



GETTING STARTED

Start a sketch on a side plane

Select a plane or planar face

Technical Pointers

When you first open Fusion you'll start in the Design Workspace and the Solid Tab. When you start a sketch you'll enter the Sketch Tab.

The View Cube can be found on the top right corner of your browser and can help a lot with navigation.

Technical Pointers

Next head to the **Insert** menu and click **Canvas**.

Next press the **Insert from my Computer** button

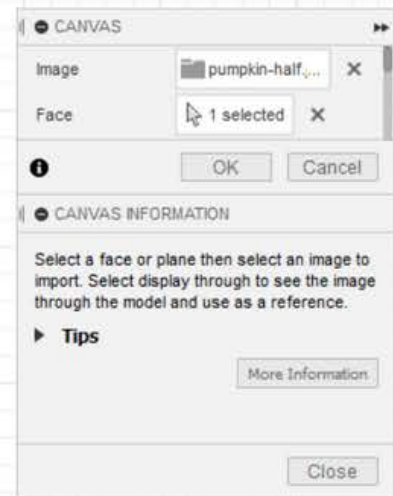
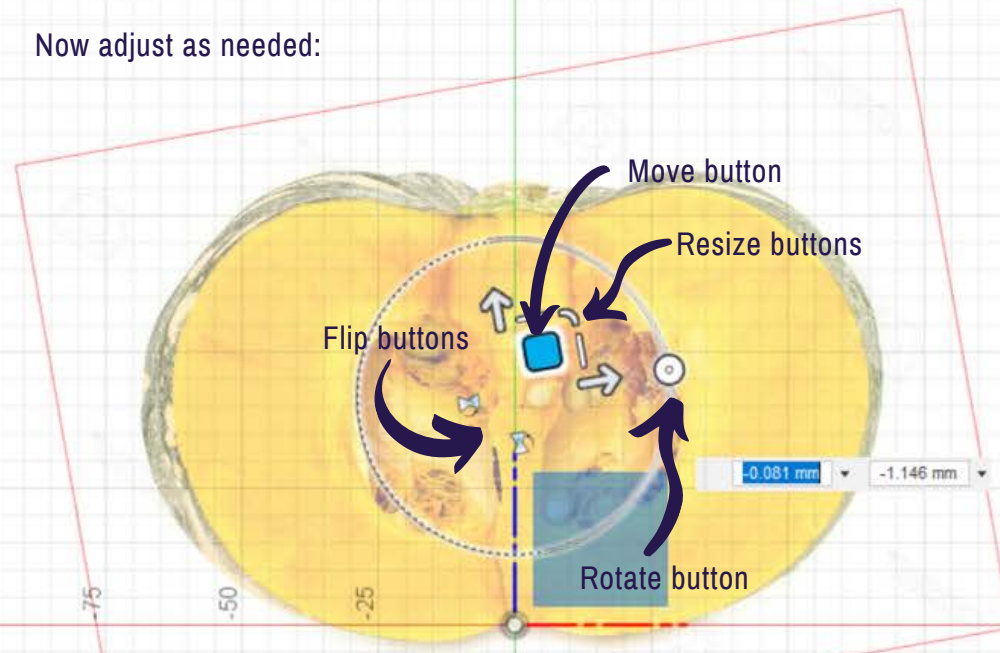
Technical Pointers

To zoom in Fusion roll the middle mouse button. To pan hold the middle mouse button

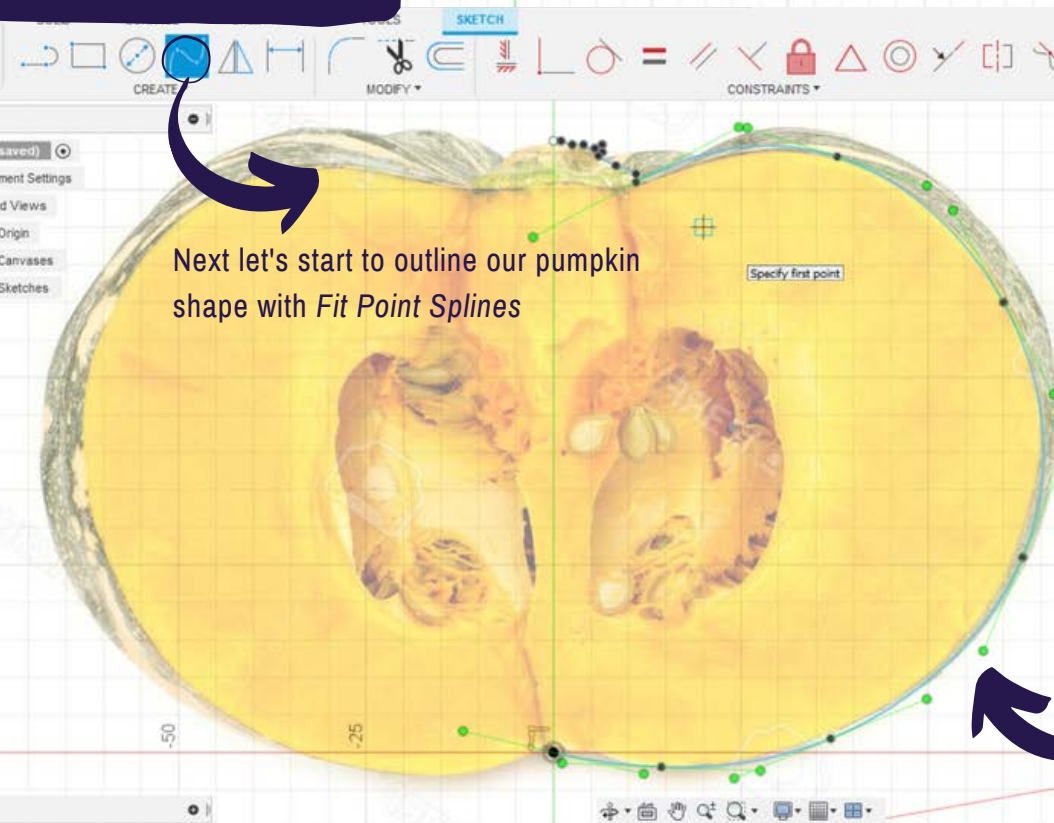
Finally select the plane you want the SVG to be on

ADJUST THE CANVAS

Now adjust as needed:



Technical Pointers
Fusion will highlight the tool
your currently using



Technical Pointers



How do I finish a line?
When drawing lines unless you close the shape, Fusion will assume you want to keep on drawing. To finish just press the **green tick** or press the **escape** button.

Technical Pointers
The green circles are
handles and can be used
to edit the spline curve



CREATE A FLAT BASE

Next draw a dividing line down the middle of the pumpkin - this will be the line our pumpkin face revolves around

It's always easier to 3D print on a flat bottom (it'll also help the pumpkin not fall over) so let's cut off the bottom of our pumpkin.
First draw a line through the X axis.

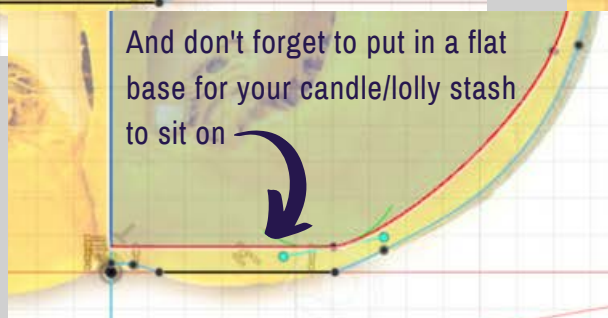
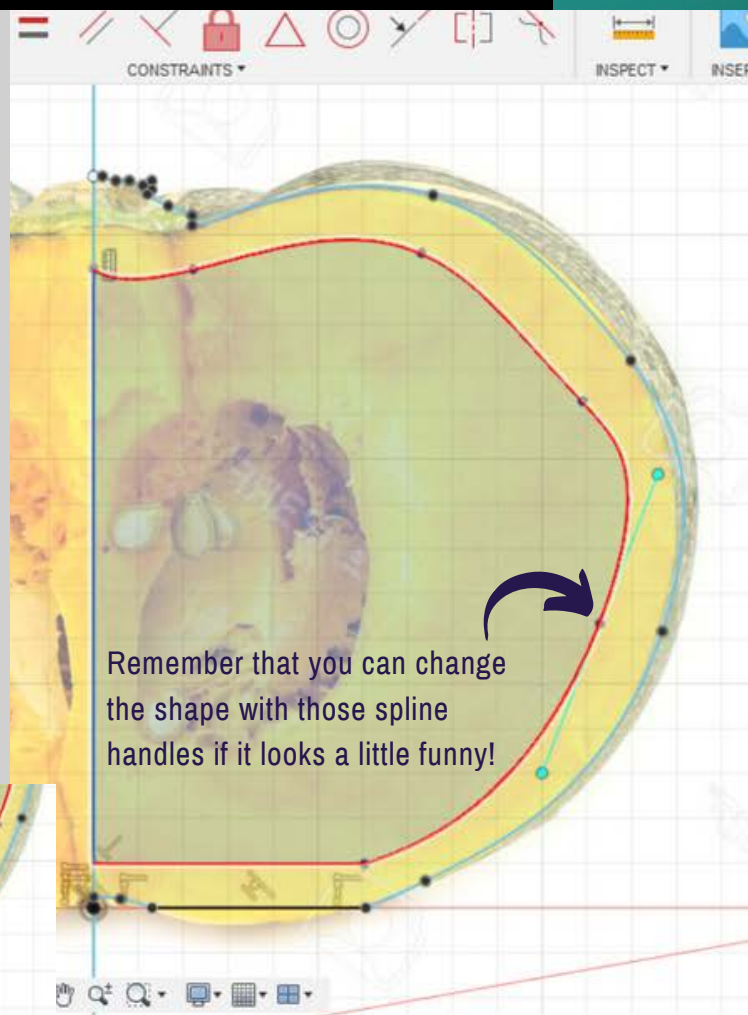
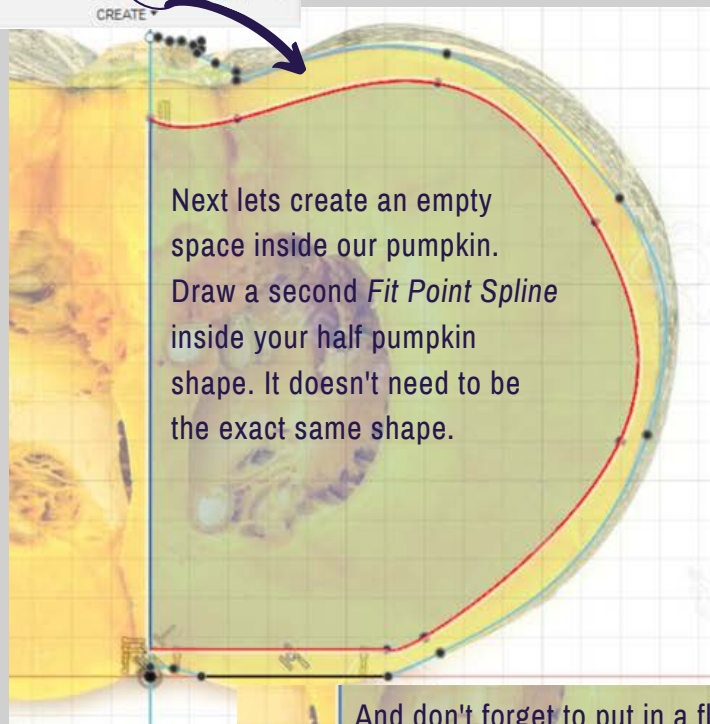
Then trim any parts of the pumpkin on the other side of that line.

And now your pumpkin has a flat base.

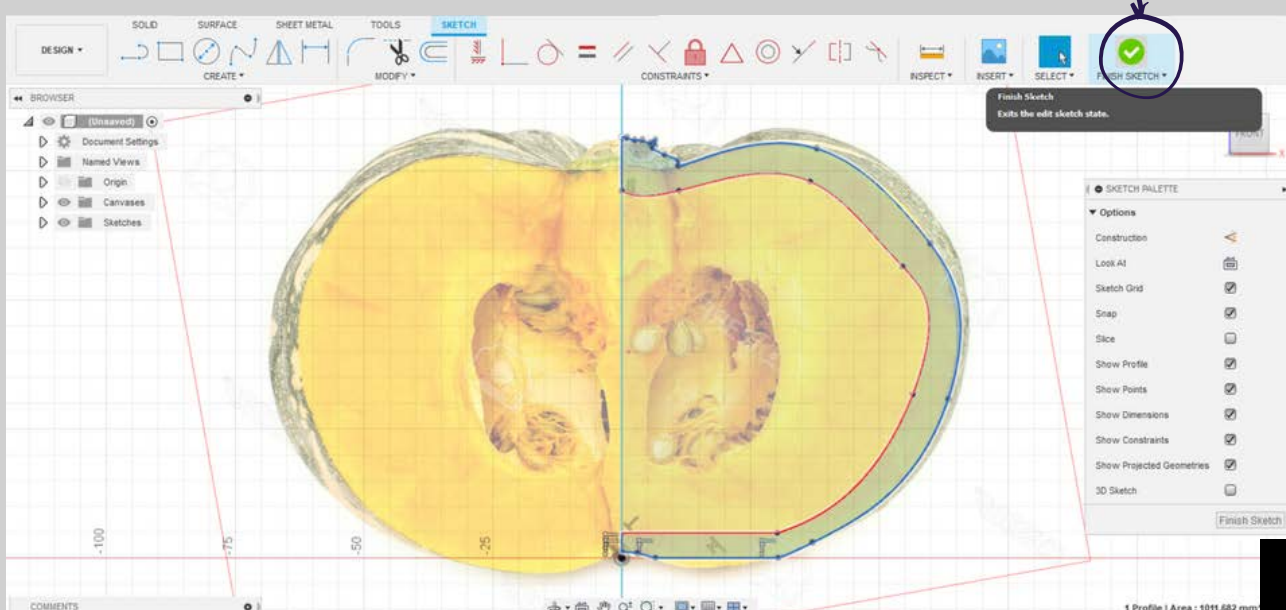
Technical Pointers
It's easy to get out of the sketch menu while editing your sketch. If this happens don't make a new sketch, instead double click on your original sketch in the timeline

1 Profile | Area : 446

THE INNER LAYER

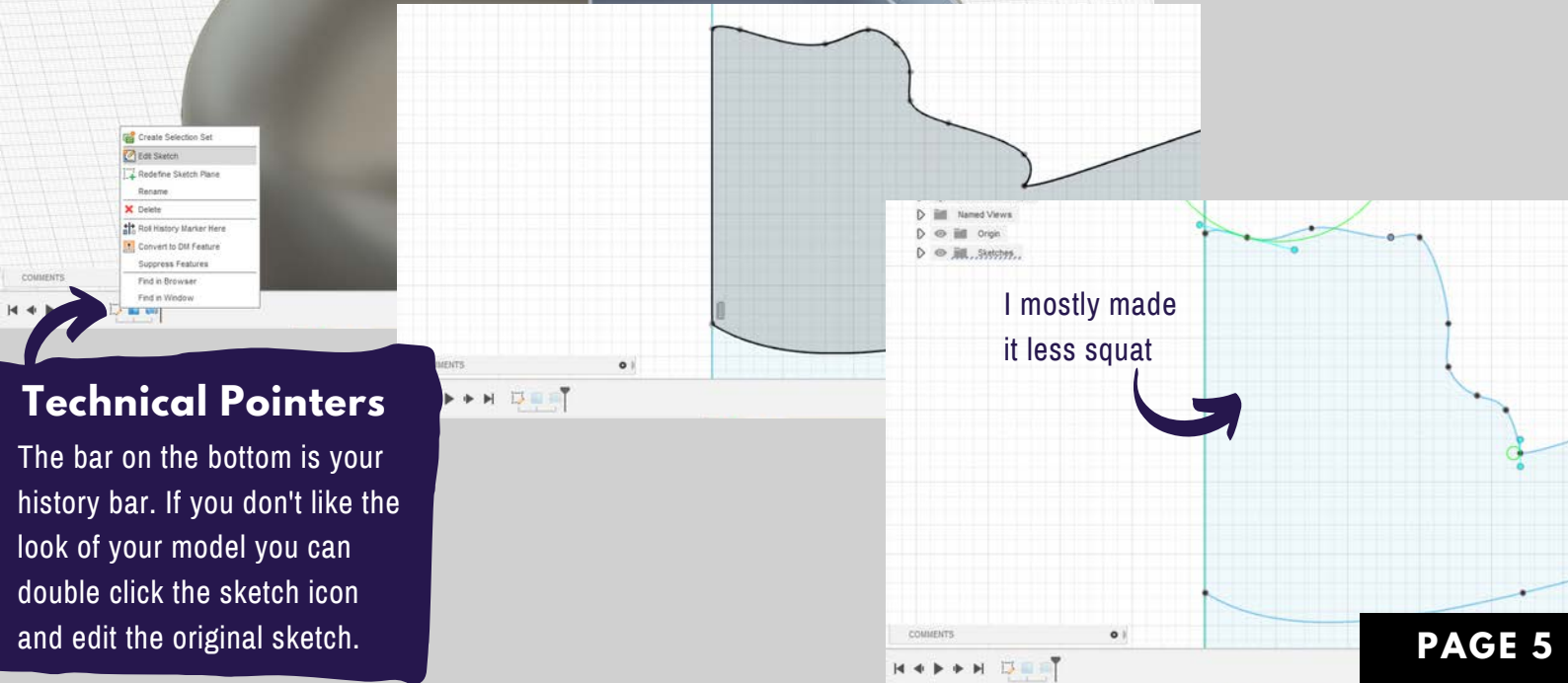
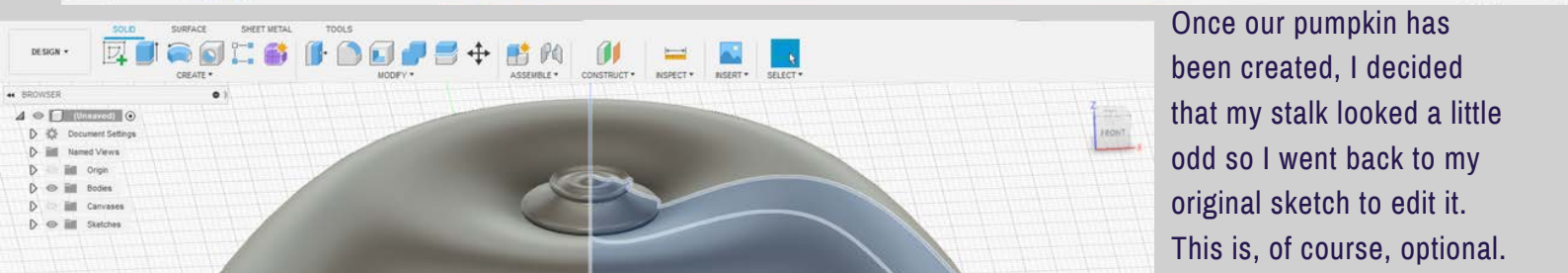
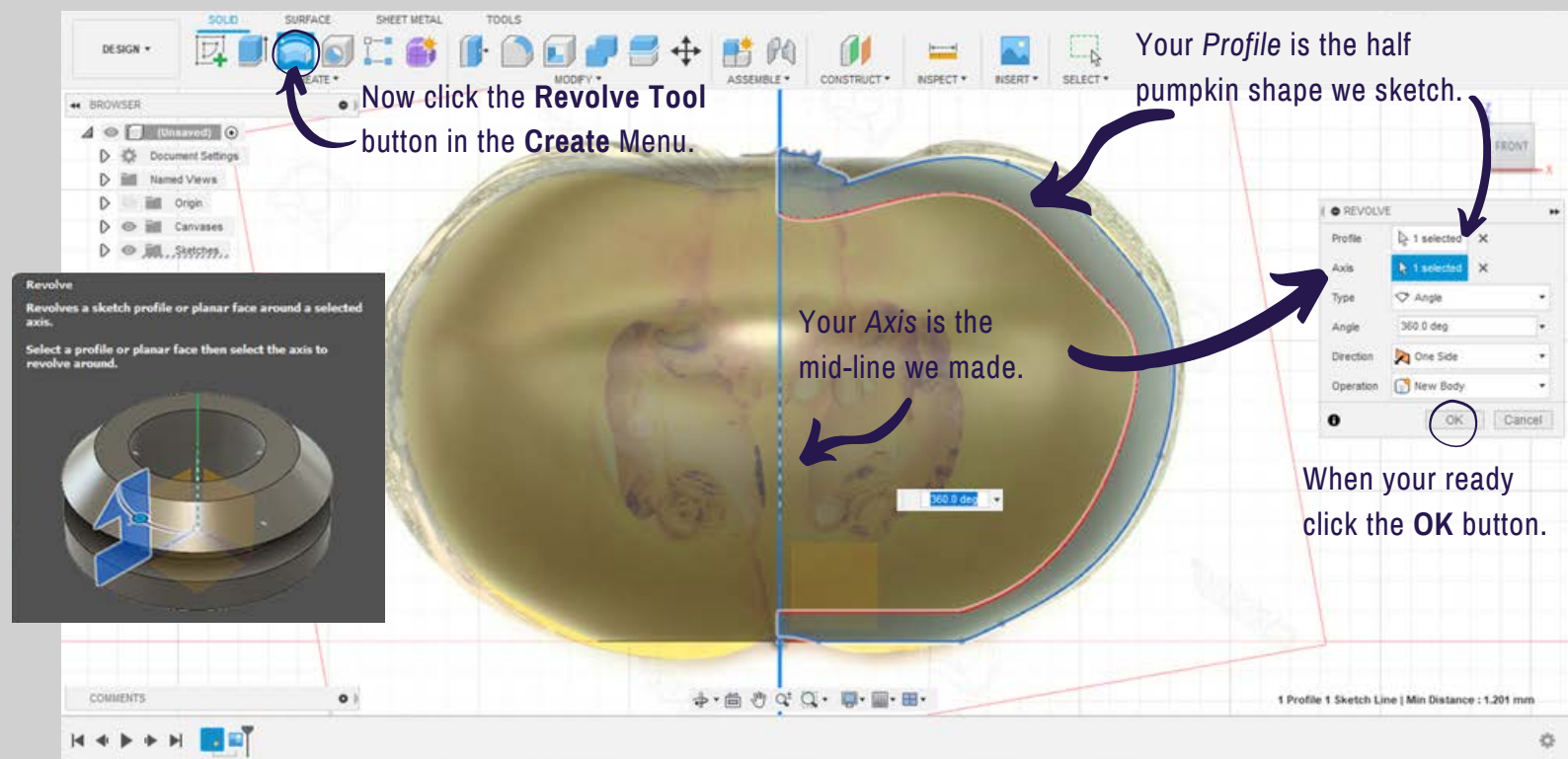


And now our sketch is complete, click the **Finish Sketch** button.

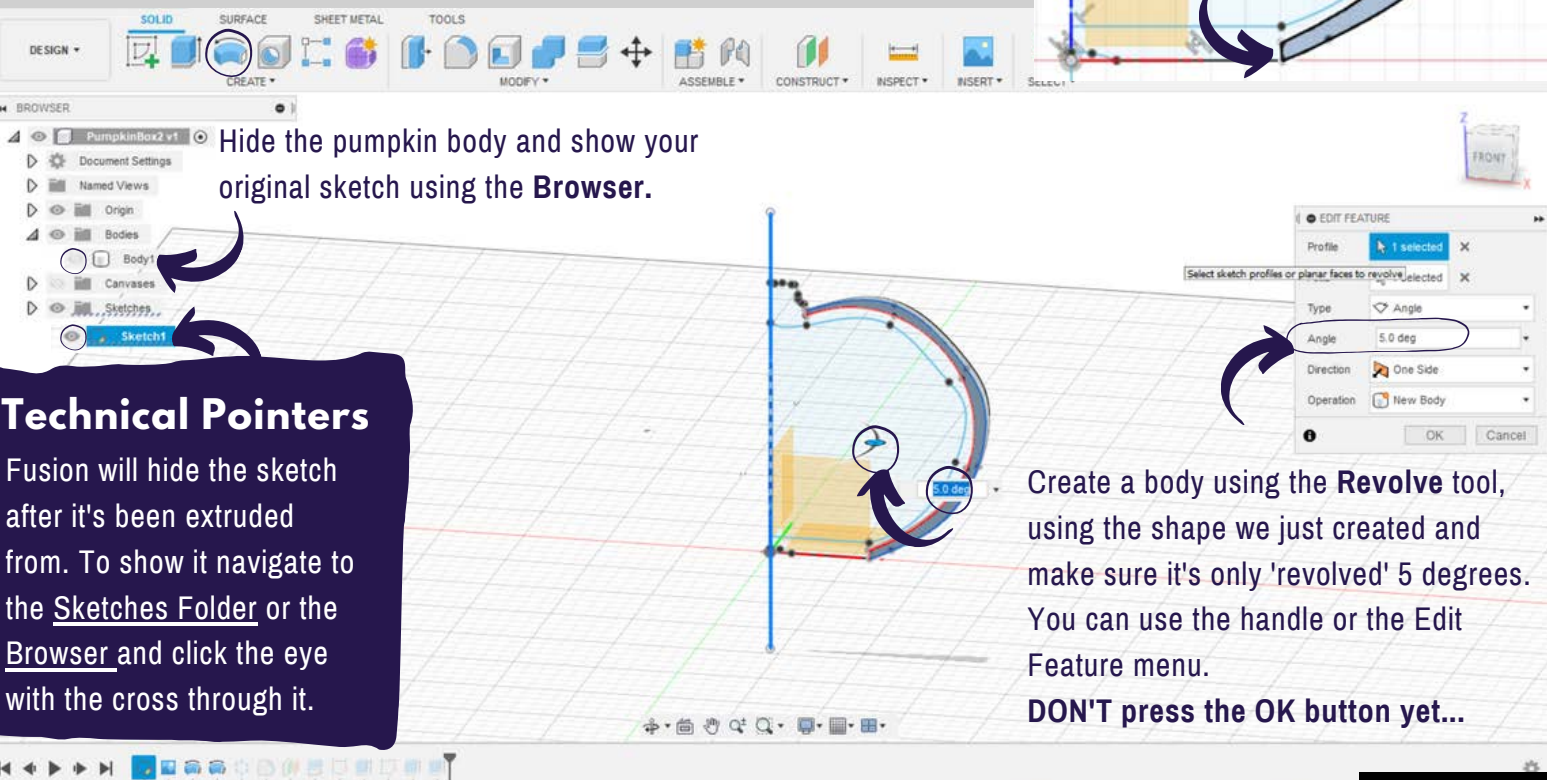
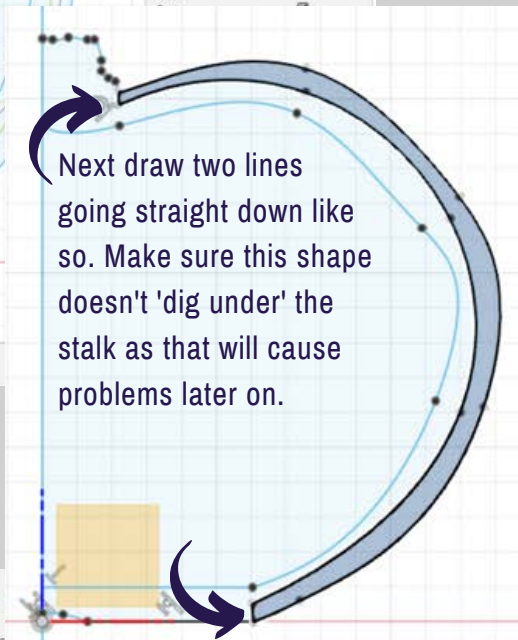
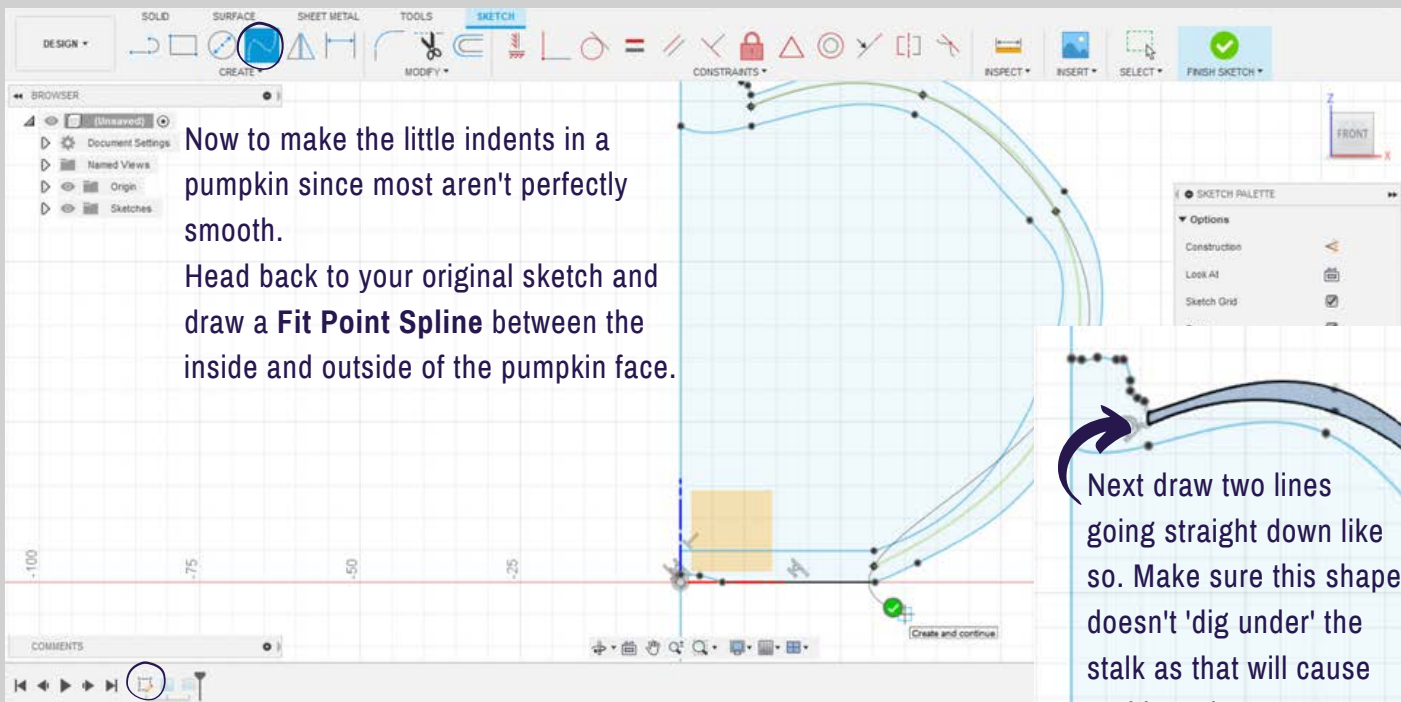




TIME TO REVOLVE

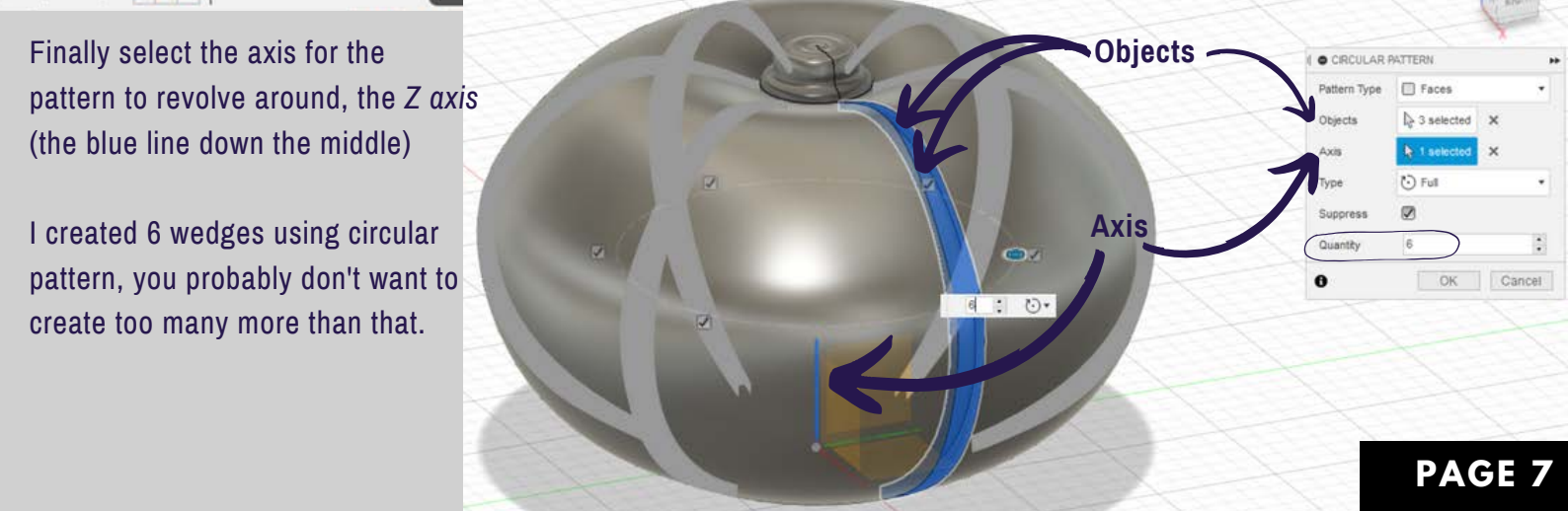
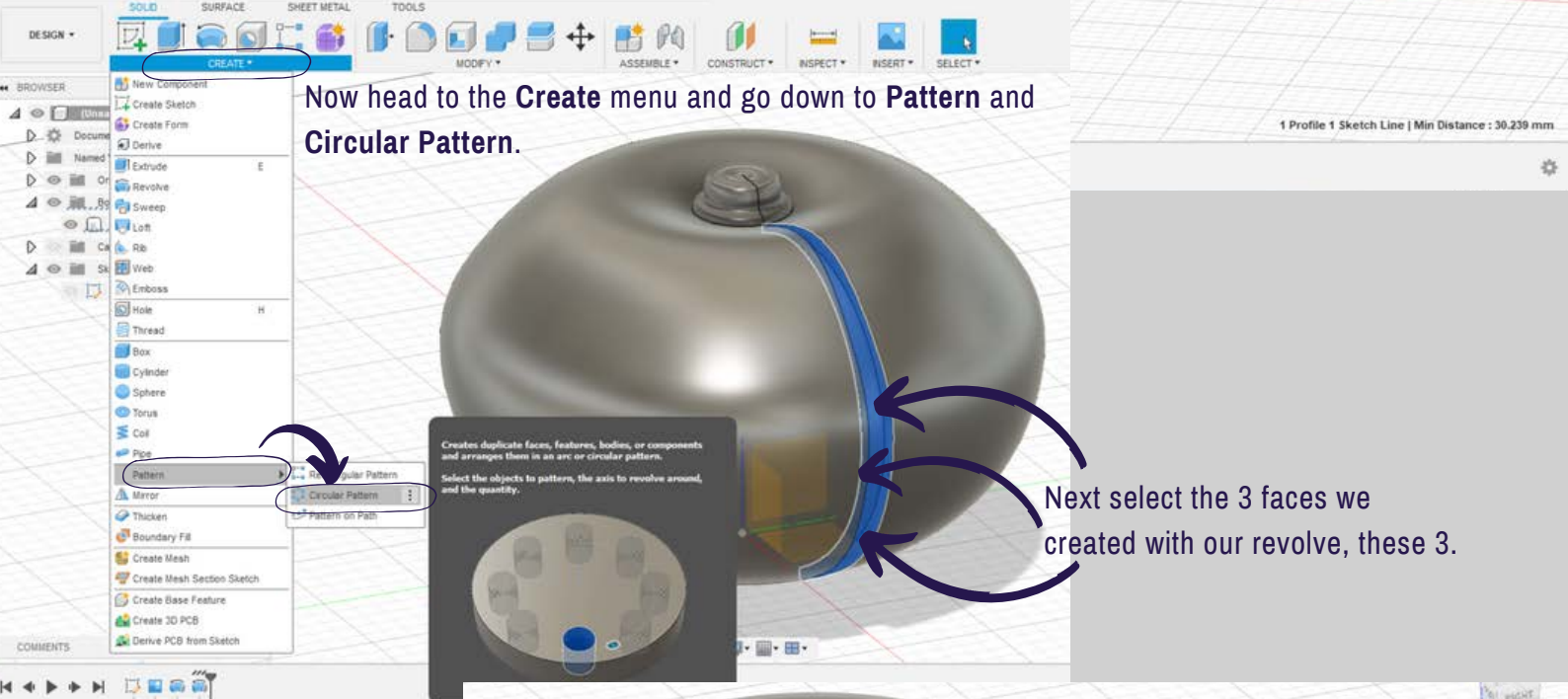
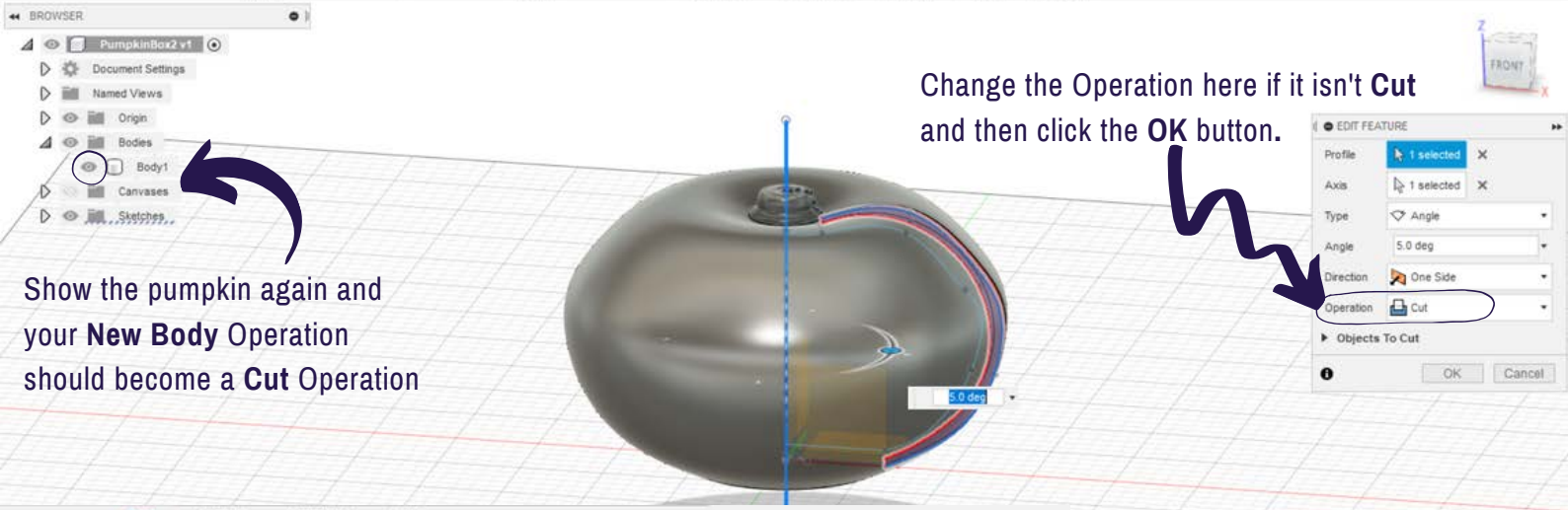


SHAPE THE WEDGE



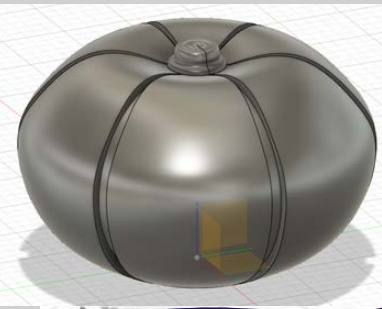


CUT THE WEDGE





TIME TO FILLET



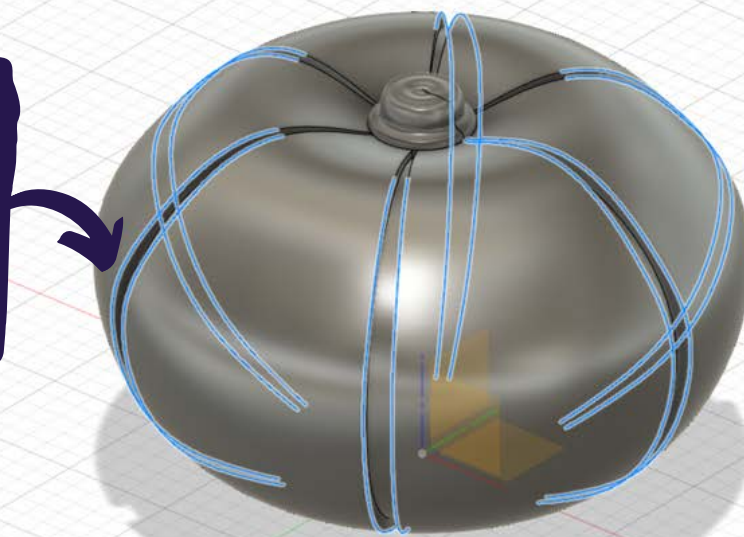
To help make these wedges look a bit more natural, we're going to fillet their edges, to get started press the **Fillet** button.



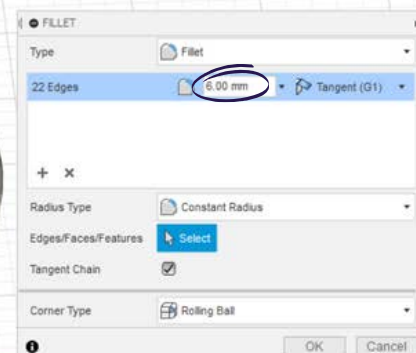
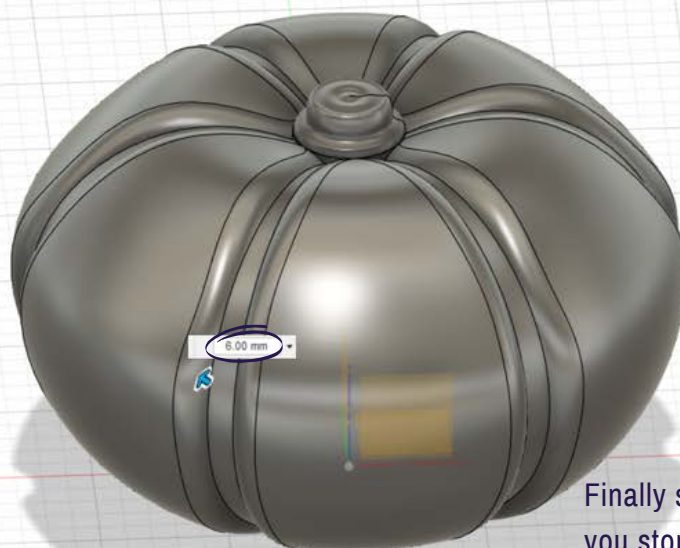
Technical Pointers

Is it selected?

It's easy to select the wrong line while working, a selected line will go dark blue.

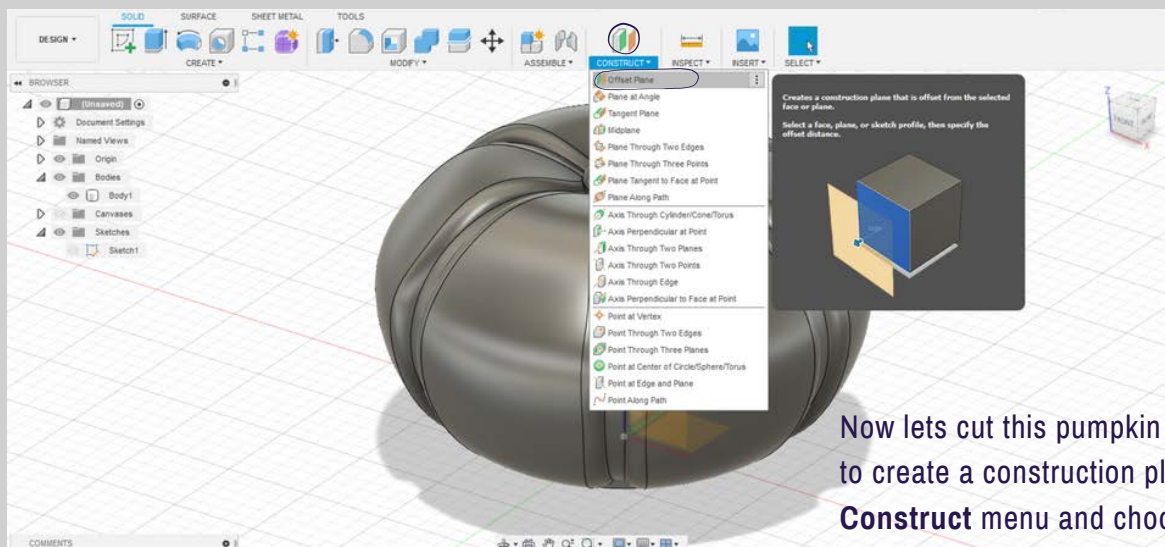


Next select all the edges to fillet (see the above picture for clarification)

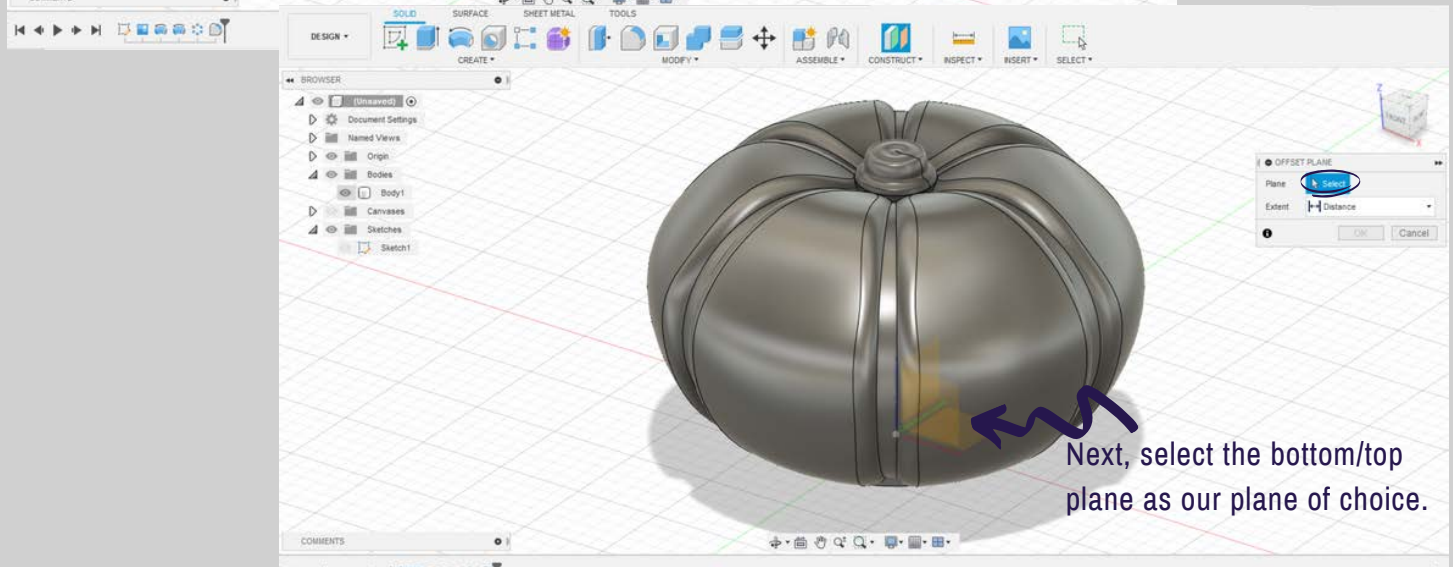


Finally set the fillet to 6mm or under (if you stop seeing a preview of your fillet then drop the distance being filleted)

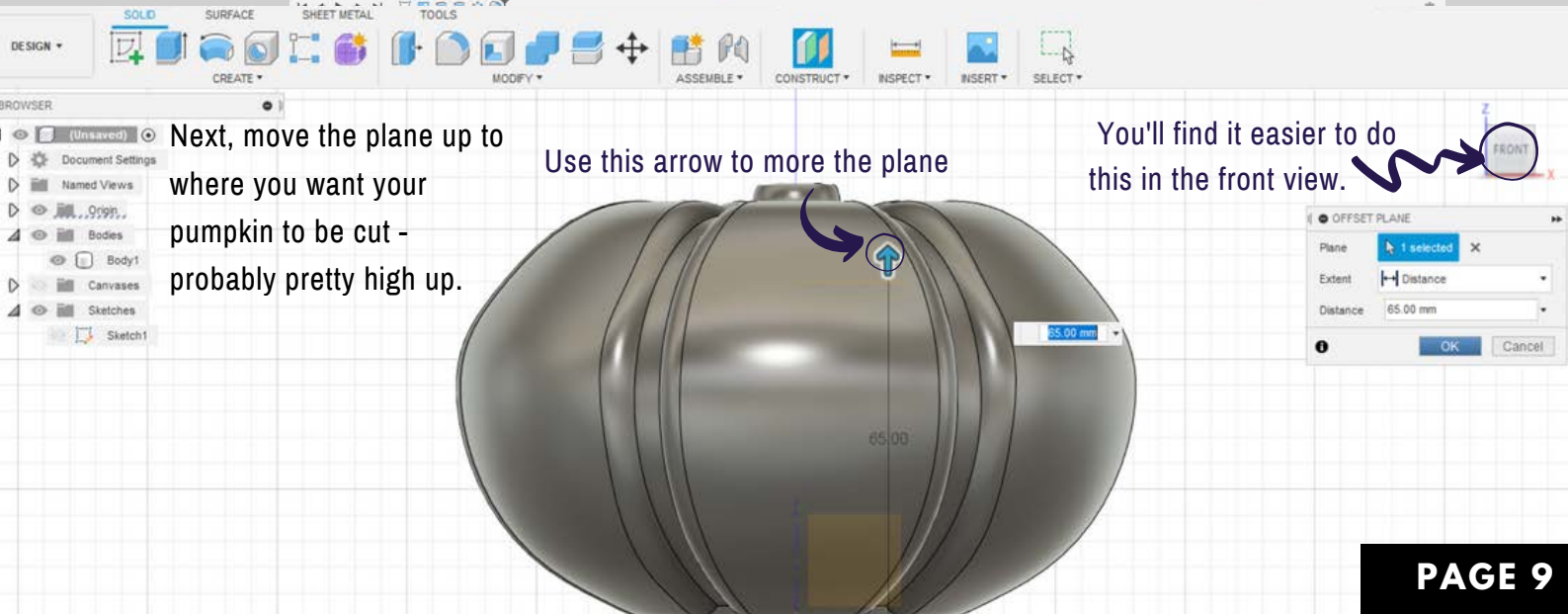
CREATE THE CUTTING PLANE



Now lets cut this pumpkin up! First we'll need to create a construction plane. Head to the **Construct** menu and choose **Offset Plane**.



Next, select the bottom/top plane as our plane of choice.



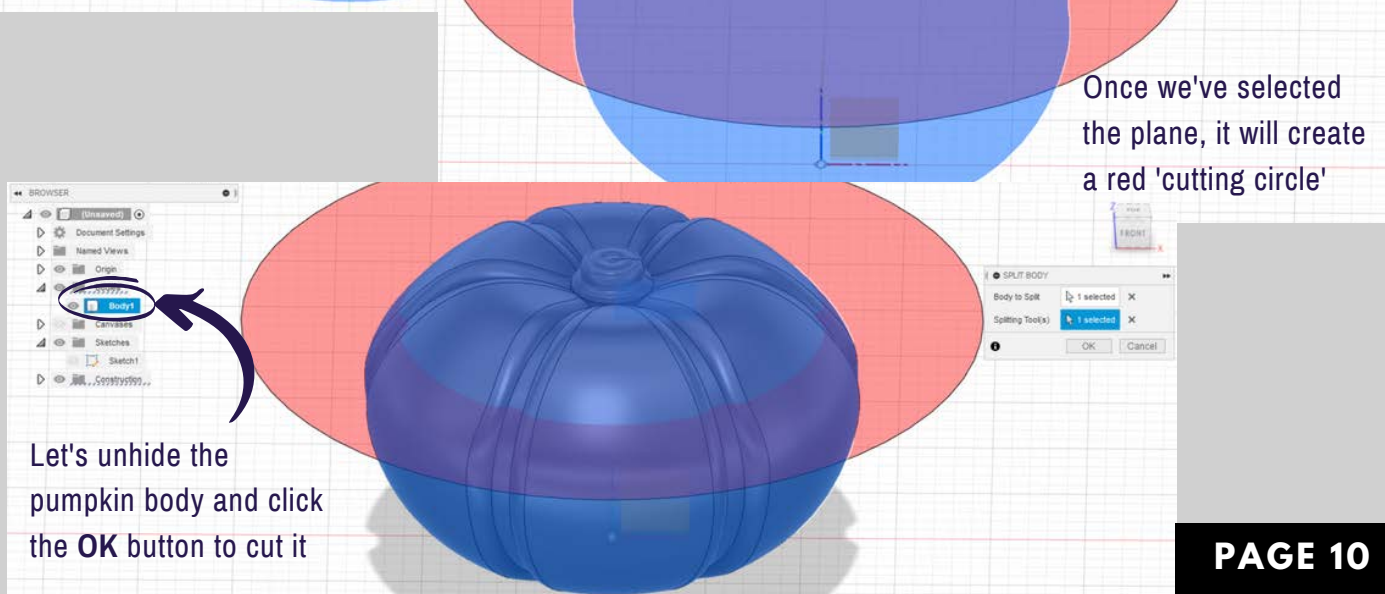
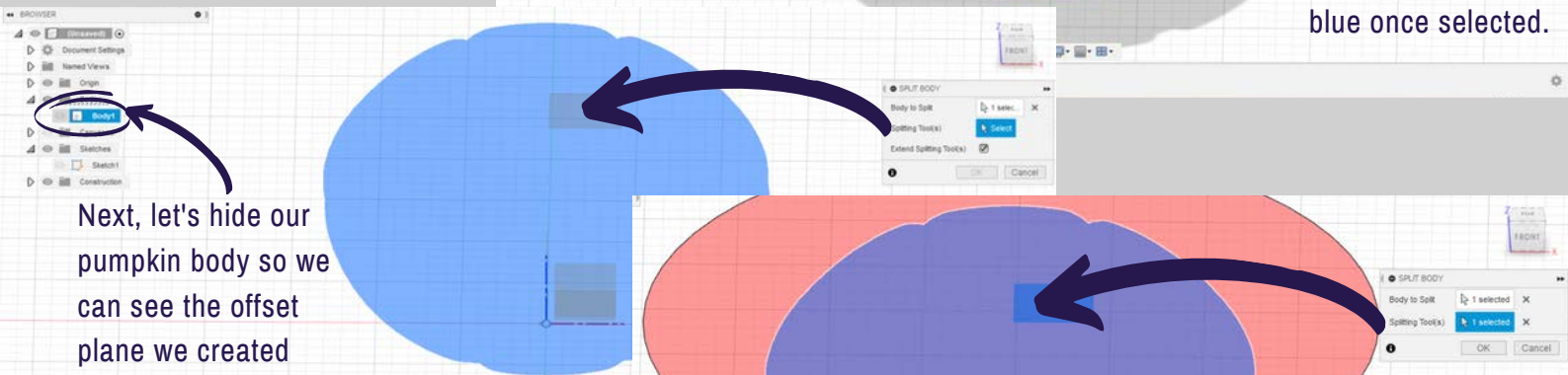
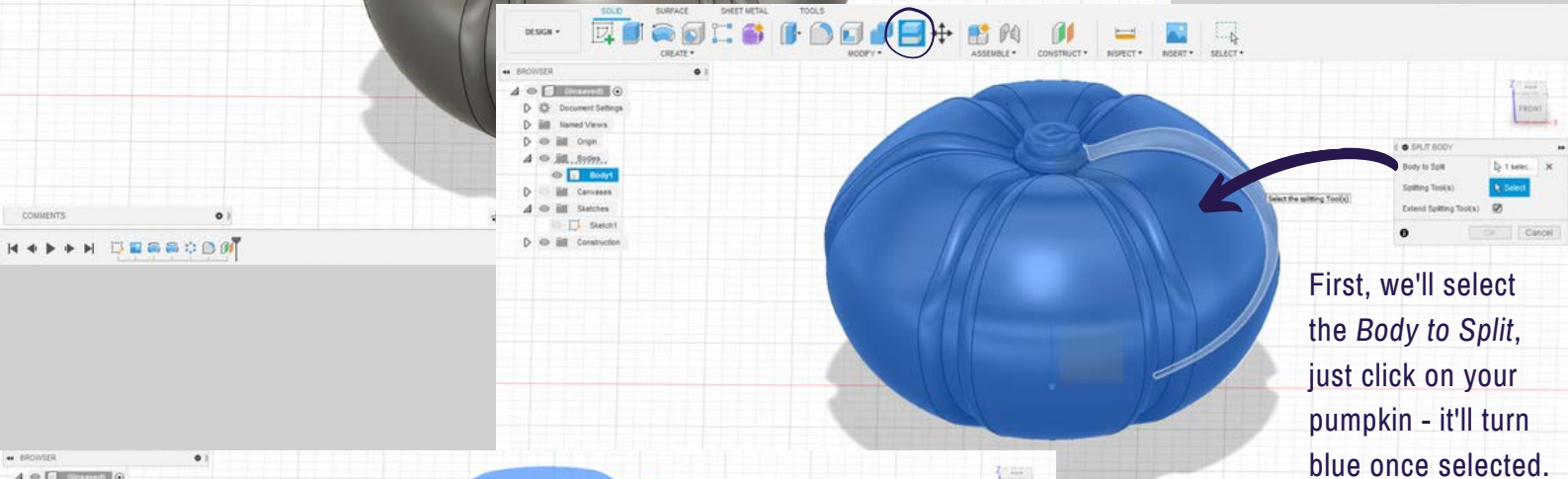
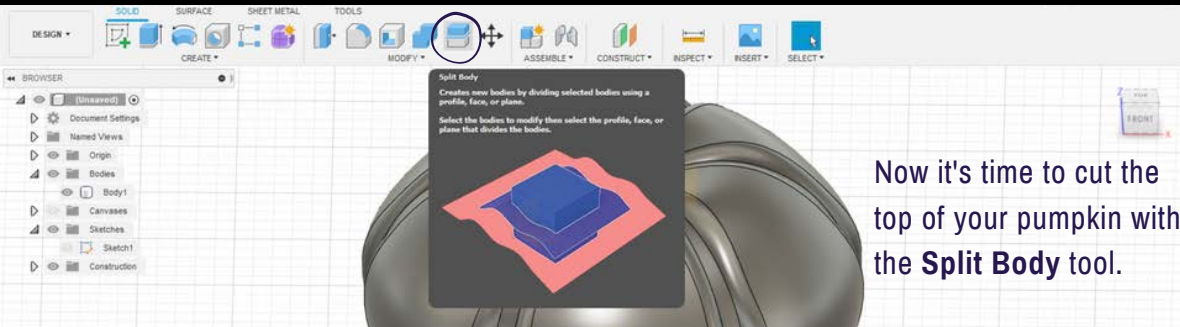
Next, move the plane up to where you want your pumpkin to be cut - probably pretty high up.

Use this arrow to move the plane

You'll find it easier to do this in the front view.

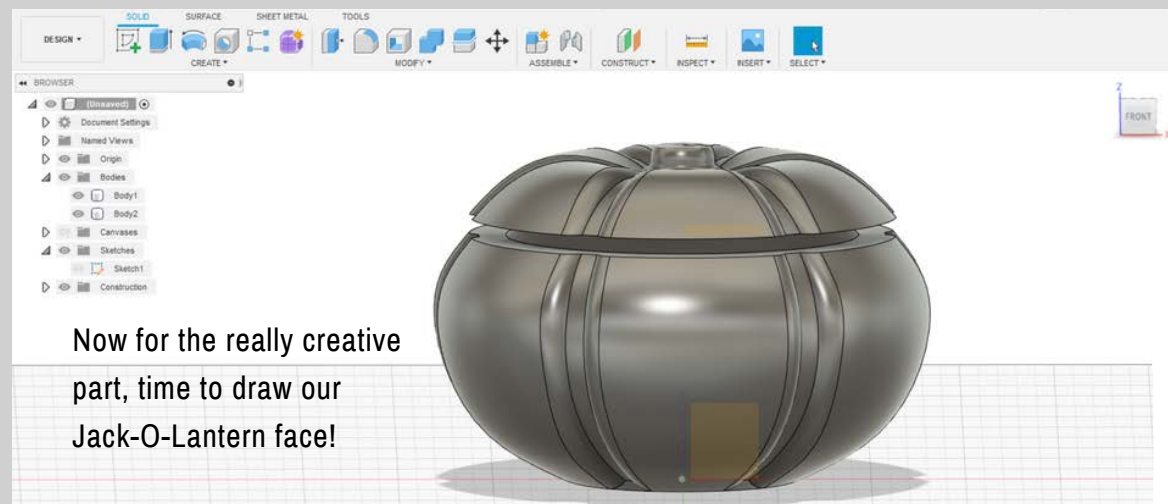


CUT THE PUMPKIN

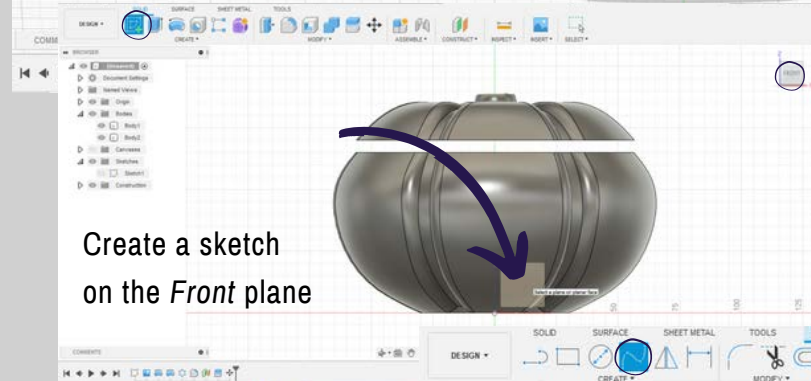




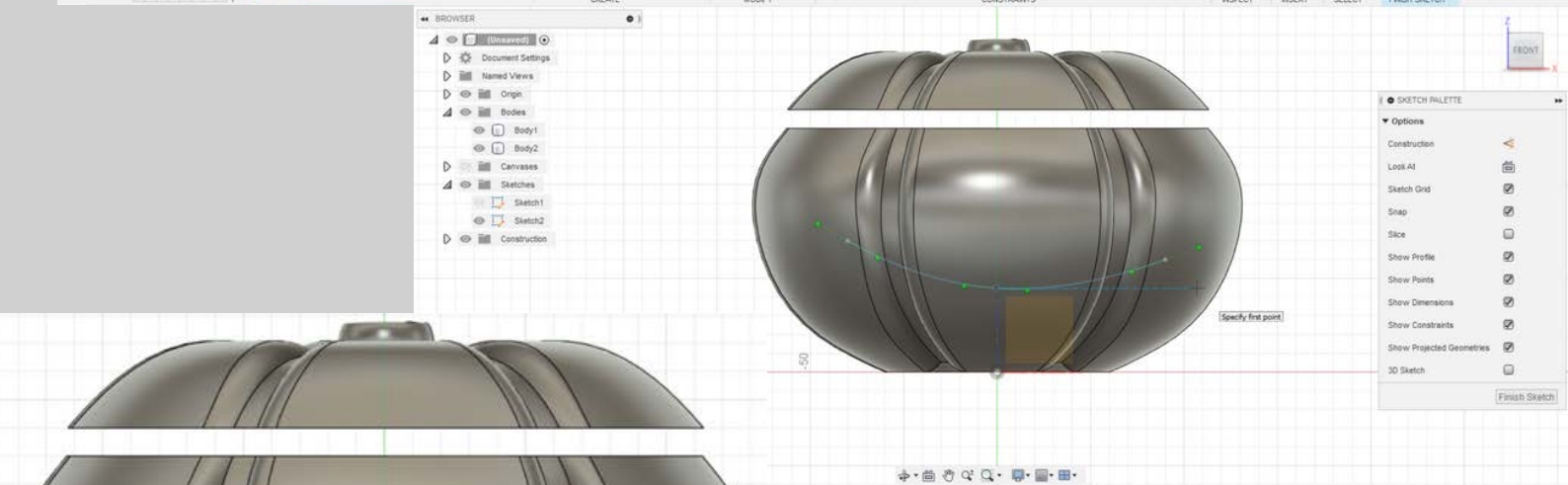
DRAW THE FACE



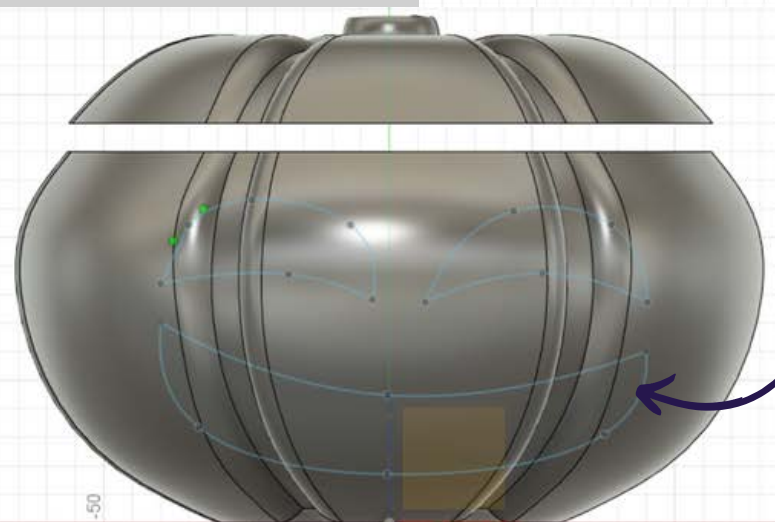
I've moved the lid of my pumpkin box to show the effect of the plane split but you don't need to. If you want to move the lid click on the lid and type **M** to get the move menu.



Then draw a face. I used the spline tool to draw very curved eyes and a mouth but it's up to you how you want your Jack-O-Lantern face to look.

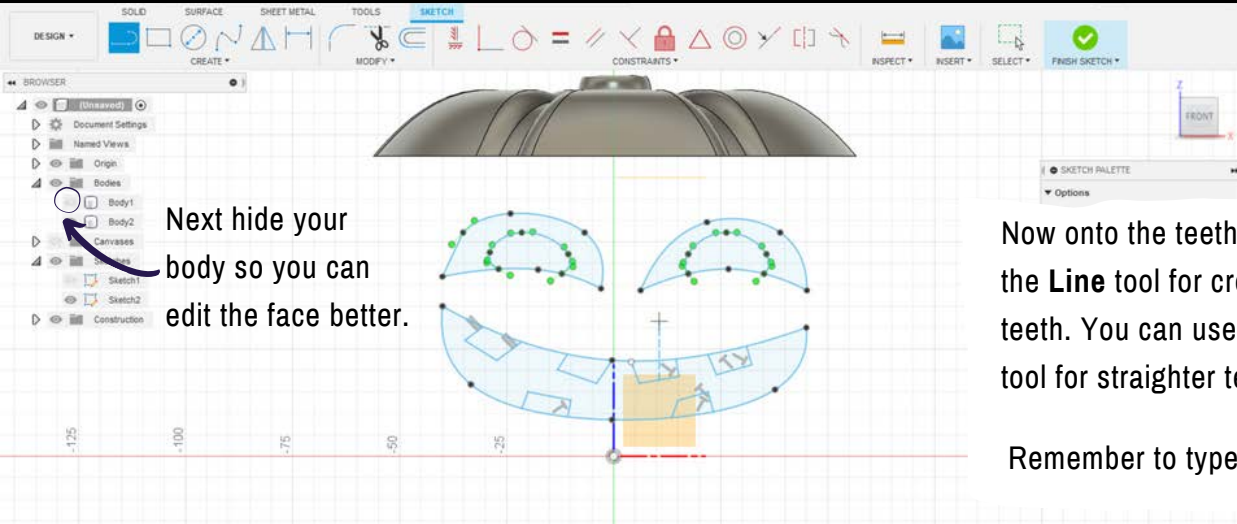


We are technically drawing behind the body so that's why the lines look faded.



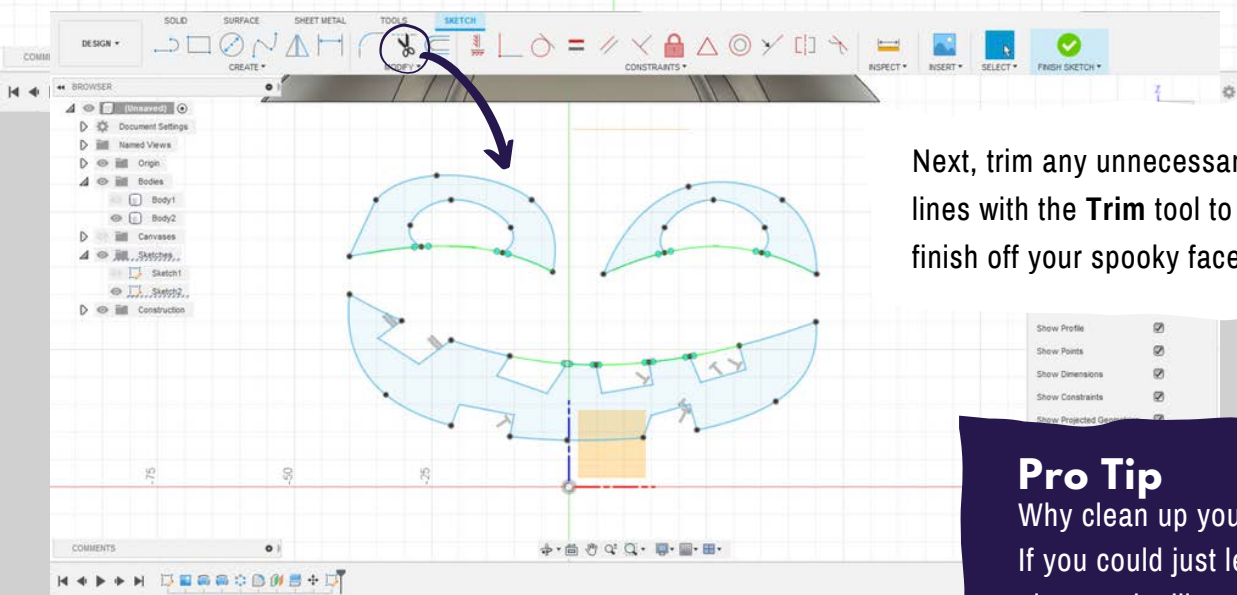


FINISHING THE FACE



Now onto the teeth. I drew mine using the **Line** tool for crooked looking teeth. You can use the **Rectangle** tool for straighter teeth!

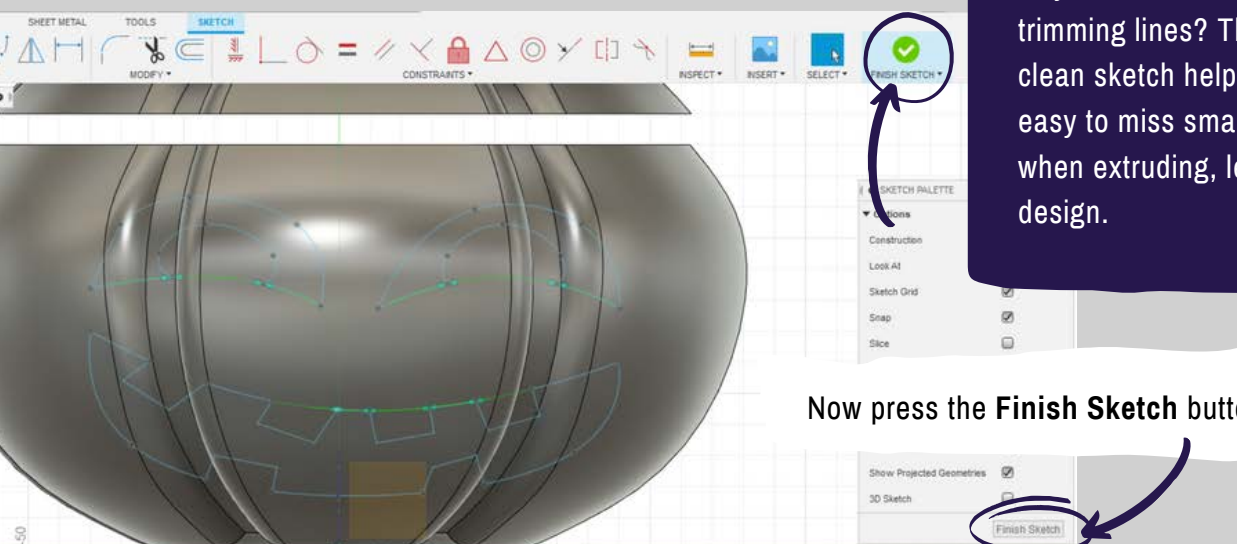
Remember to type **Esc** to finish lines



Pro Tip

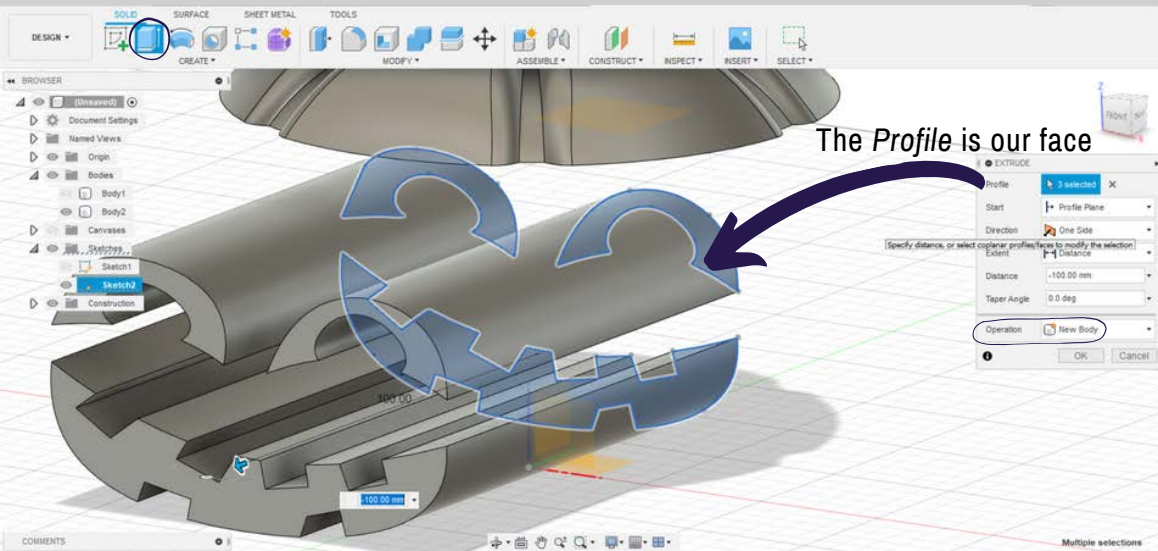
Why clean up your sketch?

If you could just leave all your lines in place and still extrude the same shape, why bother cleaning up your sketch and trimming lines? The main reason is that a clean sketch helps with extrusion. It can be easy to miss small parts of your sketch when extruding, leading to holes in your design.



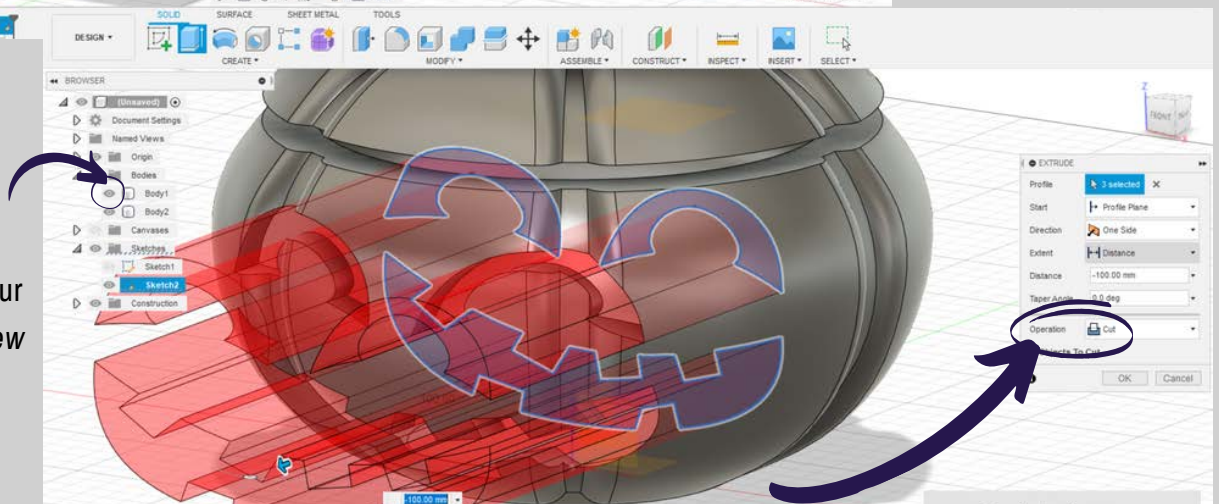


CUT OUT THE FACE

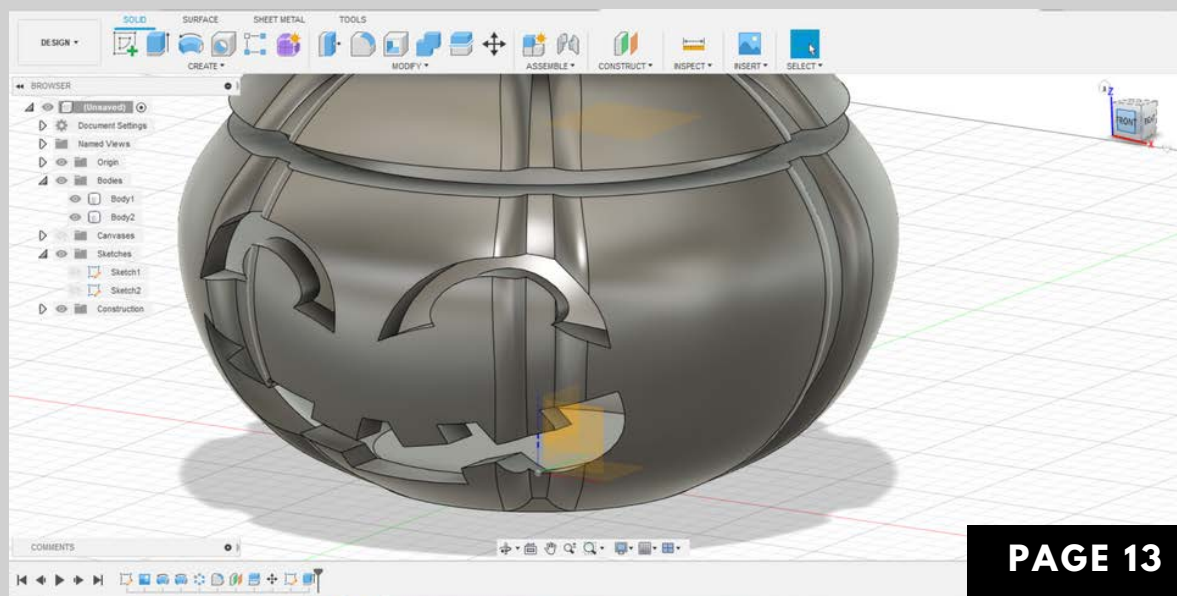


To cut your face into your pumpkin box, start by extruding the face out (it doesn't matter how far)

Next, show the pumpkin body and that should turn your **Operation** from **New Body** to **Cut**. If not, change it in the **Extrude** Menu.



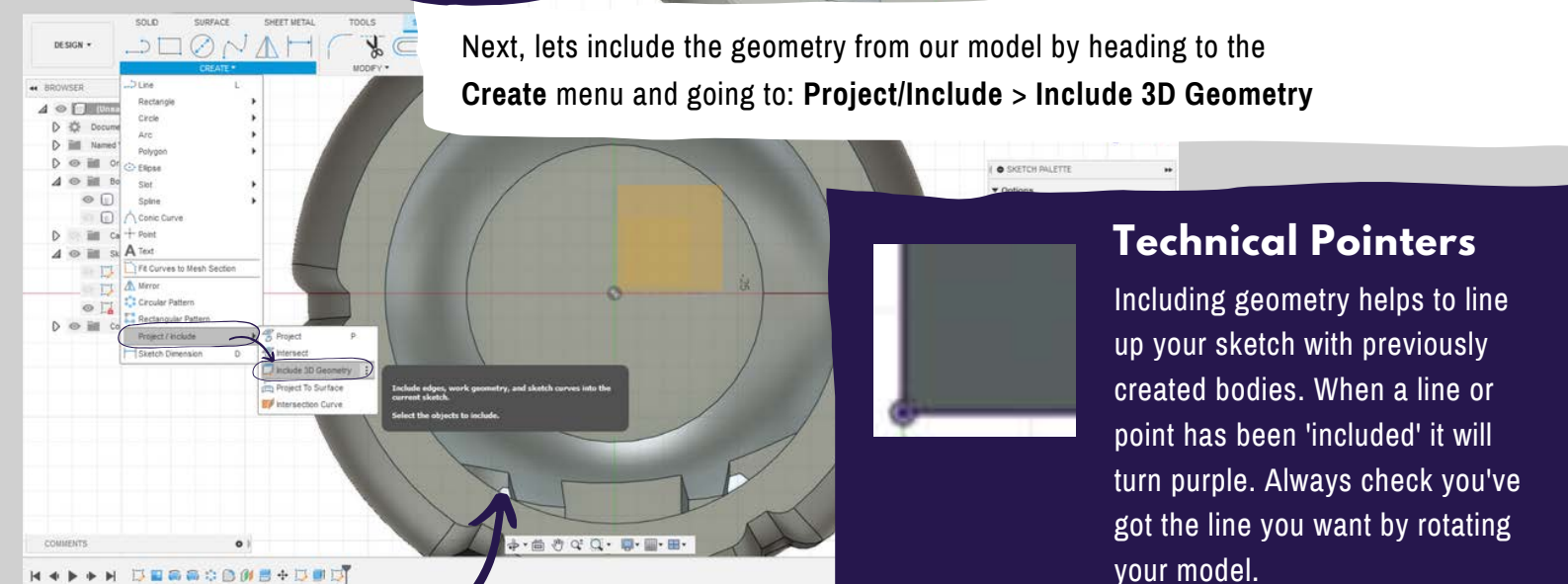
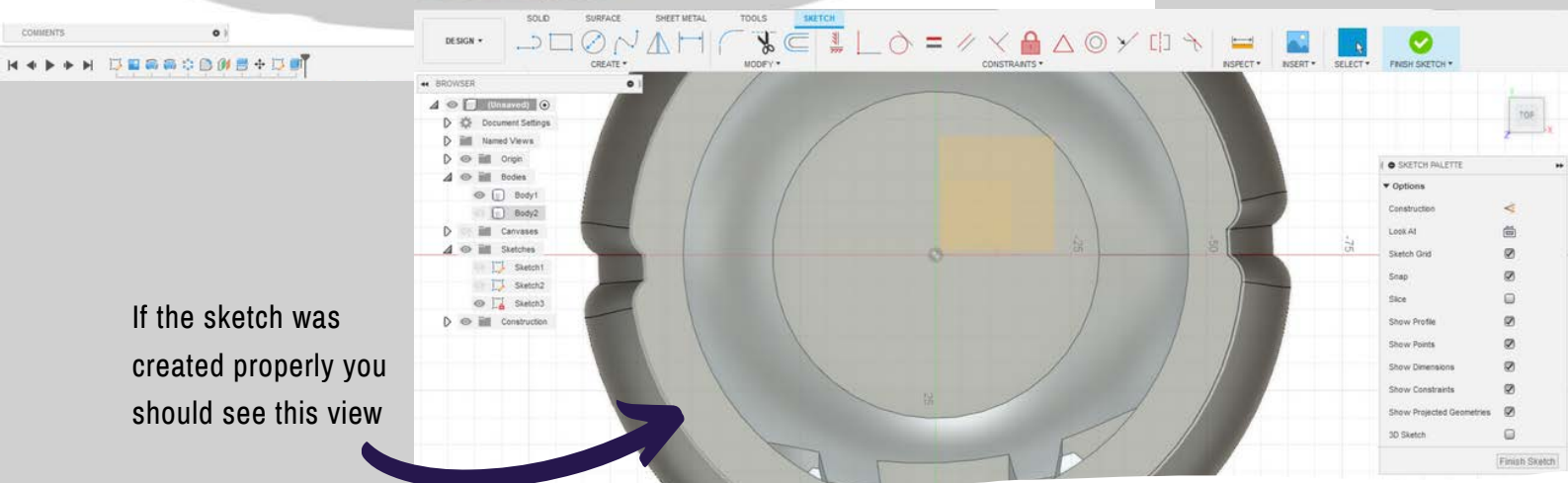
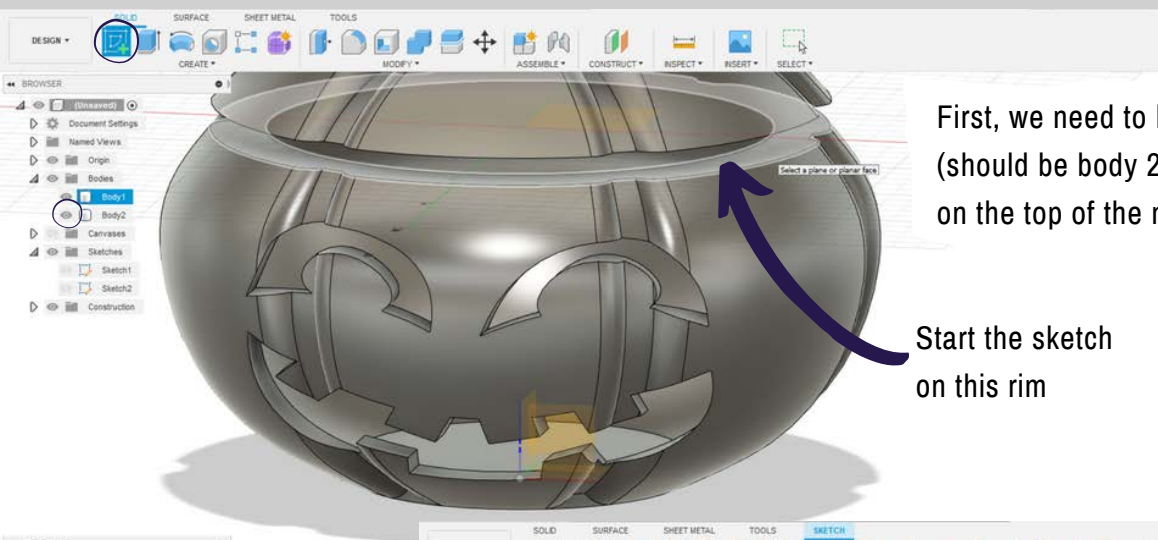
Press the **OK** button and now you have a Jack-O-Lantern



Next up, finishing off the box lid so it'll sit nicely.



CREATE THE LID

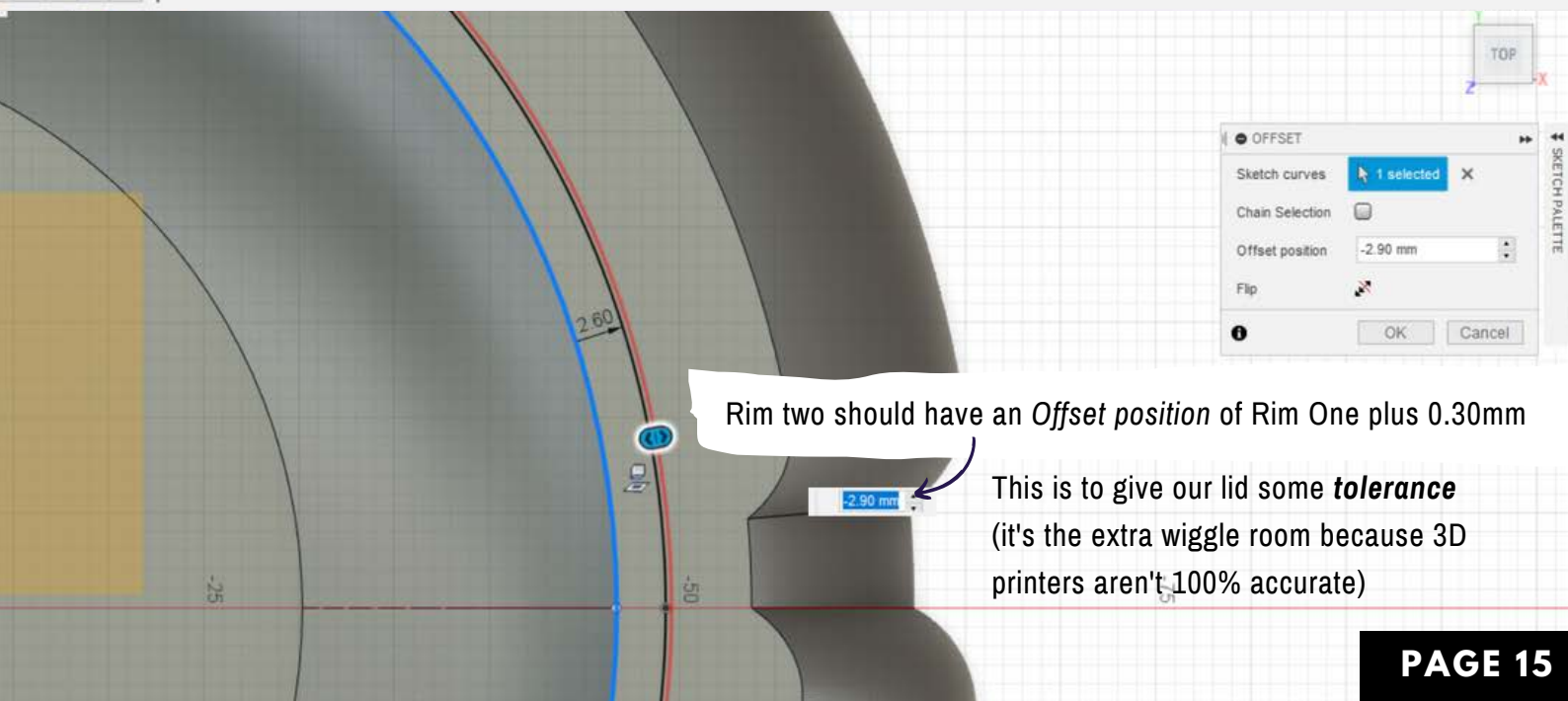
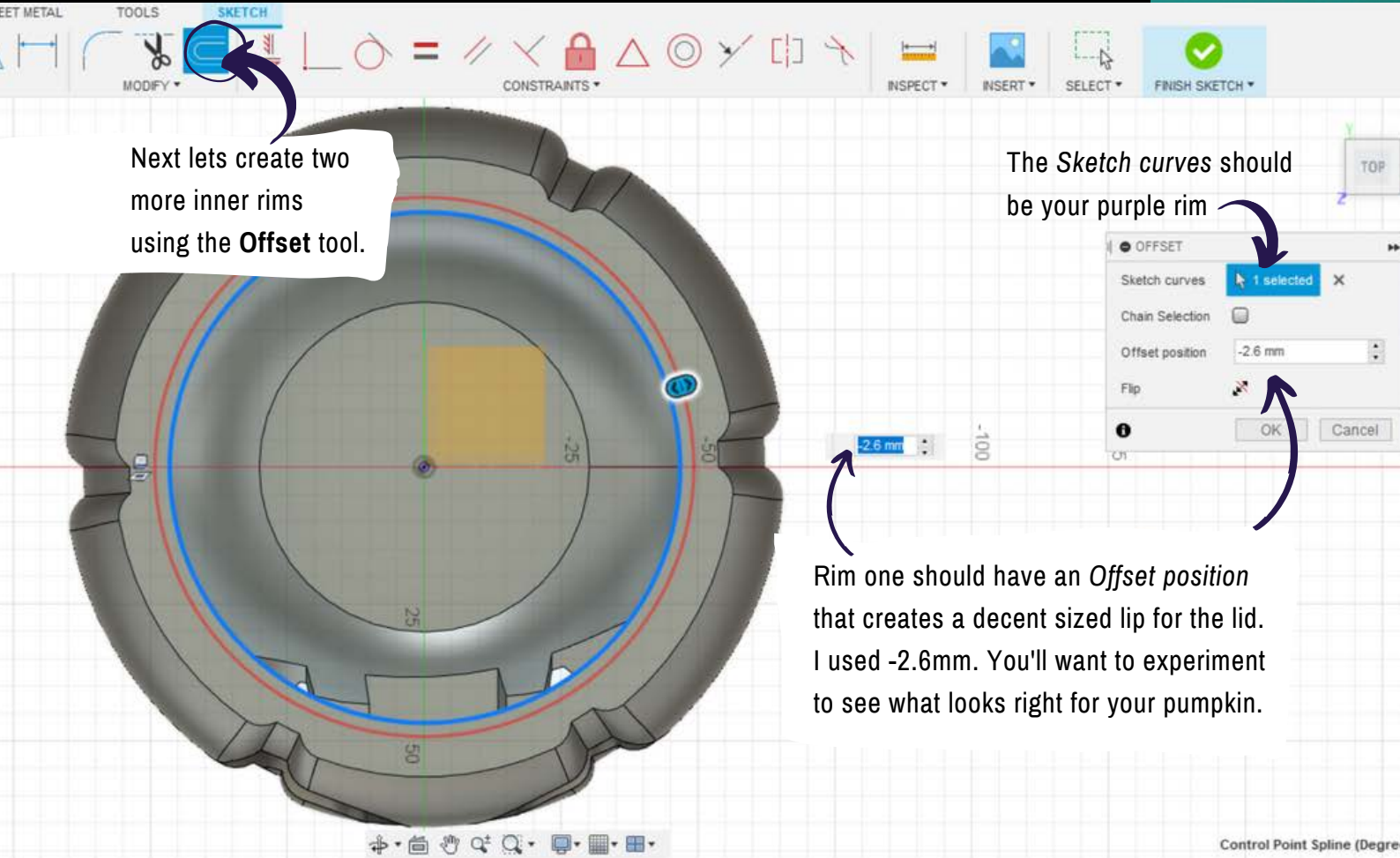


Technical Pointers

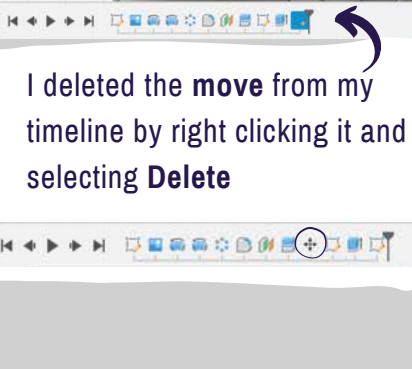
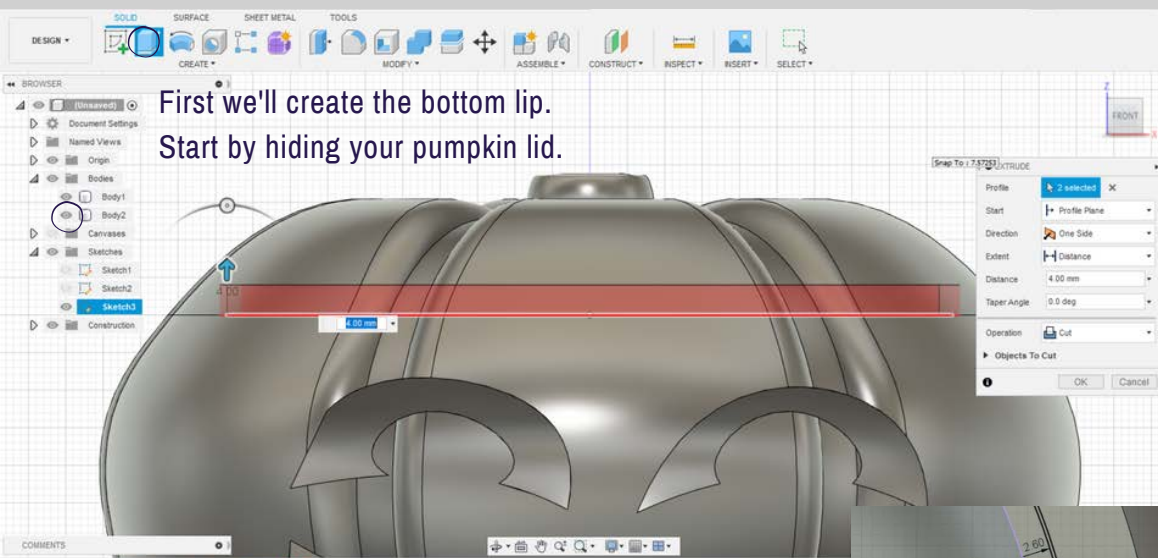
Including geometry helps to line up your sketch with previously created bodies. When a line or point has been 'included' it will turn purple. Always check you've got the line you want by rotating your model.



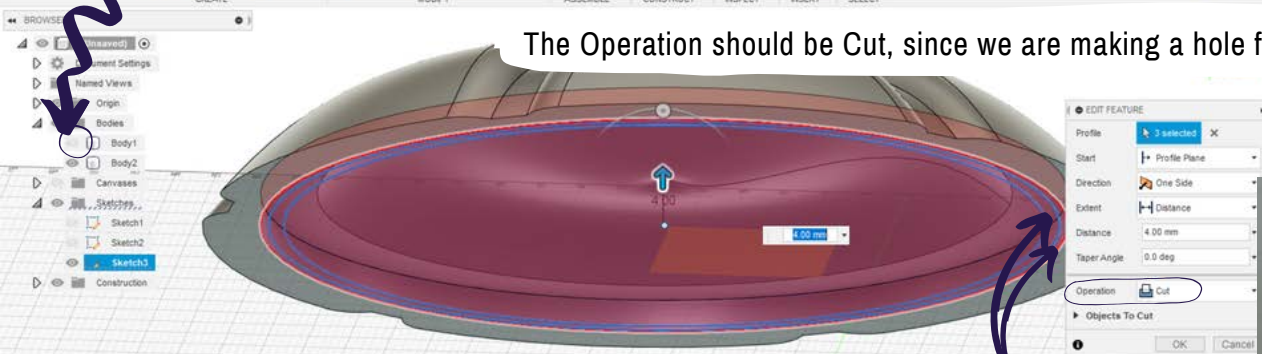
CREATE THE LIP



EXTRUDE AND CUT



Now let's do the opposite and hide the pumpkin body, show only the lid and extrude up into the lid.



Make the cut as tall as your lid lip plus 0.3mm (our tolerance) but before you finalise the cut check from all angles that you're not cutting too high up into the pumpkin top and creating holes.

Make sure you include your tolerance ring this time.



AND IT'S FINISHED!

