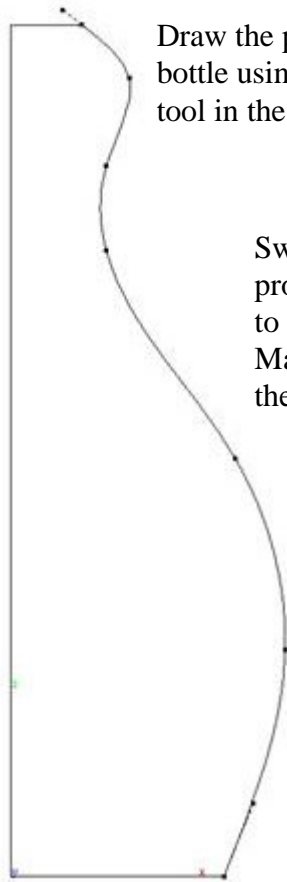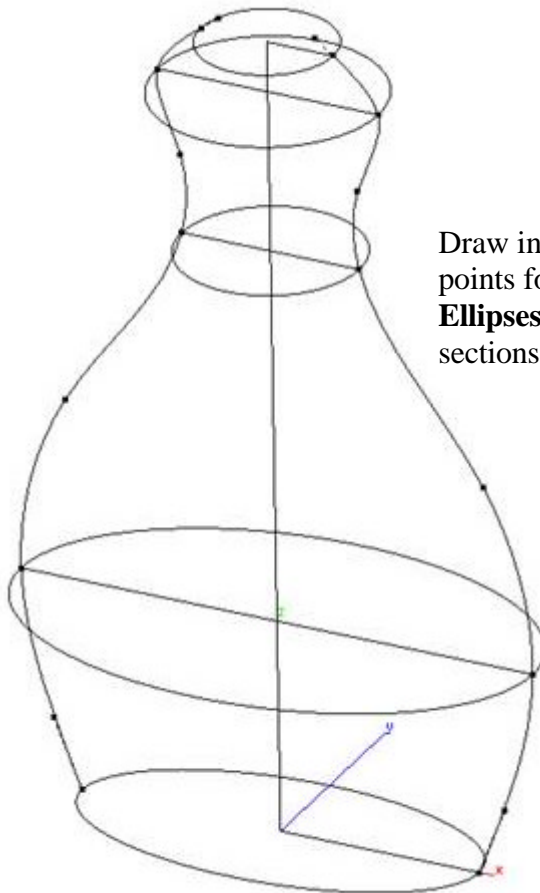# How to Make A Simple Squeeze Bottle

Draw the profile of the bottle using the **B-spline** tool in the Front view.

Switch to a Trimetric view and **Mirror** the profile, hold down the control/option key to make a copy.
Make sure to show the control points of the splines (Edit>Show Points).

Draw in cross-sections between spline points for defining the shape. Use **Ellipses** and **Circles** to put in cross sections everywhere the shape changes.
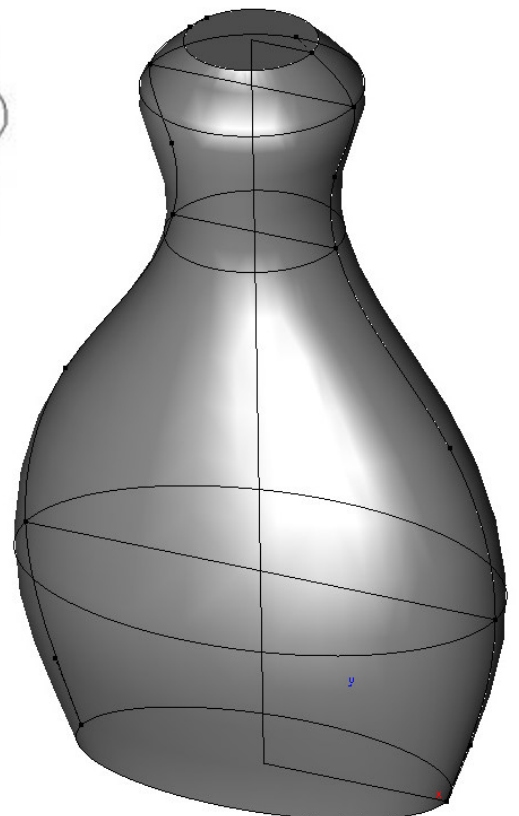
Select the **Solid From Profiles** tool.

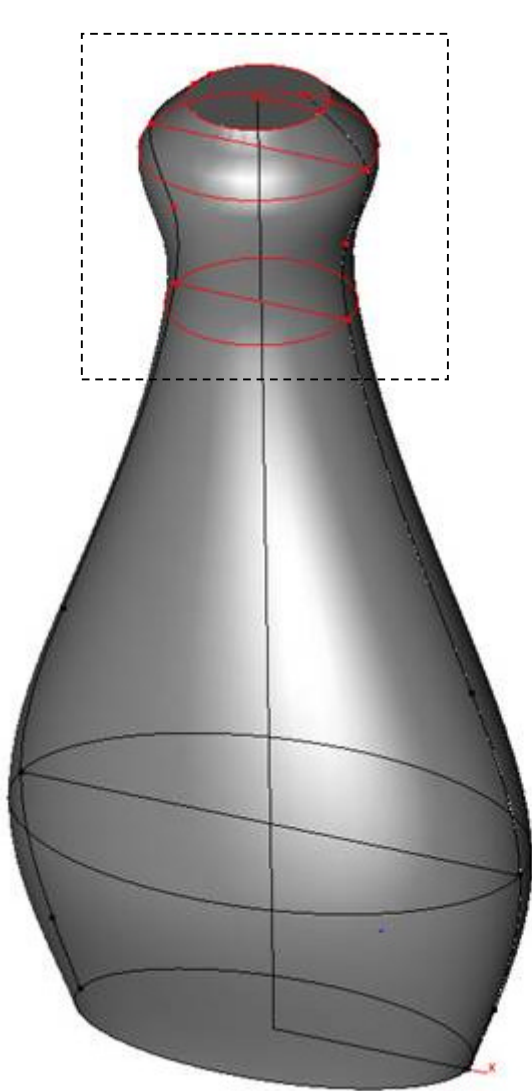Choose the *With Guide Curves* option from the **Message Line**.
Select all of the ellipses and circles as the *Profile Curves* then select the two splines as the *Guide Curves*.
You should end up with something like the image to the right.
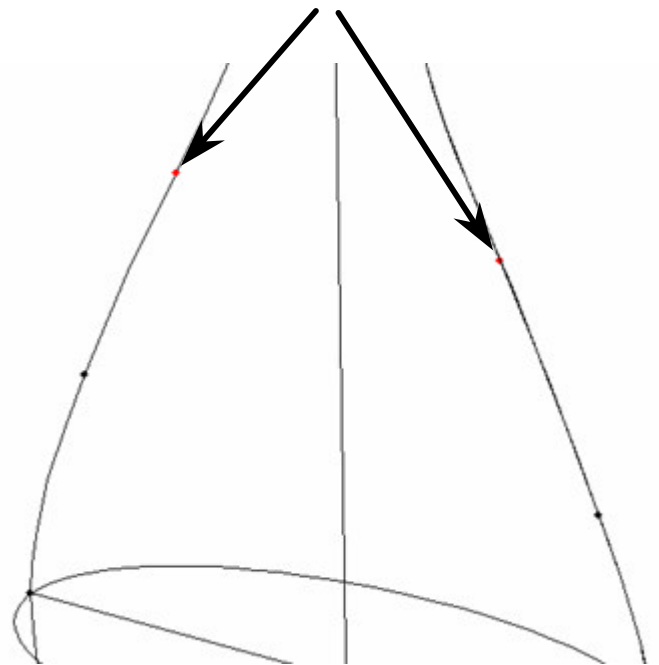
Basic Shape Editing

Making changes to the shape is a common and important task. Here we will modify the shape of the bottle by selecting and moving control points.

Drag a *Selection* box around all of the objects at the top portion of the bottle. Use the **Move** tool to move everything up the Z-axis. By using the **Move** tool, you can enter a specific numeric value for the move distance.
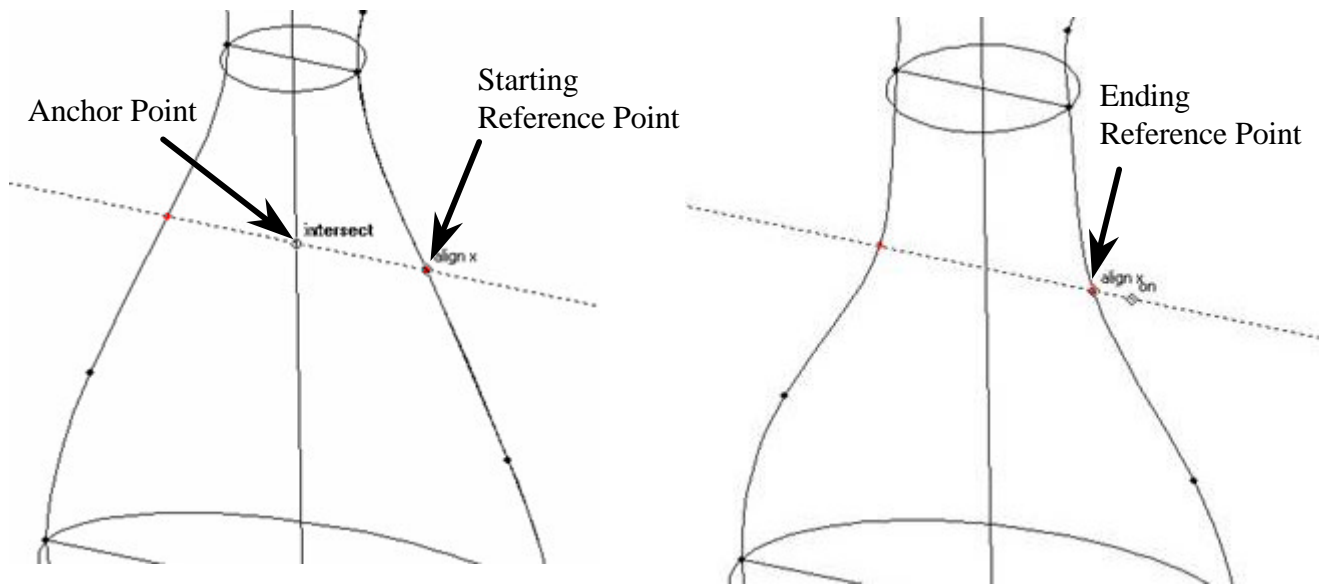
Use the **Add Control Points** tool to add a control point on each spline to gain more control over the shape at the neck region.

After adding the points, the *Link* icon in the lower left corner of the screen will turn red to show that links are broken in the file. Click on the icon and the links will be updated and the solid will regenerate based on the new splines.
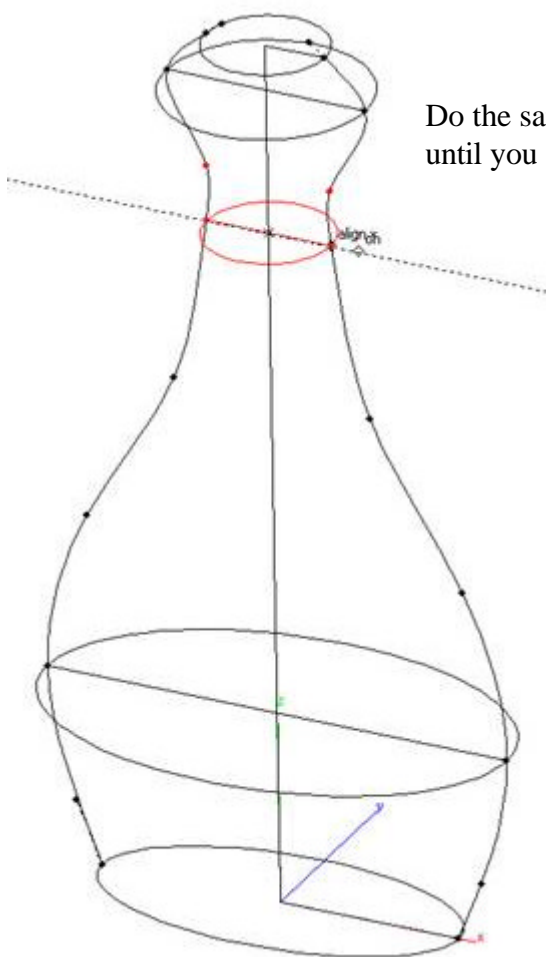
It's a good idea to keep an eye on this icon and make sure the links are always up to date.

Anchor Point

Starting Reference Point

intersect

align x
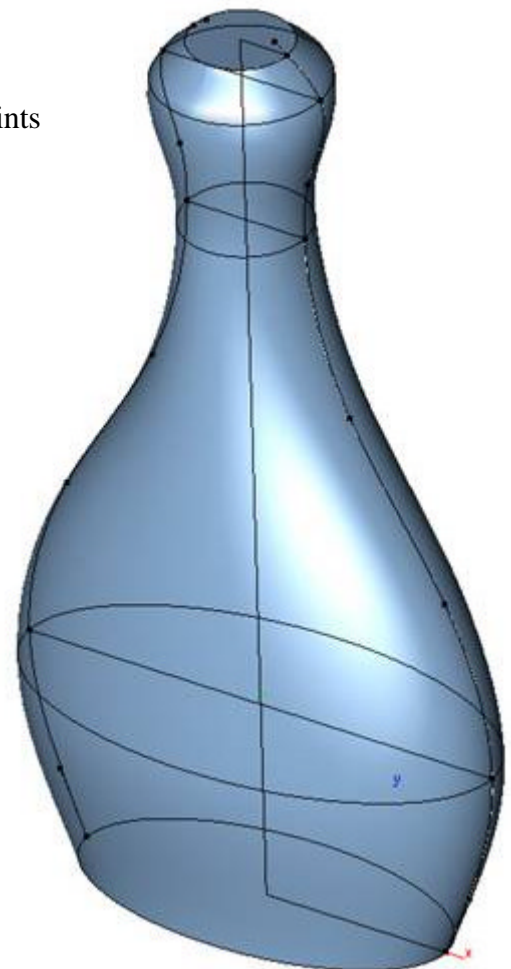
Ending Reference Point

align x on

Select the two new points and then select the **Scale** tool. Scale the points down to make a tighter neck area. This has the effect of moving the points equally as if they were mirrored.

The key is to select an *anchor point* exactly halfway between the two points. That way the points will move equally about that centered point. The image above shows the anchor point as a point selected on the centerline.
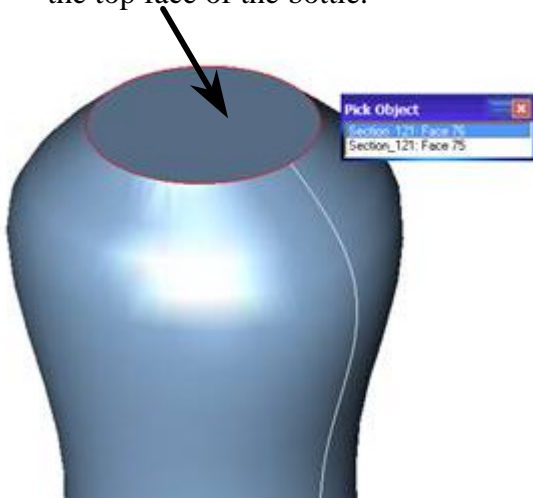

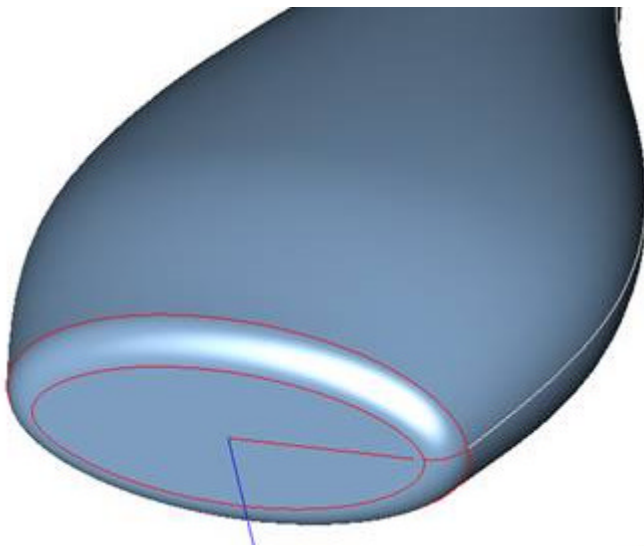Do the same scaling on other points until you get the desired shape.

Now add a piece to the top of the bottle that will be the bottle mouth. Use the **Protrusion** tool for this.

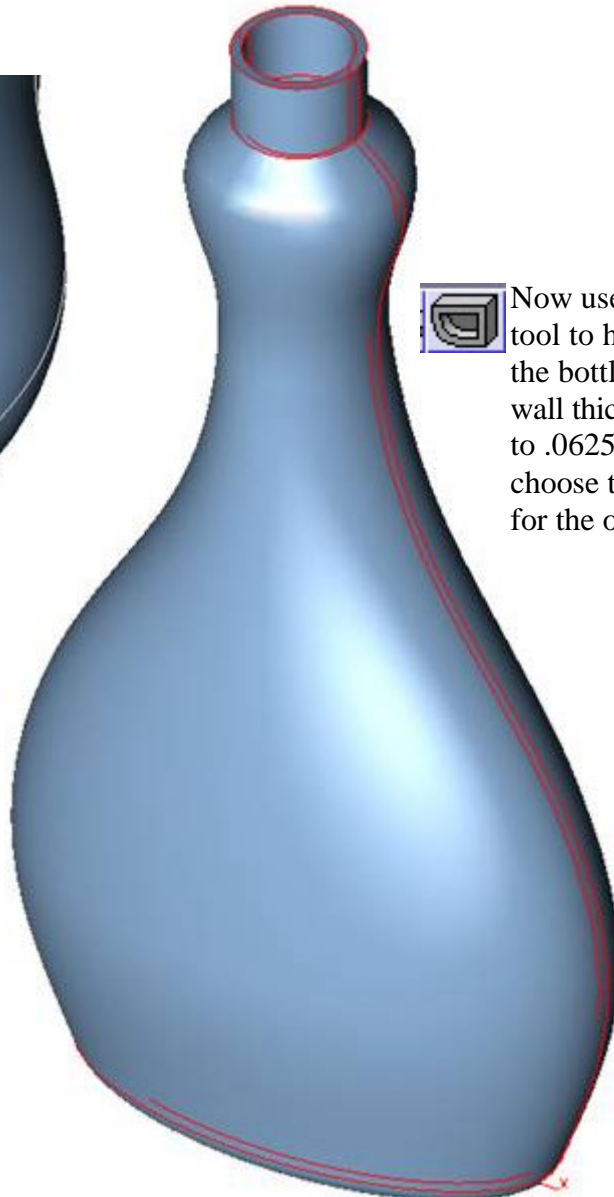Select the **Protrusion** tool then select the top face of the bottle.

Next select two points along the Z-axis that will define the distance and direction of the protrusion. In the **Message Line,** type in a specific value, .5" for instance.
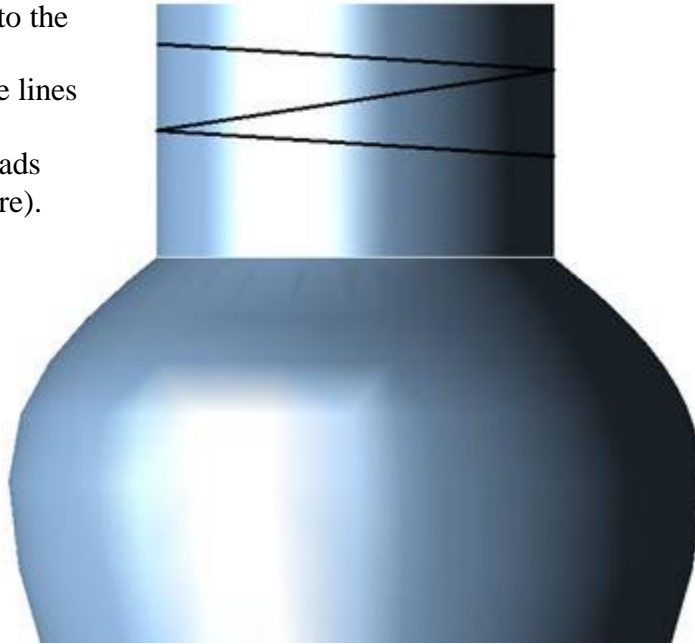
Pick Object
Section_121: Face 76
Section_121: Face 75

Blend the bottom edge with a nice, large radius.

Now use the **Shell** tool to hollow out the bottle. Set the wall thickness to .0625" and choose the top face for the open face.
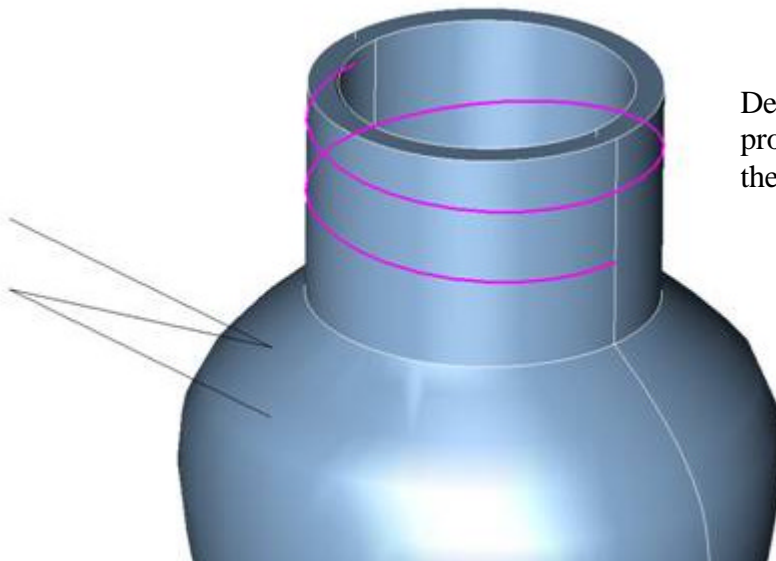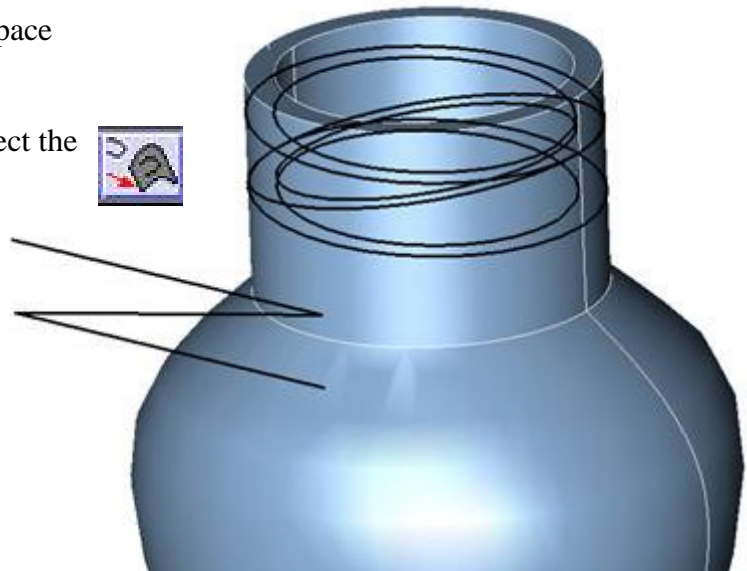
Now we will add some threads to the
bottle.
From the Front view, draw some lines
that will define the threads.
Draw a backward Z for the threads
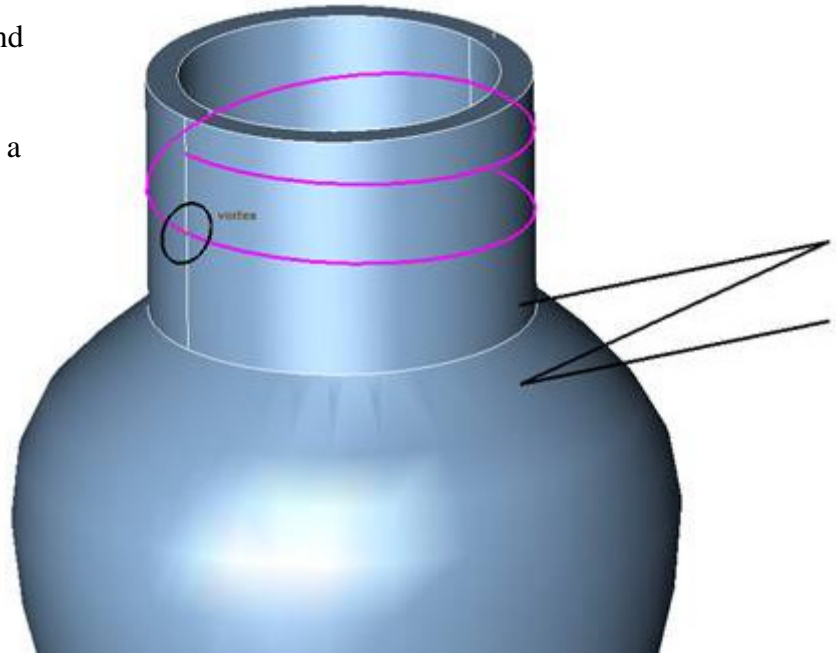(opposite to what is pictured here).

From a 3D view, drag the 3 lines out into space
some distance.

Now use the **Project Curves** tool and project the
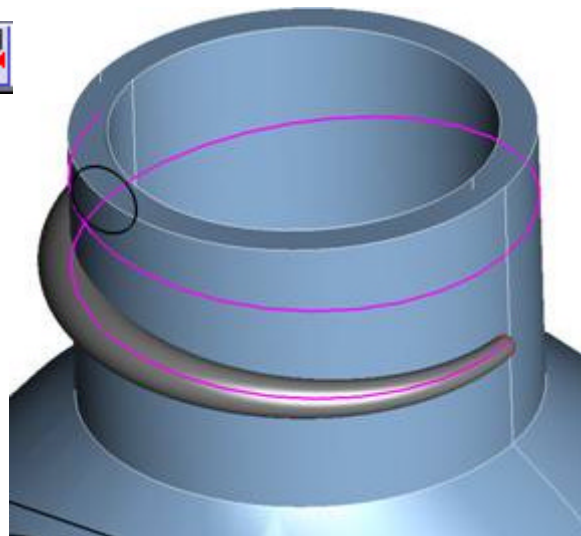lines onto the bottle top.

Delete all of the extra curves the
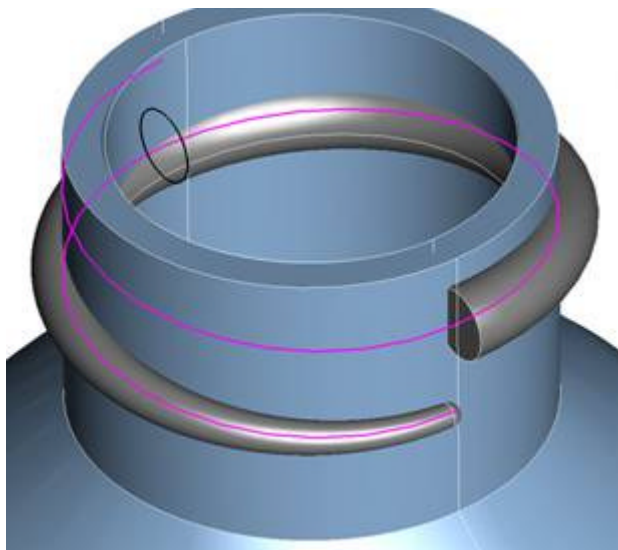projection creates until you are left with
the ones shown in magenta.

Now switch the work plane to Front and draw a circle at the start of one of the curves. Make the circle diameter small, .05". This will be the profile for a swept solid. This can be any closed shape desired. A circle is used here.
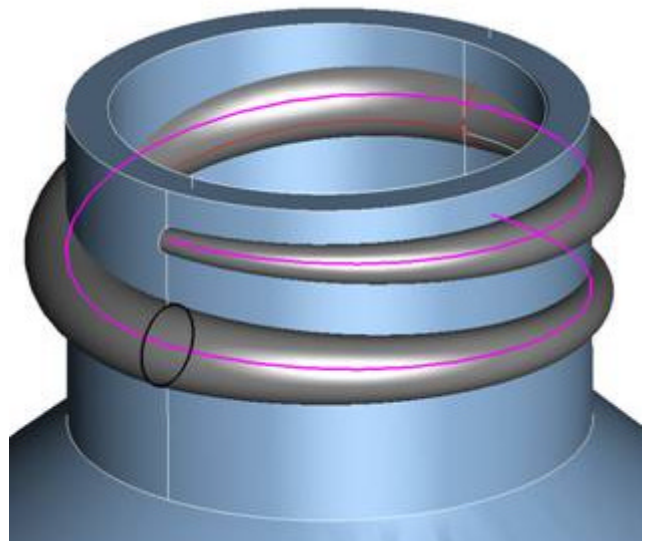
Select the **Solid Sweep Along Path** Tool and sweep the circle along the first curve. Add a –2-degree value in the **Draft Status Line** box.
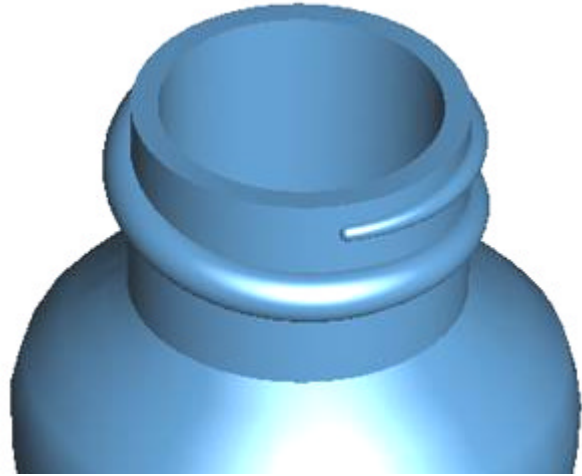
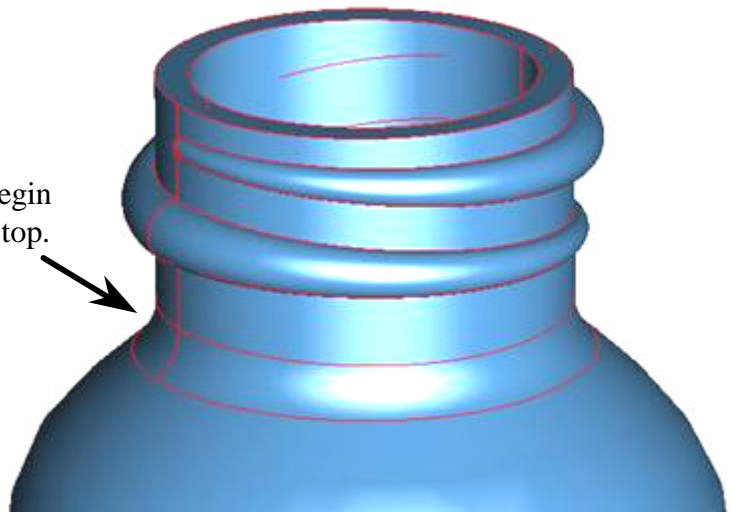Sweep the next section with no draft.

Sweep the last section with +2 degrees of draft.

Use the **Boolean Add** tool to add all
of the pieces together.

Use the **Blend** Tool and begin
rounding the edges of the top.

Add tiny blends around
all of the edges.

Congratulations, your squeeze bottle is complete!