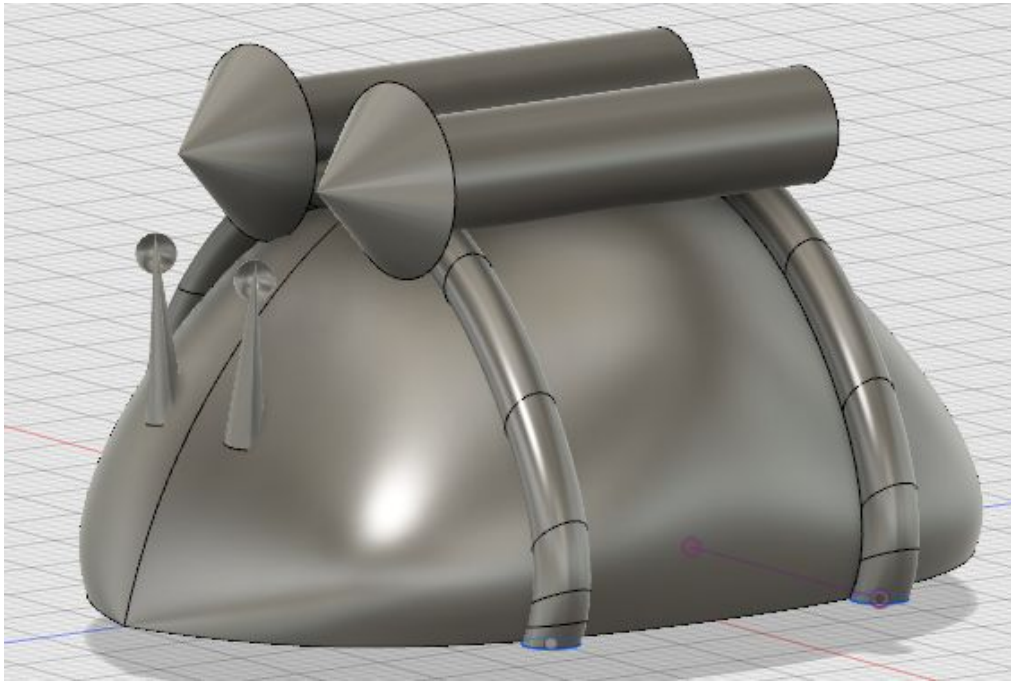**Project**: Slug with Jetpack

Description: This tutorial will help you practice offset planes, splines, split bodies, and revolves! This piece uses no dimensions, just artsy curves. If you need help, message one of the instructors!


1. Set up five construction planes to build your splines on
   a. Construct -> Plane Through Two Edges: Select the X and Y axes as your 'Lines'
   b. Construct -> Offset Plane: Select the first plane; Distance -10
   c. Construct -> Offset Plane: Select the first plane; Distance -20
   d. Construct -> Offset Plane: Select the first plane; Distance 10
   e. Construct -> Offset Plane: Select the first plane; Distance 20
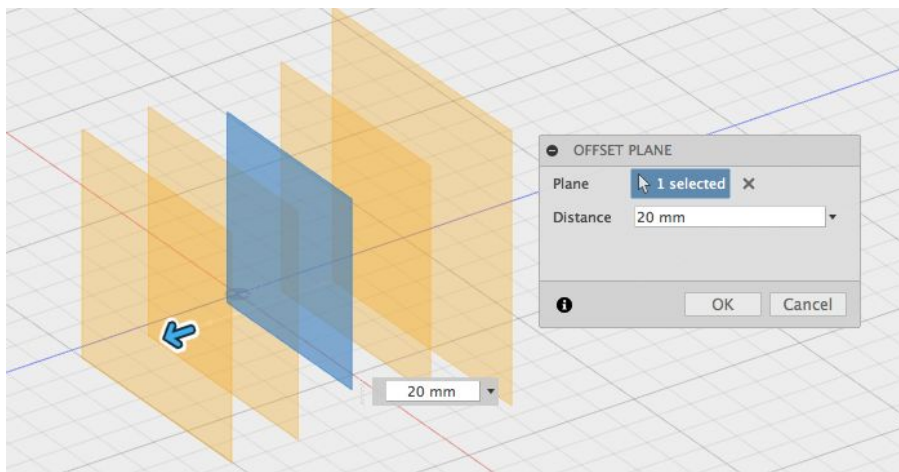
2. Sketch five cross sections of your slug
   a. Center your cross sections around the center of the XY plane. Remember to click 'Stop Sketch', before drawing your next spline, or else you will be drawing on the same plane over and over! Feel free to get creative with your shapes!

b. Sketch -> Spline: On your first plane, draw a small, connected, circular cross section. Repeat for your second, third, fourth, and fifth plane
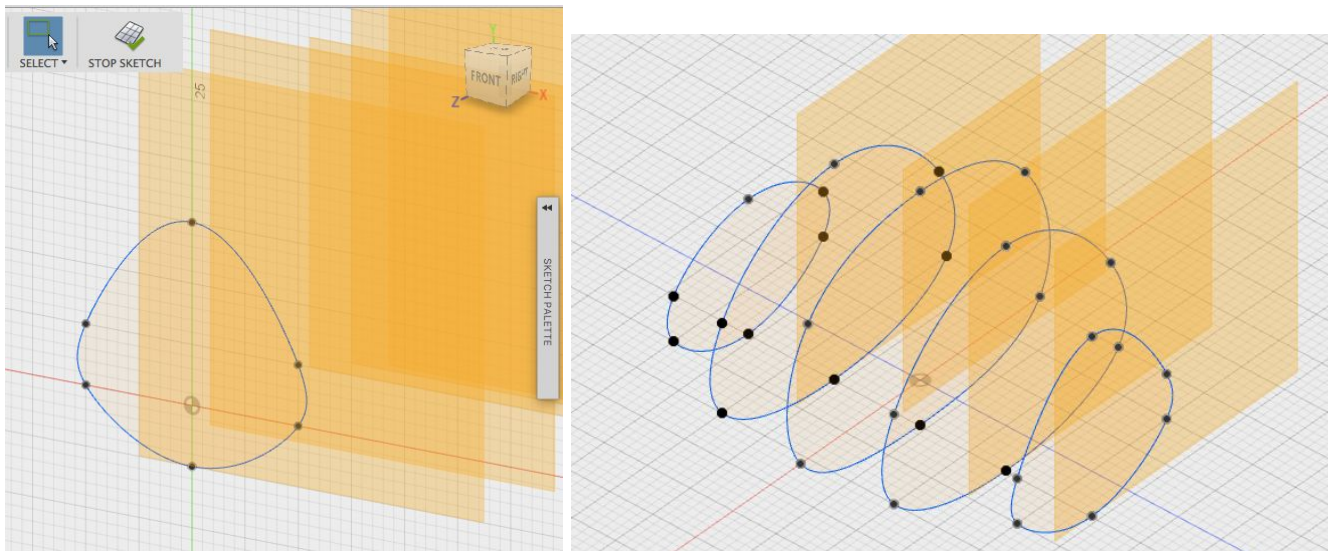

3. Close off your slug cross sections
   a. Construct -> Plane through Three Points: Select two vertices in the back, and one vertex in the front
   b. Sketch -> Point: On this new construction plane, add one point in front of your front-most cross section, and one behind your back-most cross section
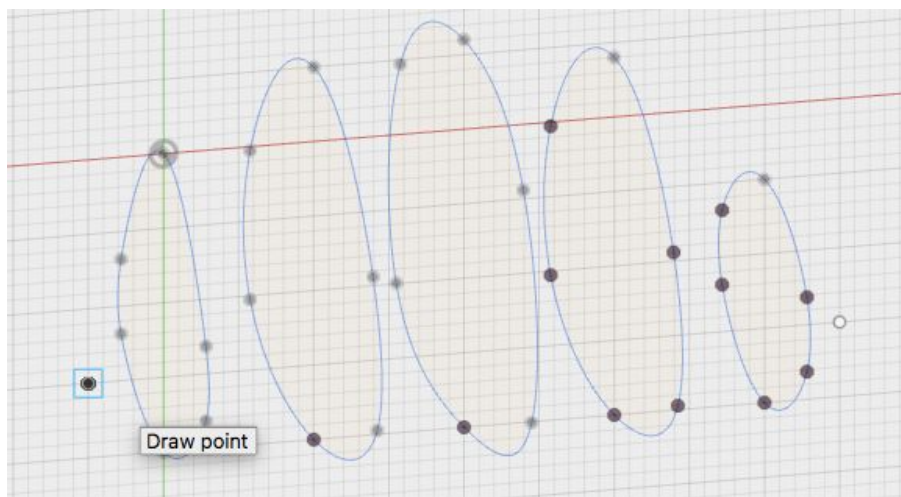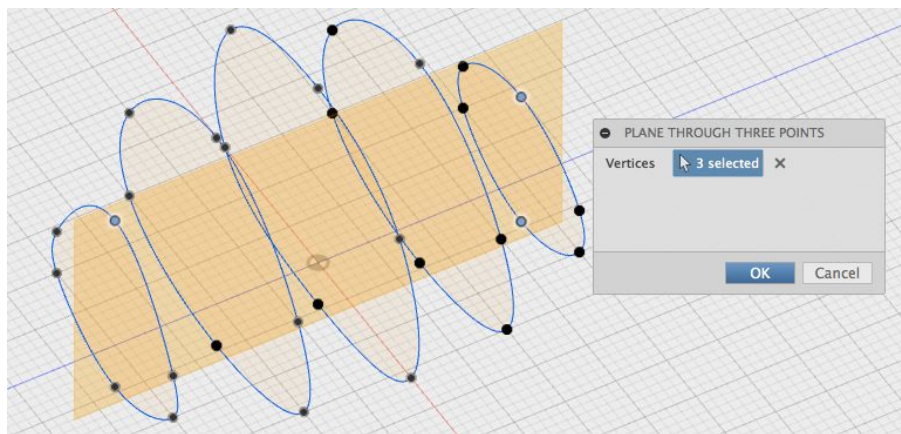
4. Create the body of your slug
   a. Create -> Loft: Select the first point, the five splines, and the last point, in order; For 'Operation', use 'New Body'; uncheck 'Closed'; check 'Chain Selection'

5. Cut the bottom of your slug away
   a. Modify -> Split Body: For 'Body to split', select the slug; For 'Splitting Tool', select the XZ axis (You may need to turn off visibility of the slug's body to select it. You may toggle visibility by clicking the lightbulb on the left)
   b. Right click -> Remove: Go into the left panel under 'Bodies', remove (not delete) the body corresponding to the bottom body
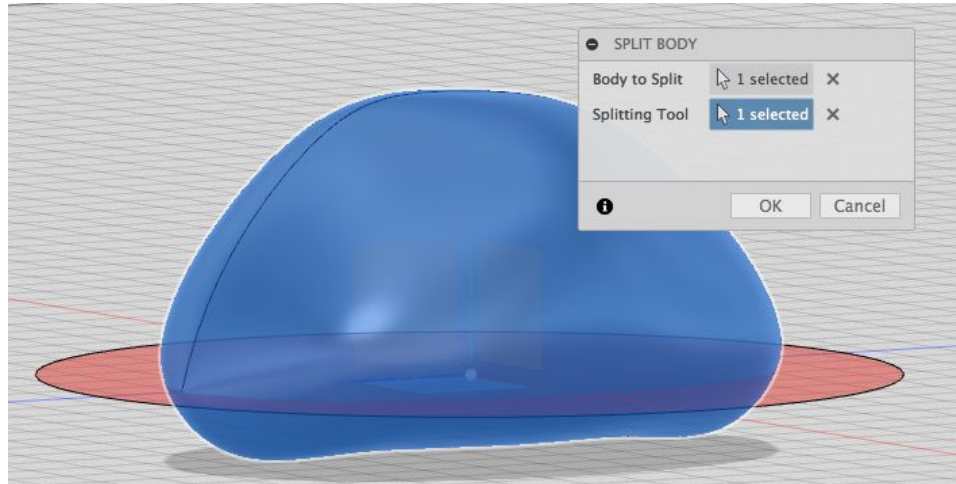

6. Create antenna for your slug
   a. Sketch -> Line: Sketch one triangle on one of your previous construction planes (It may not be visible, toggle visibility by clicking the lightbulb). Sketch the triangle such that it will intersect with the slug
   b. Sketch -> Arc -> Center Point Arc: Sketch a half-circle which intersects with the triangle
   c. Create -> Revolve: For 'Profile', select the triangle and half-circle; For 'Axis', select the perpendicular edge of the triangle; For 'Operation', select 'New Body'
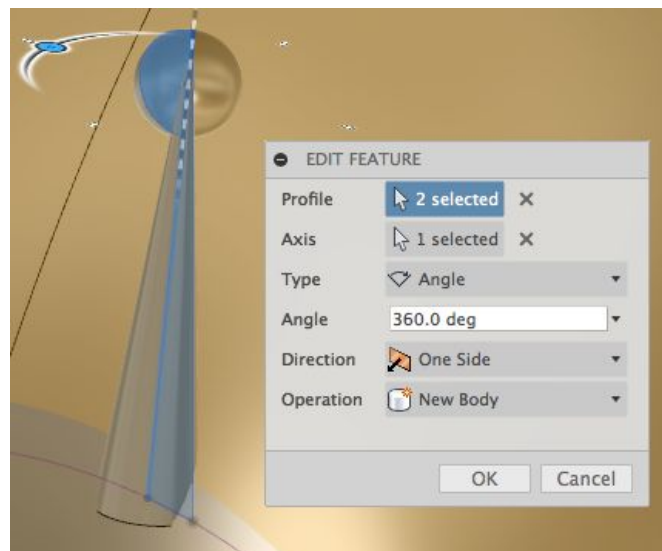
7. Create straps for the jetpack
    a. Modify -> Split Body: Select the slug and split it in two places using the construction planes from the beginning
    b. Sketch -> Circle -> Center Diameter Circle: Sketch two circles, one at each place where the slug's split intersects the XZ plane (sketch these circles on the same side that your antenna is on, so that we may mirror only once later!)
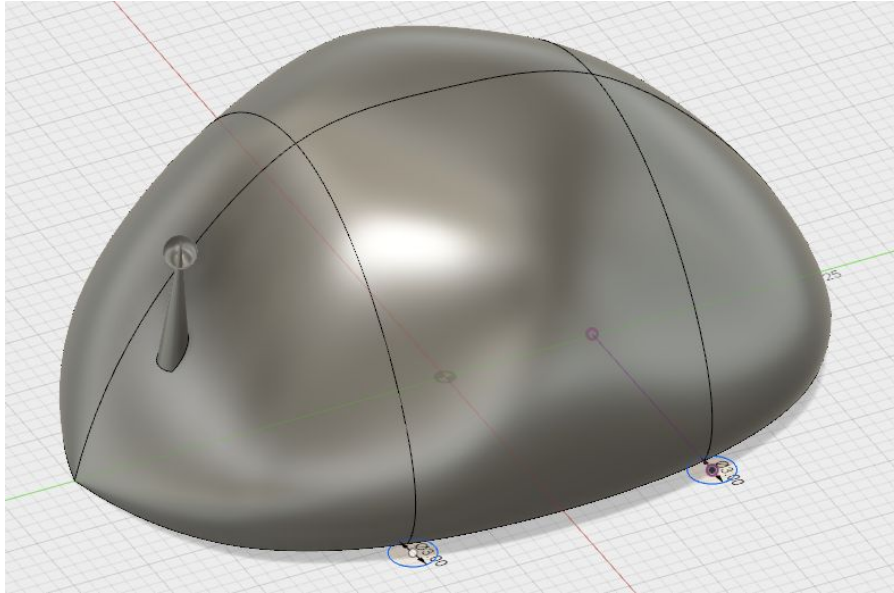
    c. Create -> Sweep: Sweep these circles along their respective line, this will create the strap

8. Create the jetpack
    a. Sketch: Sketch some sort of revolvable shape that looks like a jetpack. Sketch this on the XZ plane. Sketch this on the same side as the antenna
    b. Create -> Revolve: For 'Profile', select your shape; For 'Axis', select the inner edge of your shape
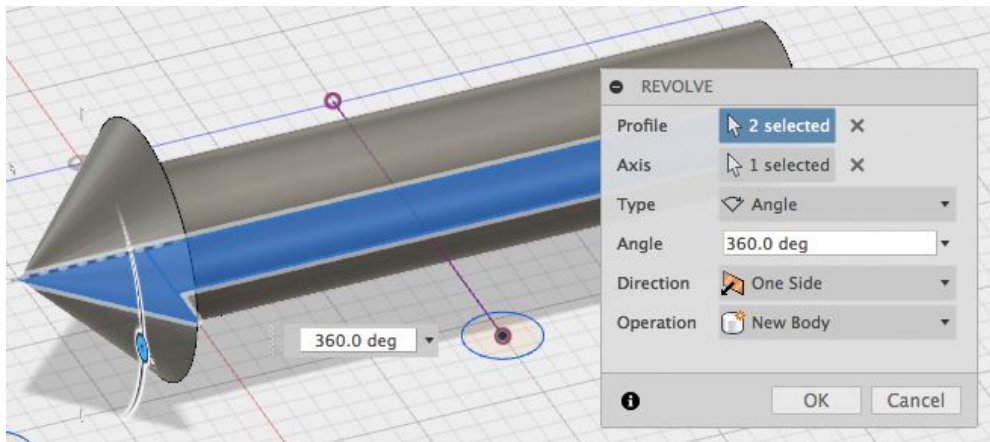
    c. Right click -> Move: Position your body on the slug's back as necessary

9. Add a second antenna and jetpack
    a. Create -> Mirror: For 'Pattern Type', select 'Bodies'; For 'Objects', select the antenna and jetpack; For 'Mirror Plane', select the YZ plane

10. Finished! Hopefully this tutorial has taught you the following skills:
    a. Using multiple offset planes and splines to create smooth yet irregular shapes
    b. Using the revolve, split body, and remove tools