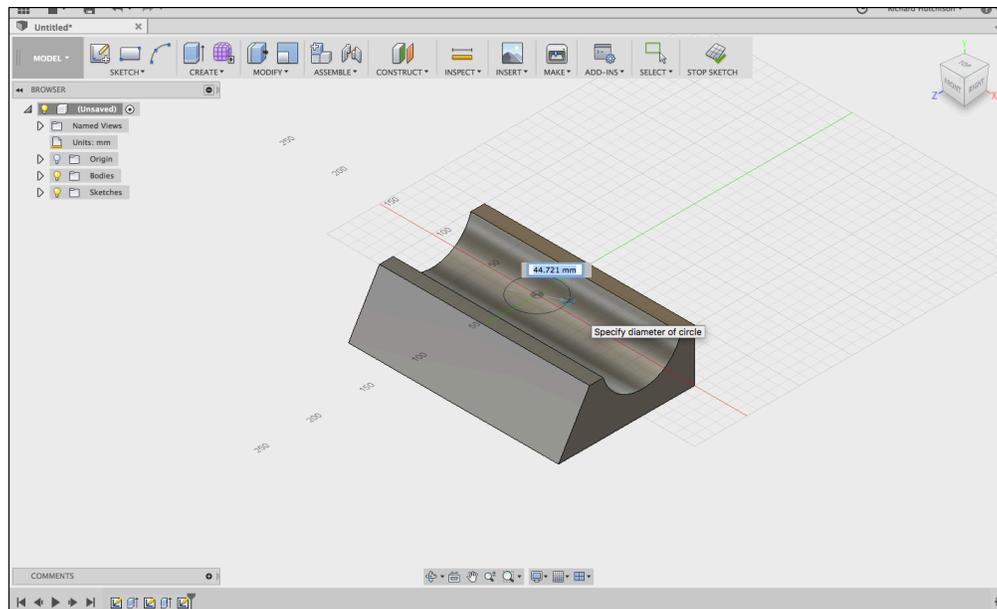
### Step 24b - Select the back top plane



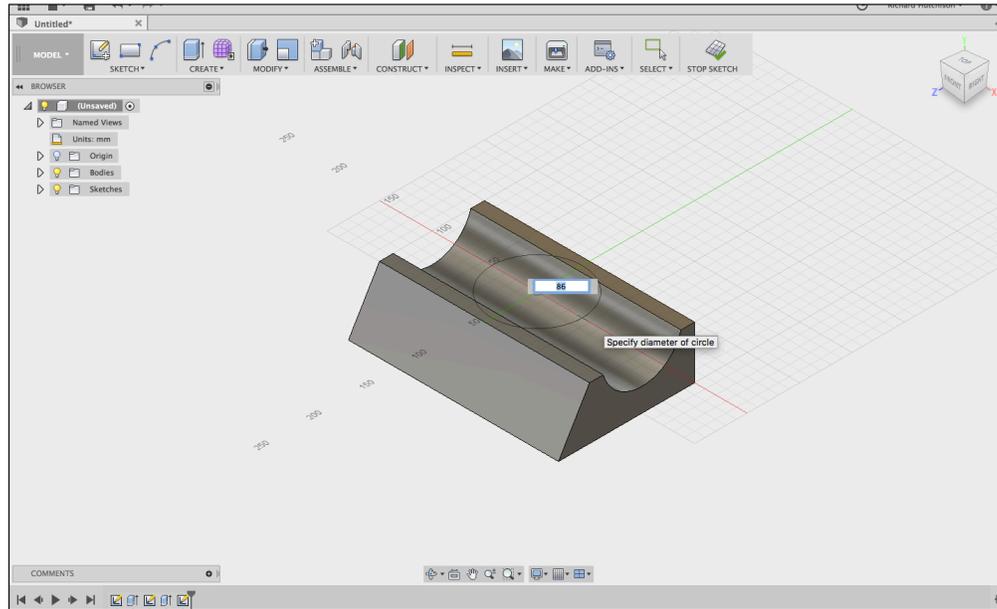
### Step 24c - Place the center point at the center



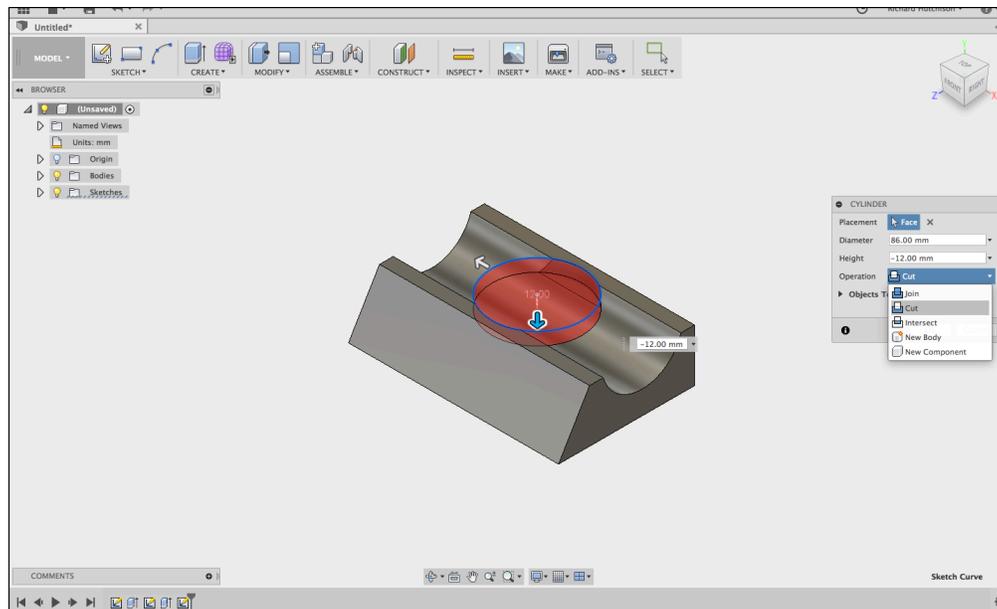
### Step 24d - Give the circle a diameter of 86 mm



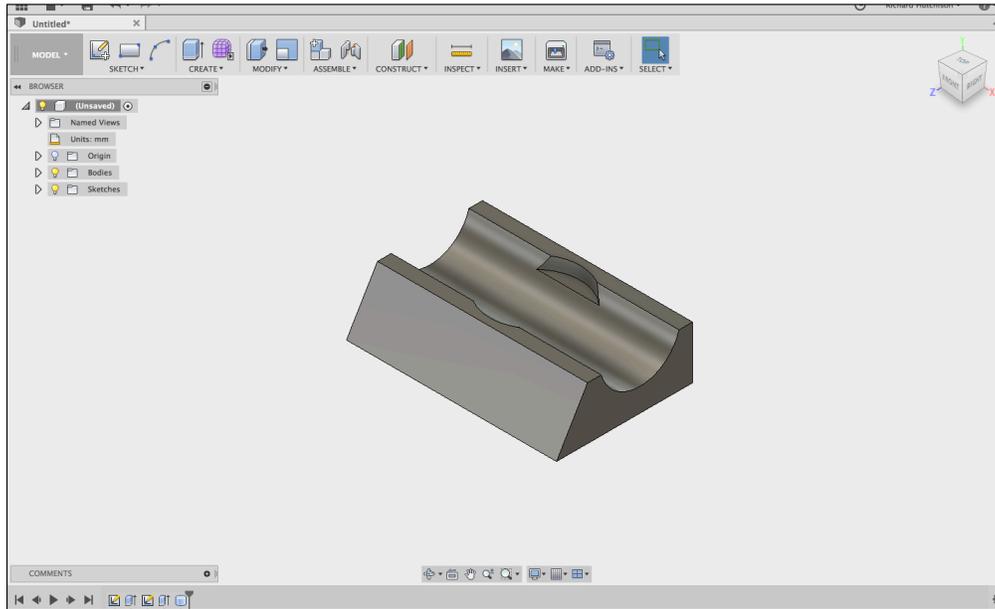
### Step 24e - Give the circle a diameter of 86 mm



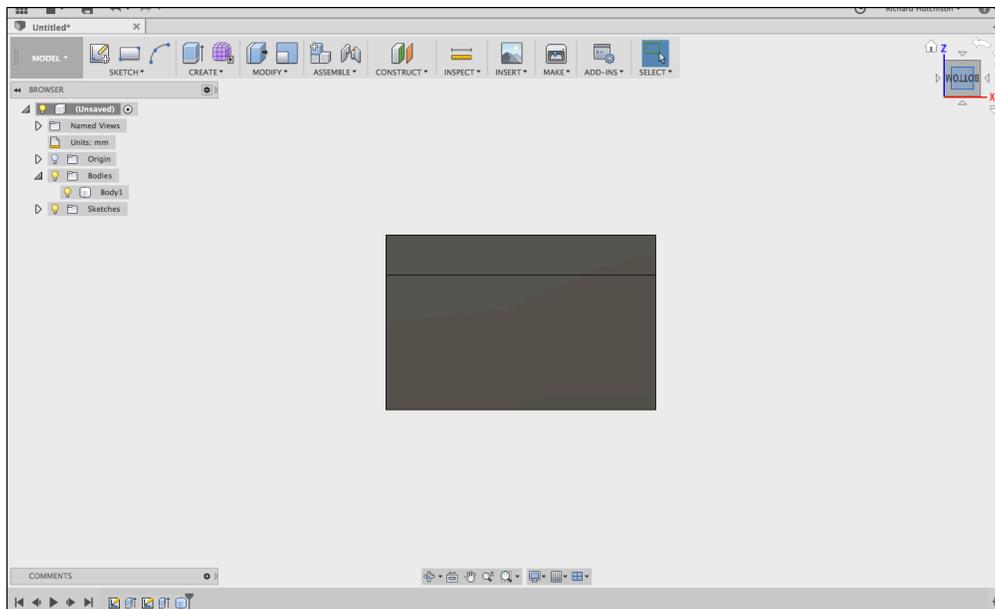
### Step 24f - Make the depth -12 mm and make sure Cut is selected



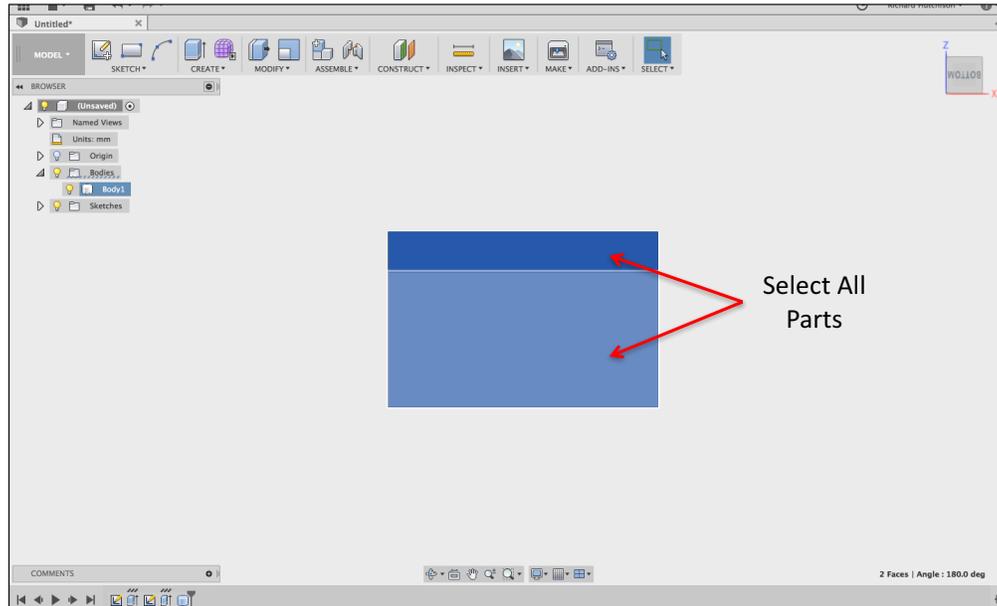
### Step 24g - Click Ok



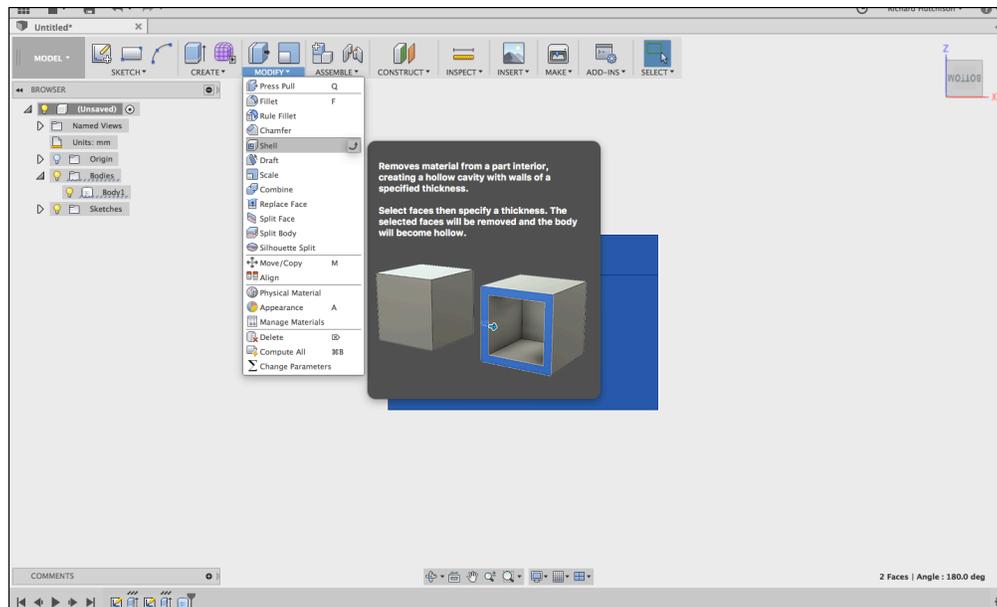
### Step 25 - Rotate to the bottom of the holder



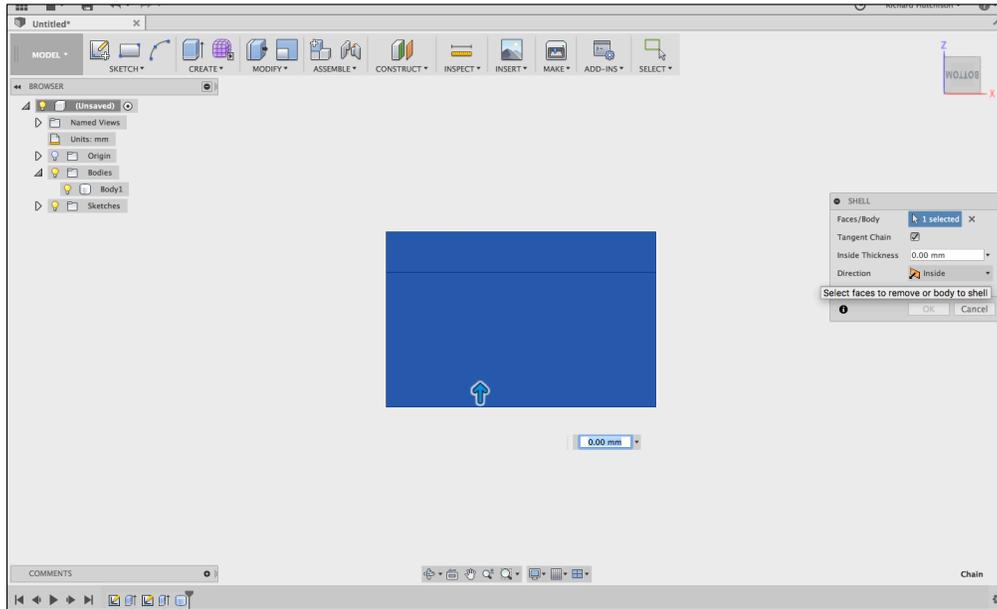
## Step 26 - Select the whole bottom surface



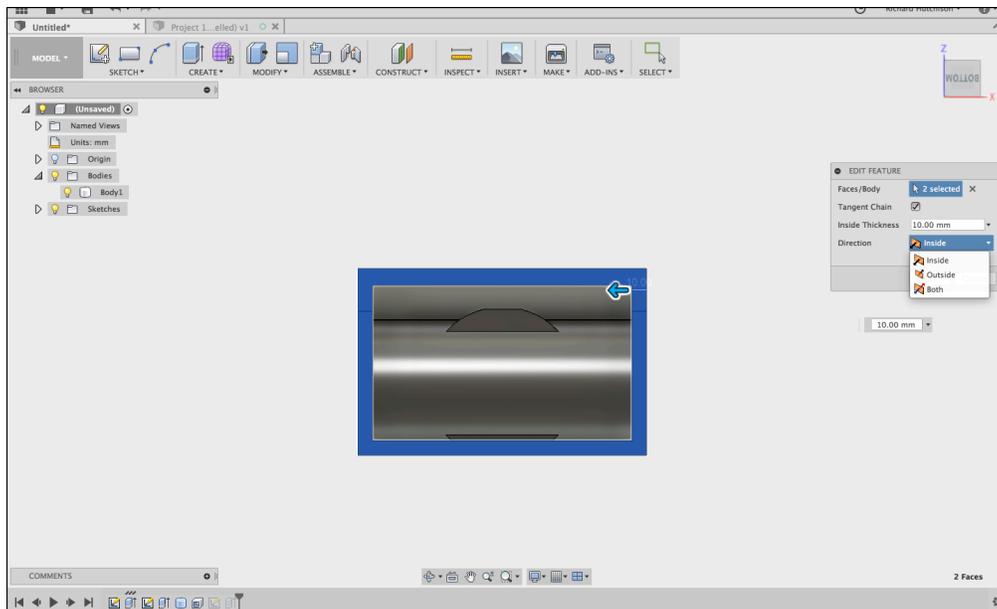
## Step 27 - Select Modify→Shell



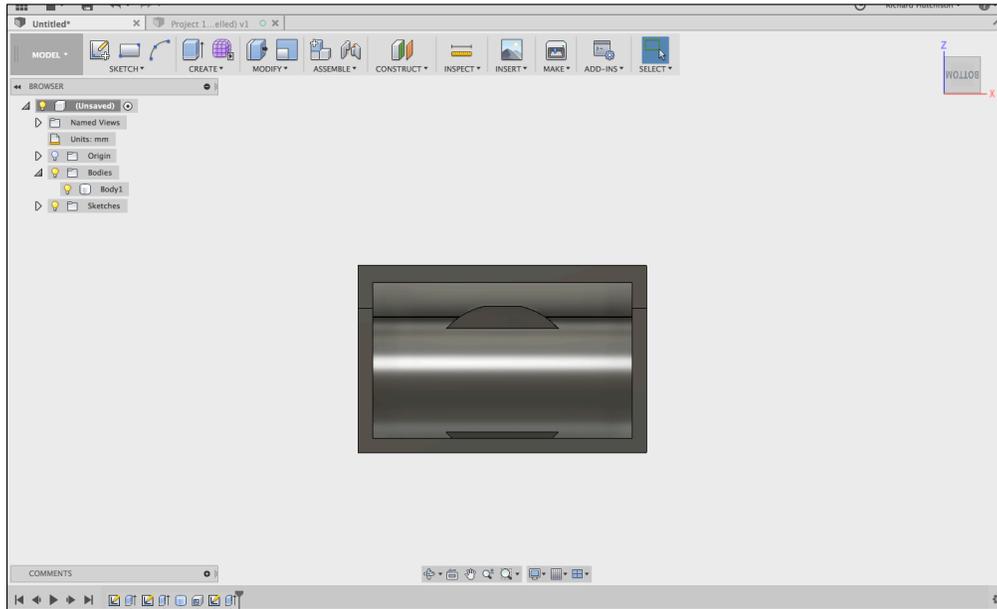
### Step 28a - Make the shell 10mm on the inside



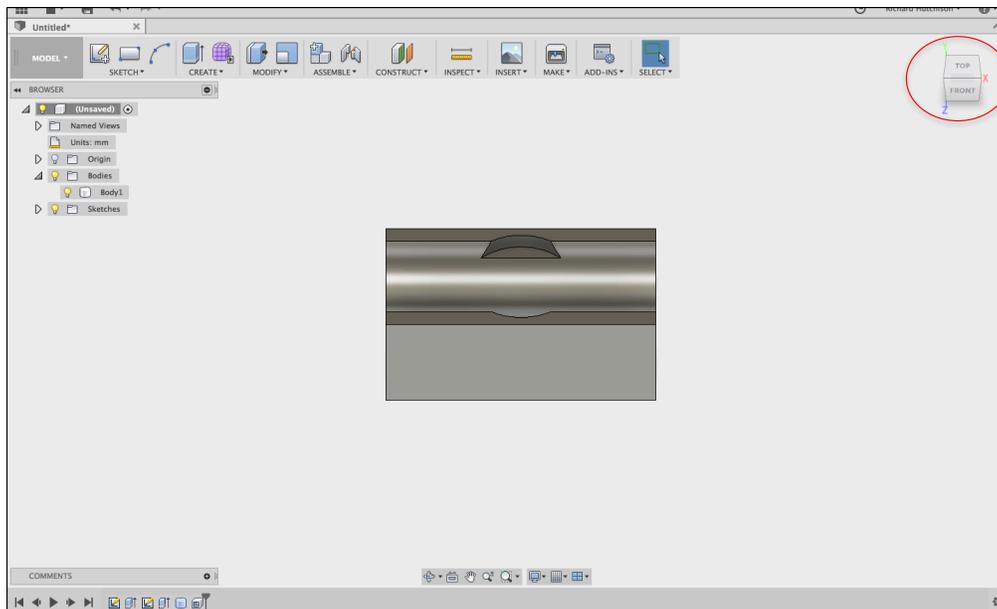
### Step 28b - Make the shell 10mm on the inside



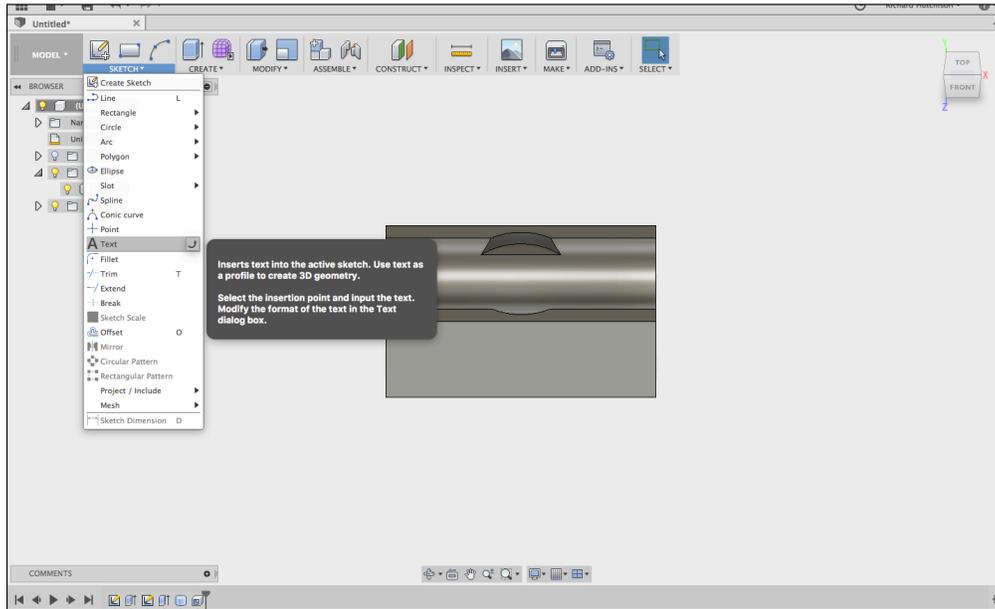
### Step 28c - Click OK



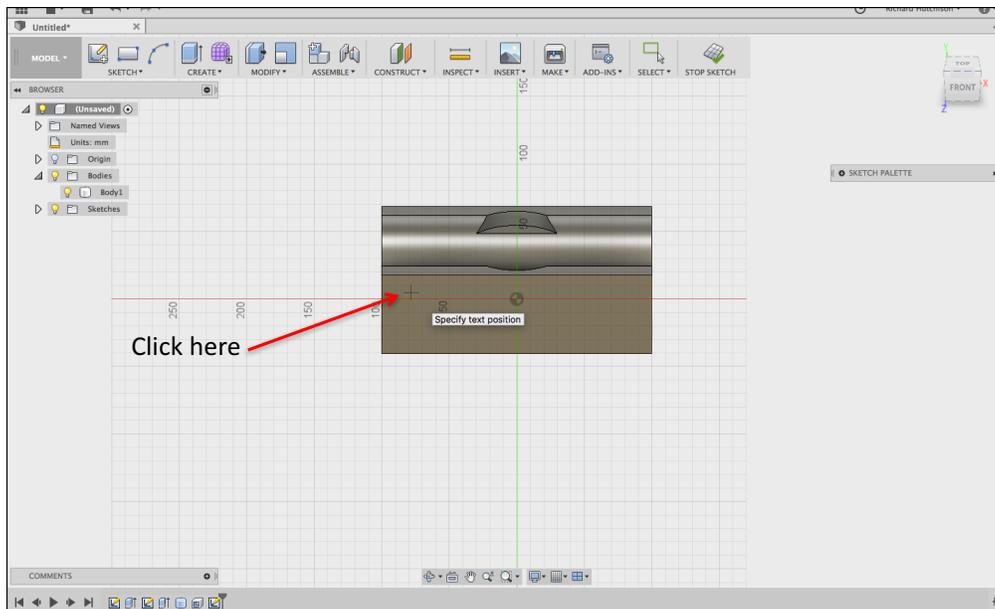
### Step 29 - Rotate to see the front face



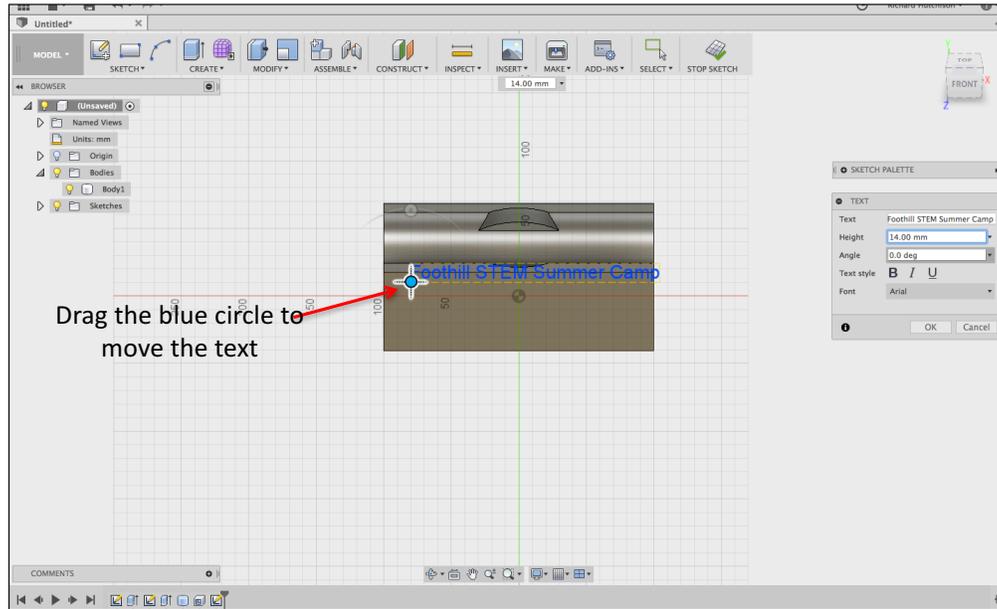
### Step 30a - Sketch text on the front face



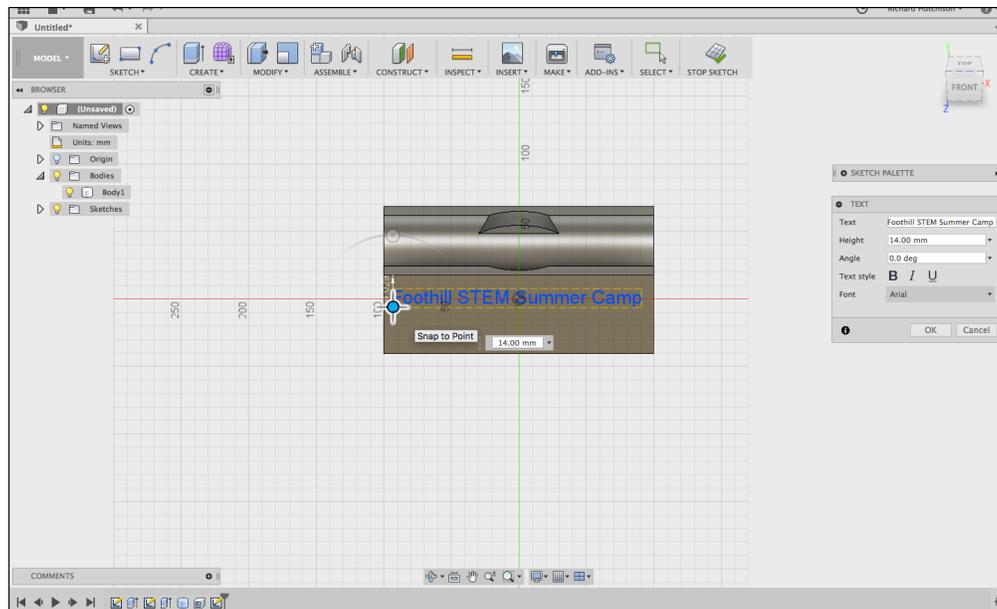
### Step 30b - Select Some point for the text to start



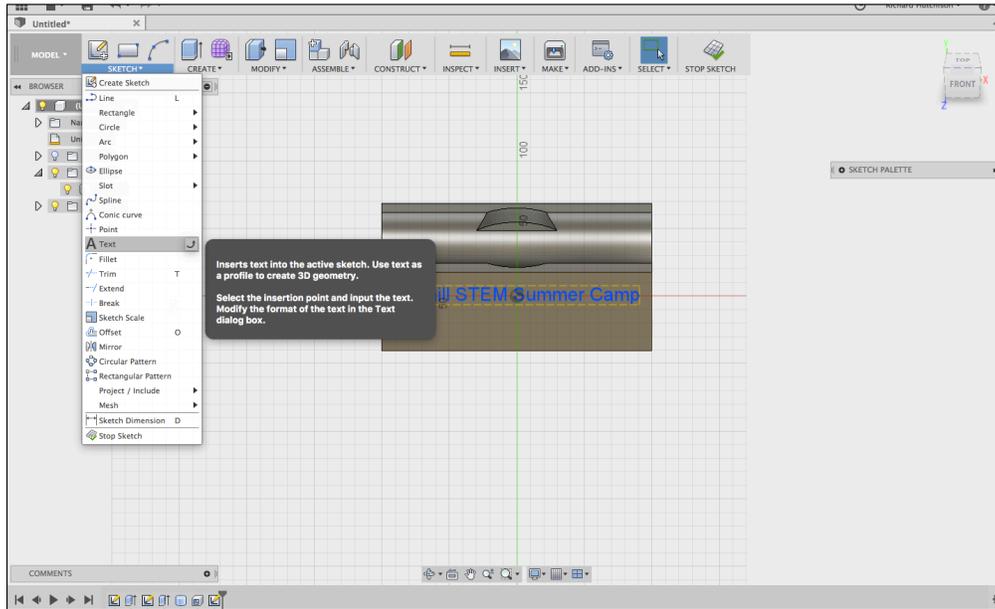
### Step 30c - Type Foothill Engineering Club, make size 14mm



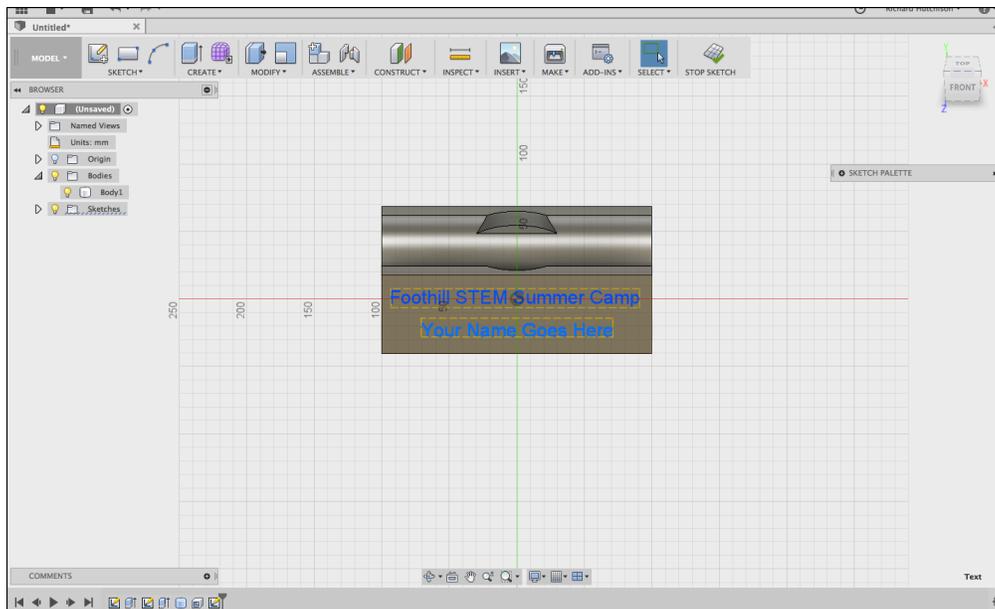
### Step 30d - Drag the text down and center it then click OK



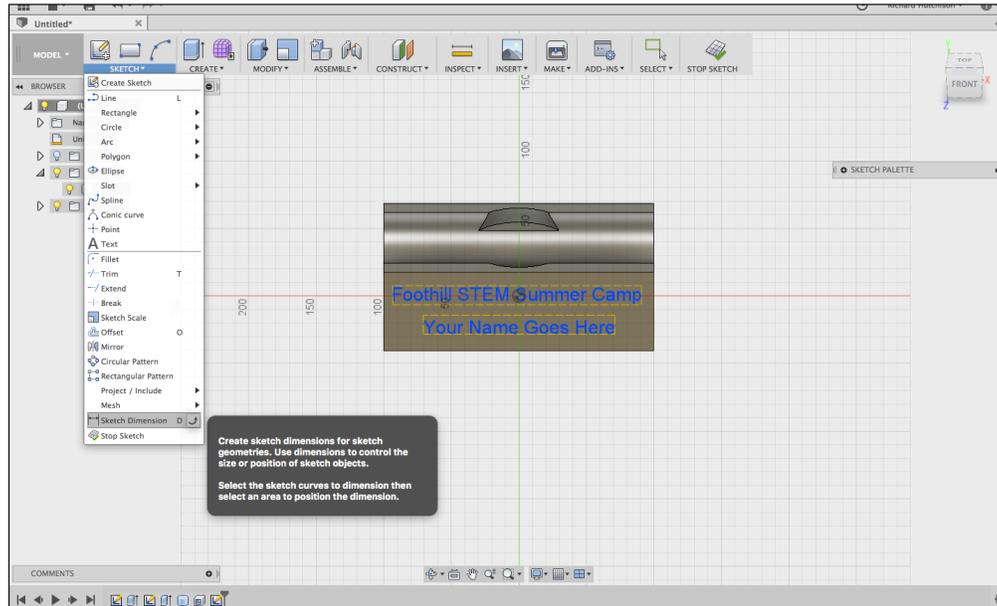
### Step 31a - Add text for your name



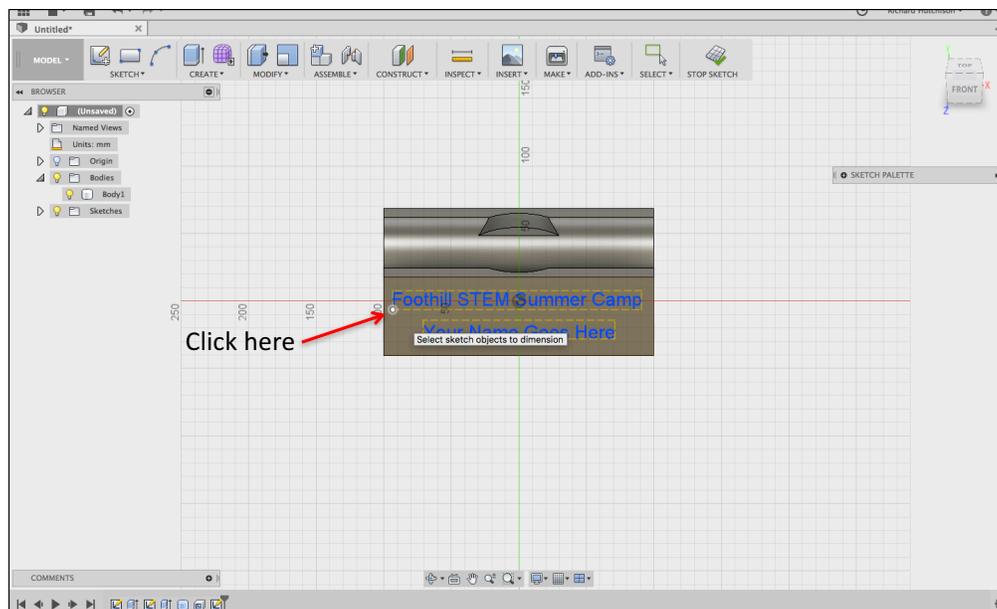
### Step 31b - Add text for your name



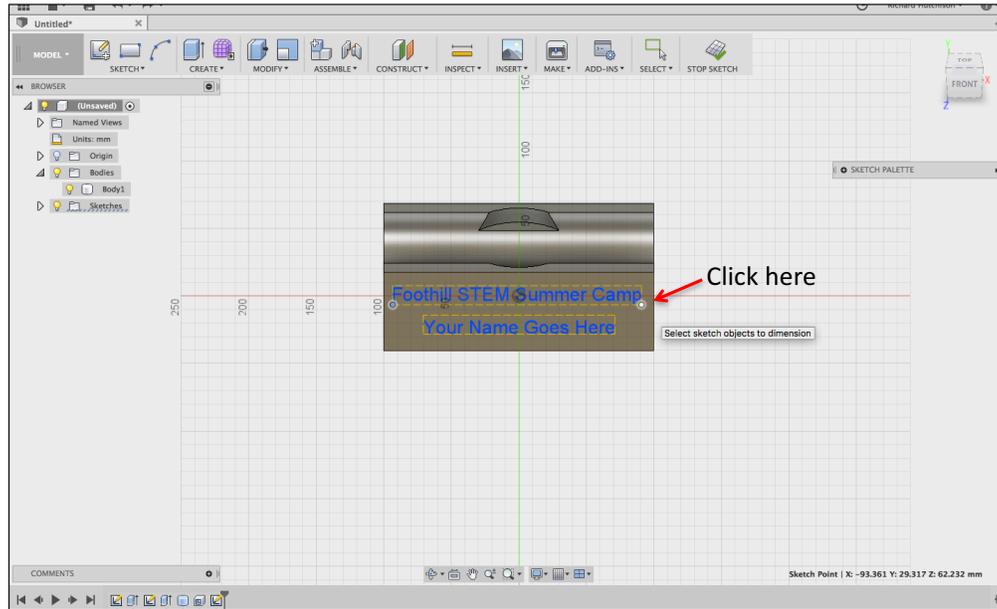
## Step 32a - Select Dimension and dimension the text you made



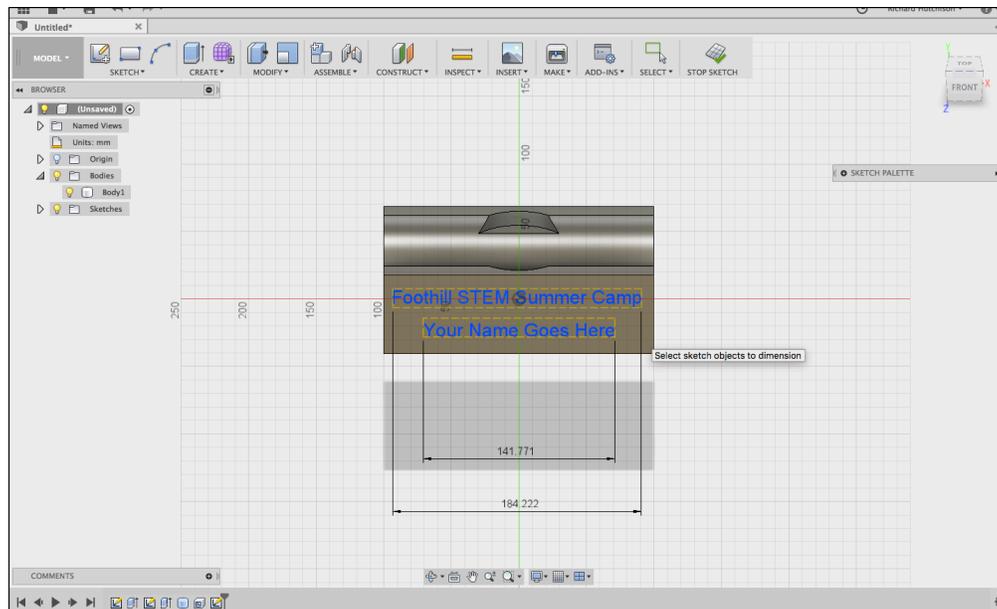
## Step 32b - Click the corners of the text box



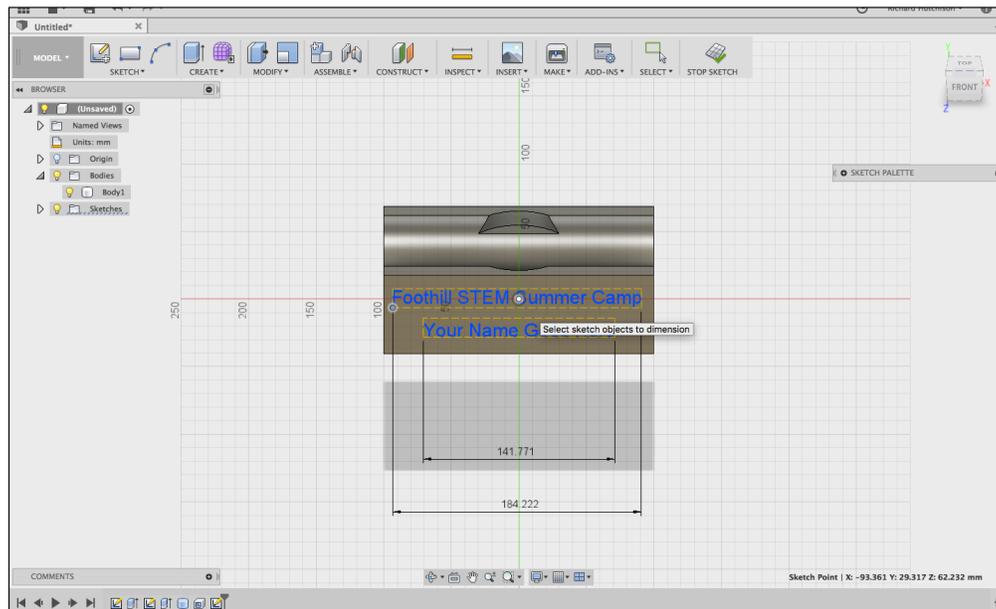
### Step 32c - Click the corners of the text box



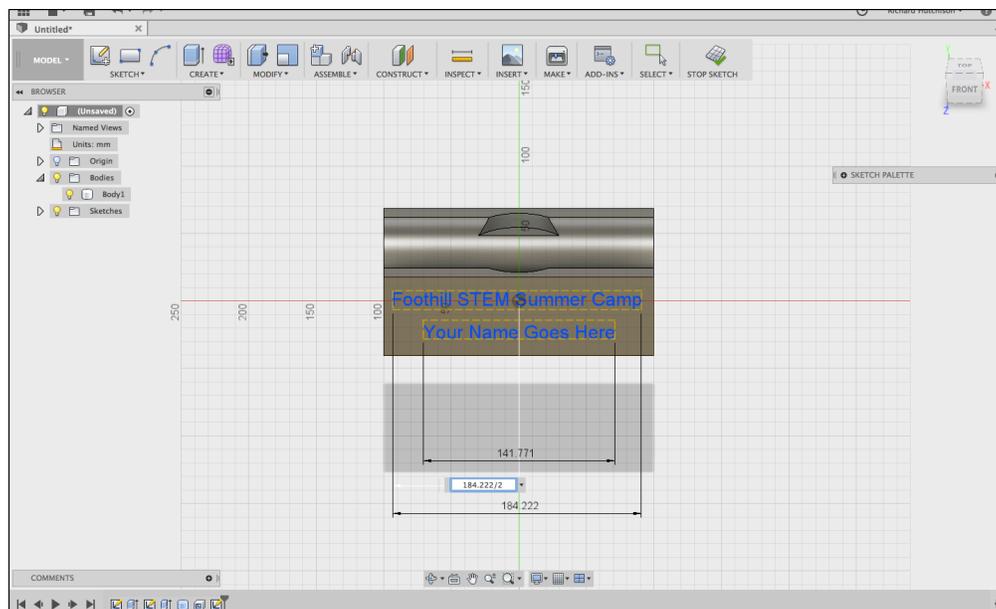
### Step 32d - Dimension both boxes



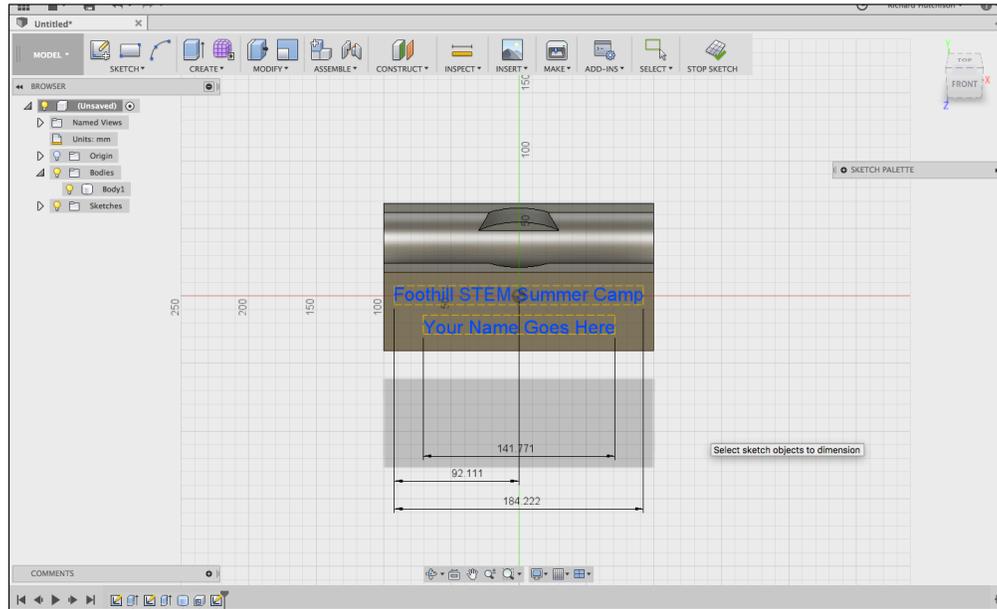
### Step 33a - Dimension from the corner to the center point



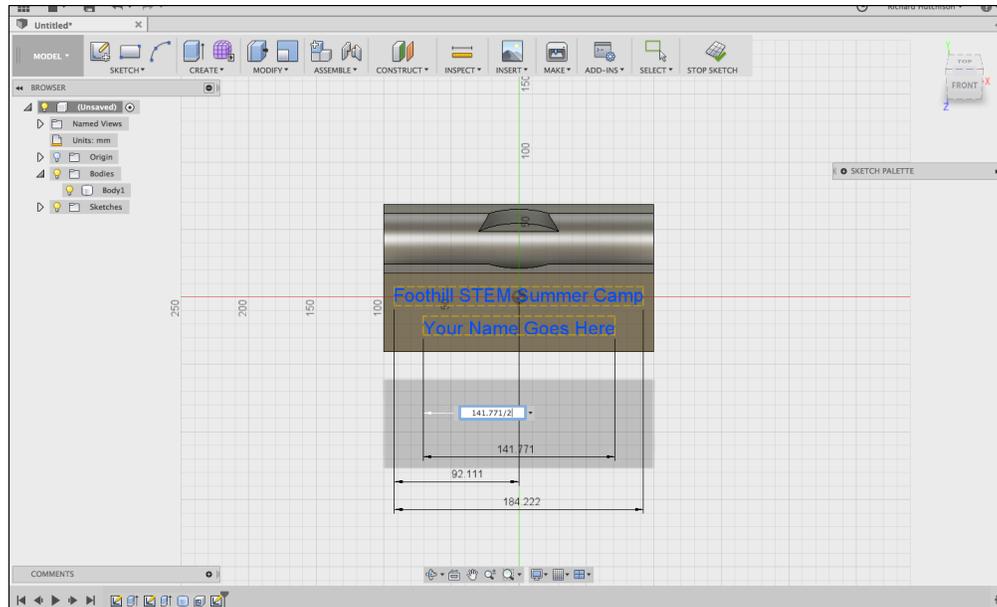
### Step 33b - Use division to make this dimension 1/2 of total length



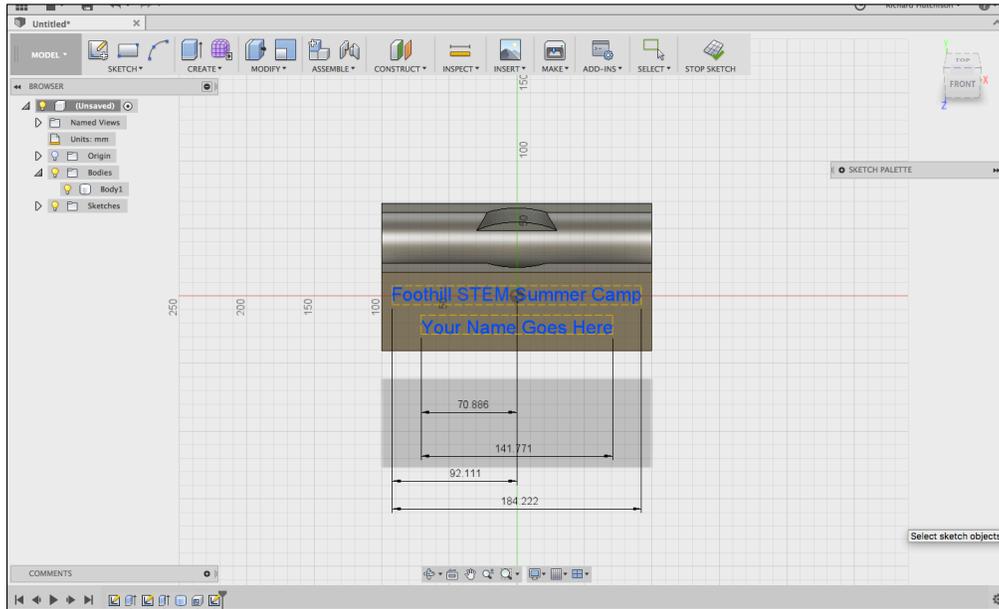
### Step 33c - Press enter to get dimension (which also centers text)



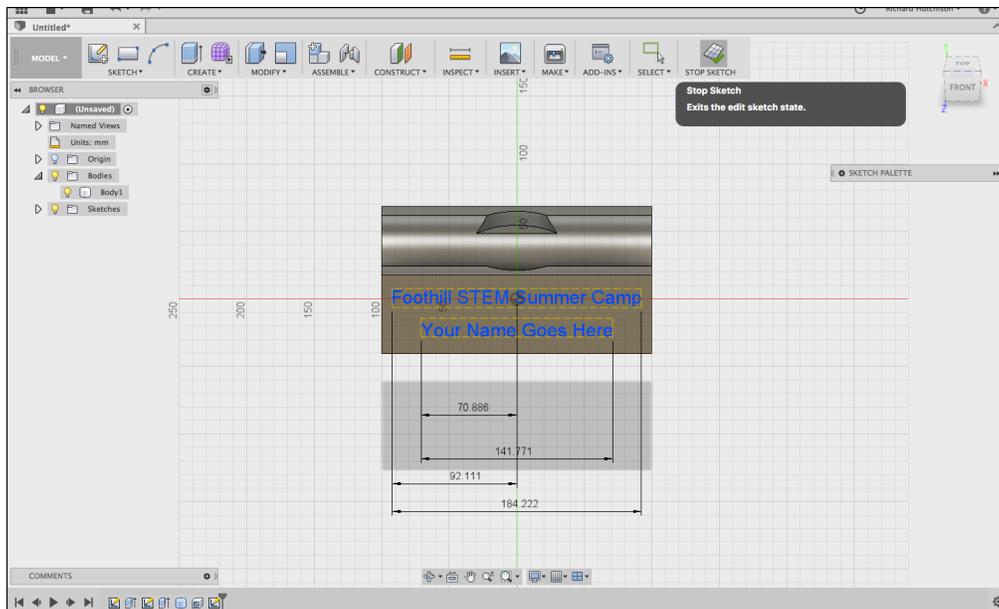
### Step 33d - Repeat with the second text box



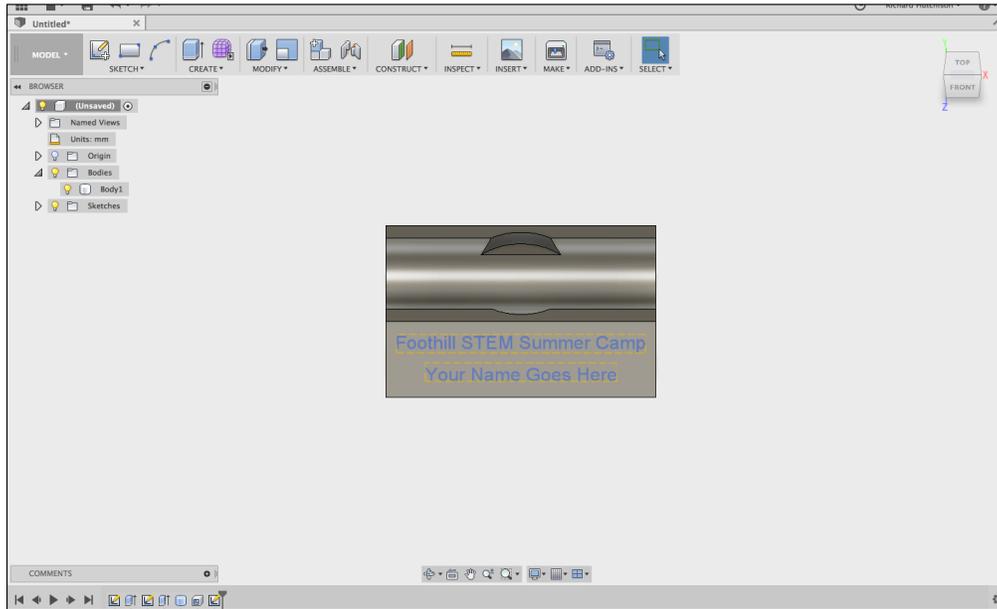
### Step 33e - Repeat with the second text box



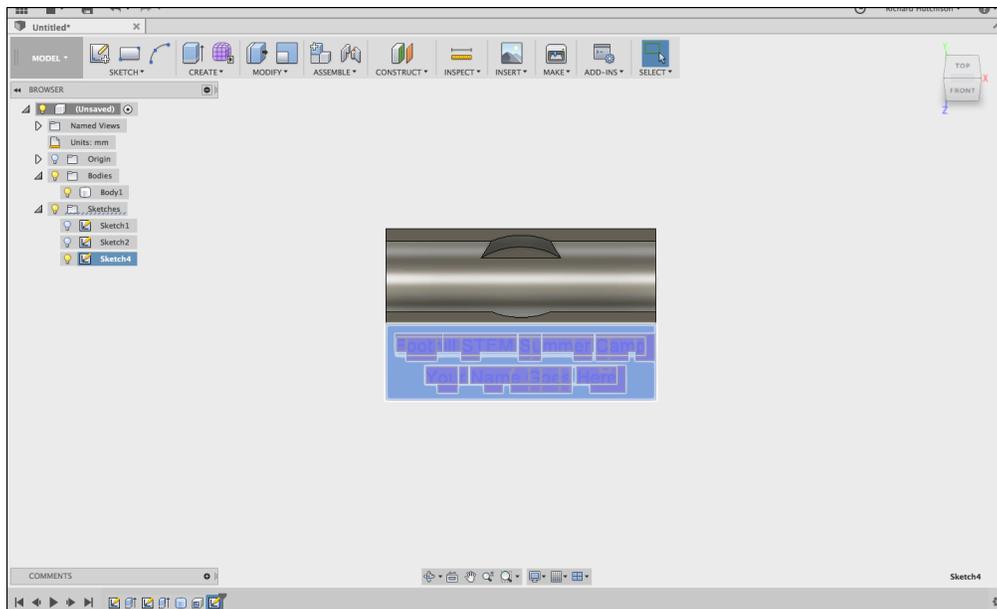
### Step 34a - Stop Sketch



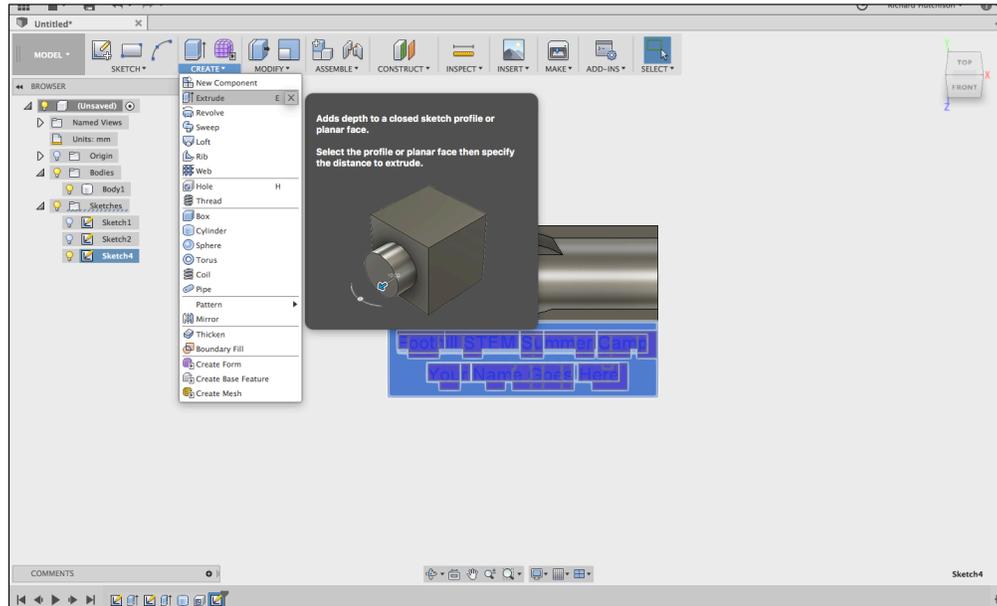
### Step 34b - Stop Sketch



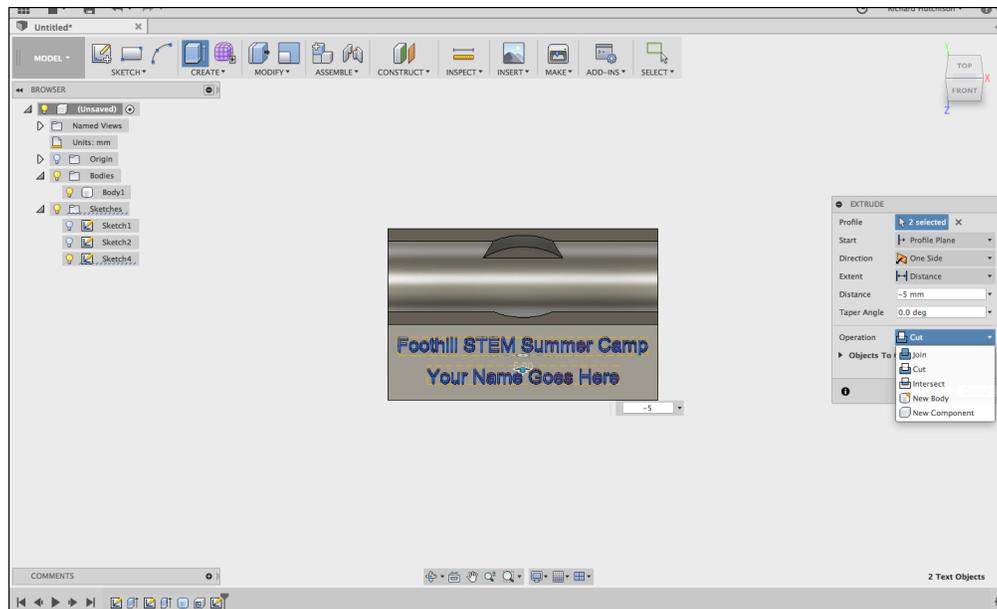
### Step 35 - Select text boxes sketch in the side bar



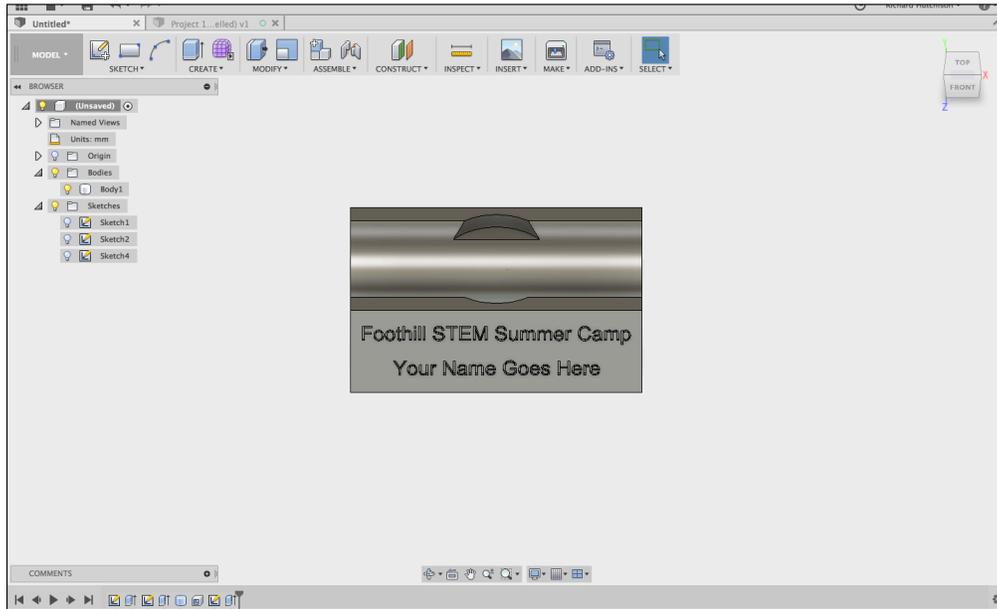
### Step 36a - Extrude inwards 5 mm



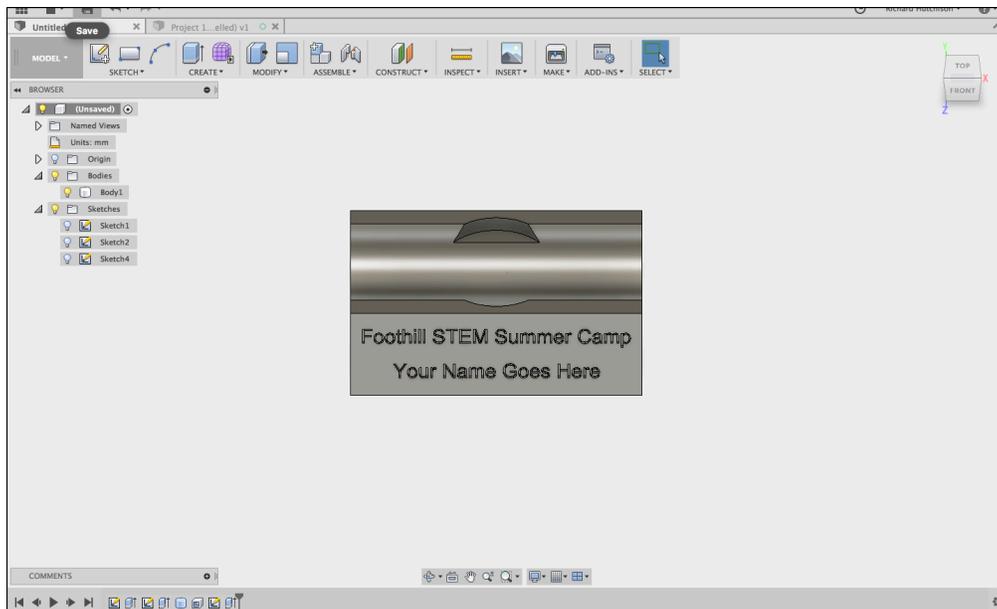
### Step 36b - Extrude inwards 5 mm (-5), make sure Cut is selected

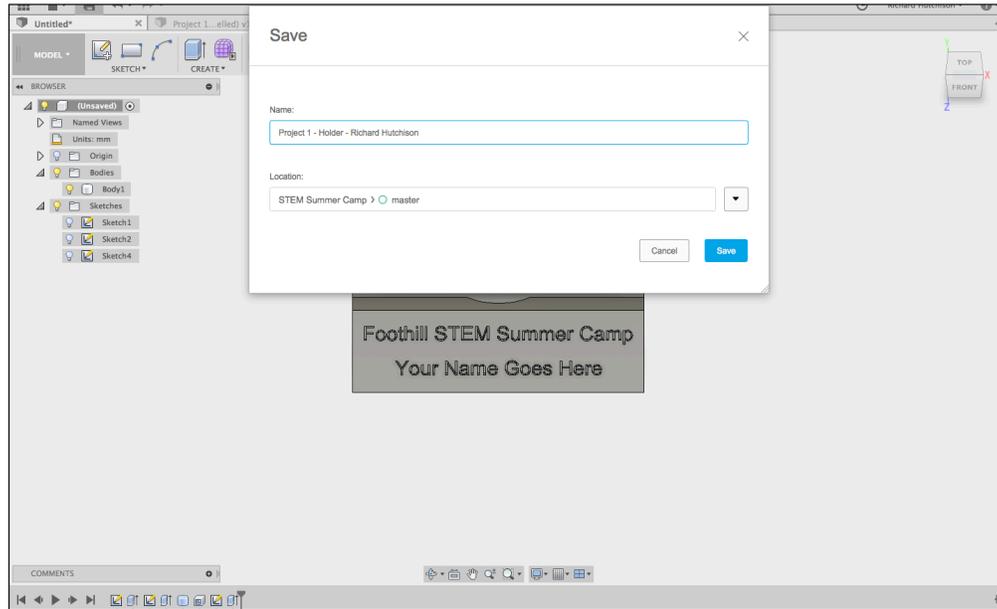
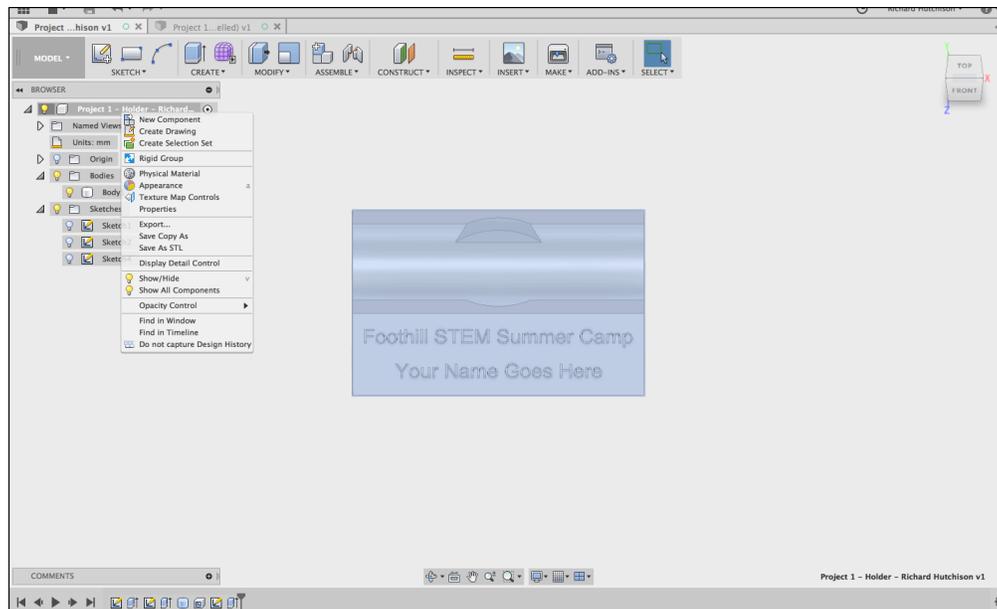


### Step 36c - Click Ok

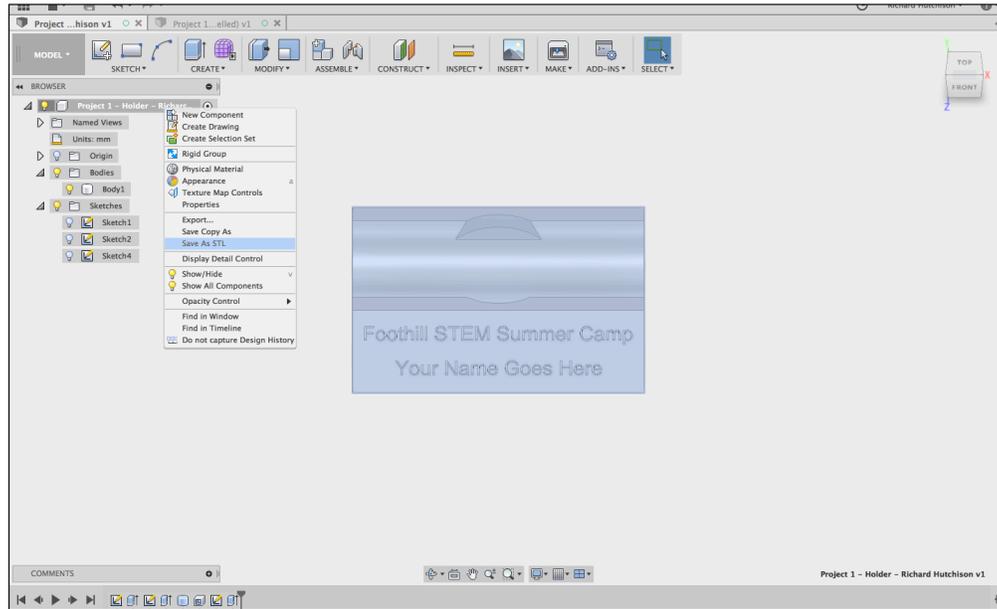


### Step 37a - Save your holder

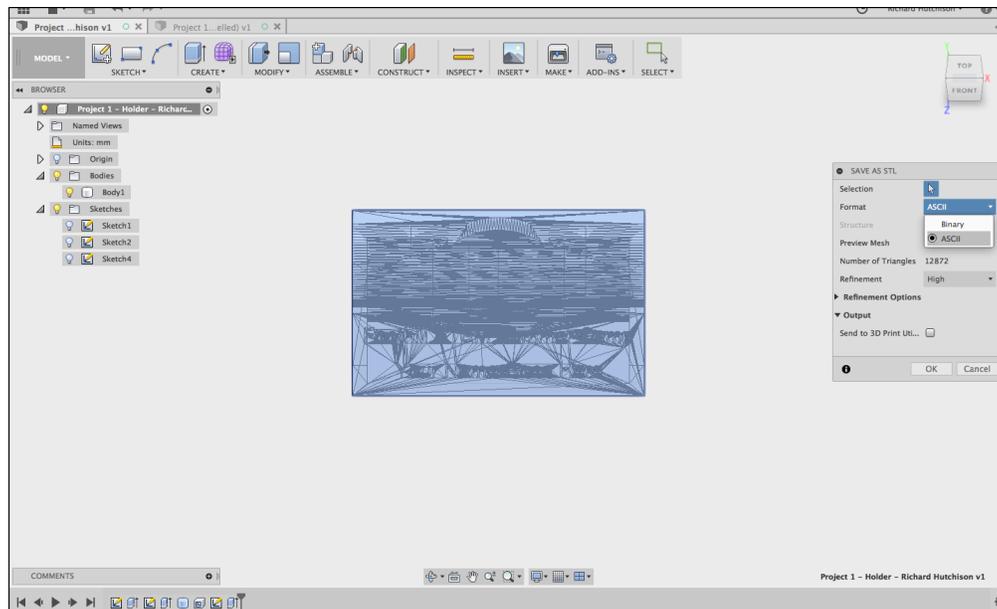


**Step 37b - Name it as shown below: Project 1 - Holder - Name****Step 38a - Right click on the very top of the development tree**

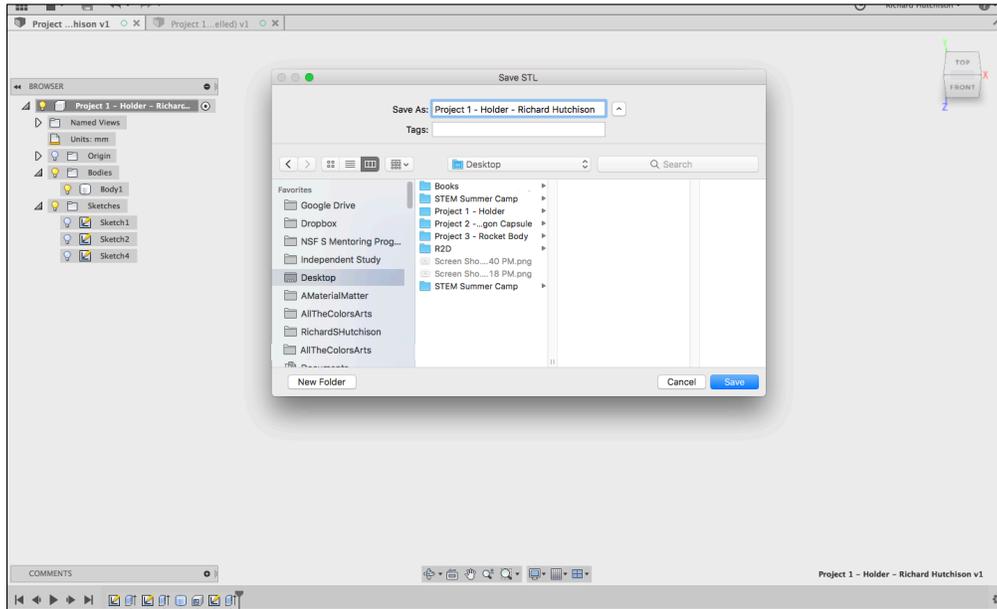
### Step 38b - Select "Save As STL"



### Step 38c - Choose ASCII then click OK



### Step 38d - Save your project to the Desktop with the same name



### Step 39 - Let the TA or Instructor Know You Are Done

