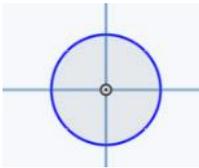


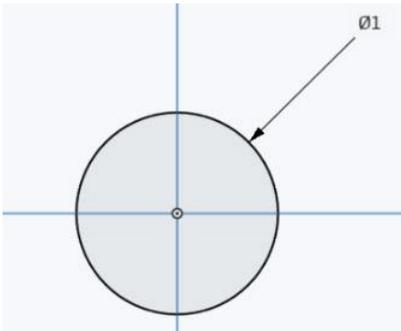
Onshape Lesson 5

In this lesson you will make a spring.

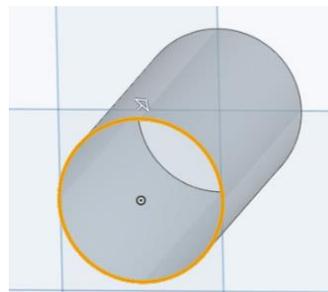
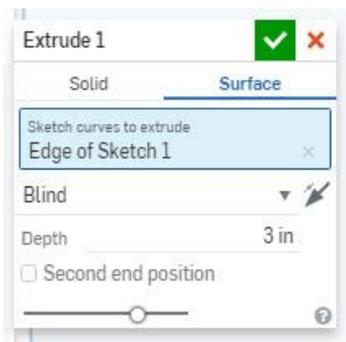
1. Create a new document and name it Lesson 5
2. Create a new sketch on the top plane and make the view normal to the sketch plane
3. Use the Circle tool  to draw a circle centered on the center point of the top plane



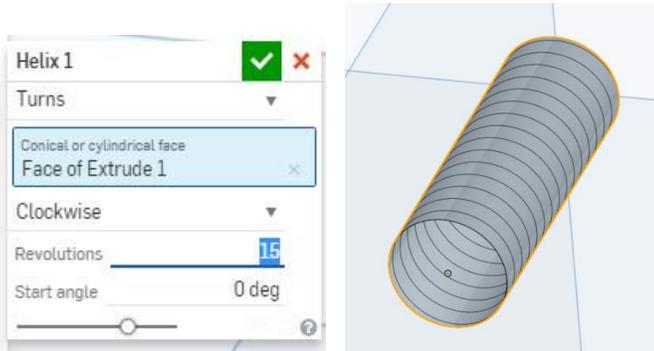
4. Use the Dimension tool  to make the diameter of the circle one inch and close the sketch.



5. Use the Extrude tool  to extrude the circle of the sketch. In the Extrude 1 box, first click on surface. Then click on the circle to extrude the circle as a surface. Set the depth to 3 inches. Close the extrude. You will use the surface as an attachment surface for a helix. While you can see the tube surface depicted on screen, the tube has zero inches of thickness, which makes it an imaginary object (it occupies three-dimensional space, but only has two dimensions, the diameter of the circle and its length).

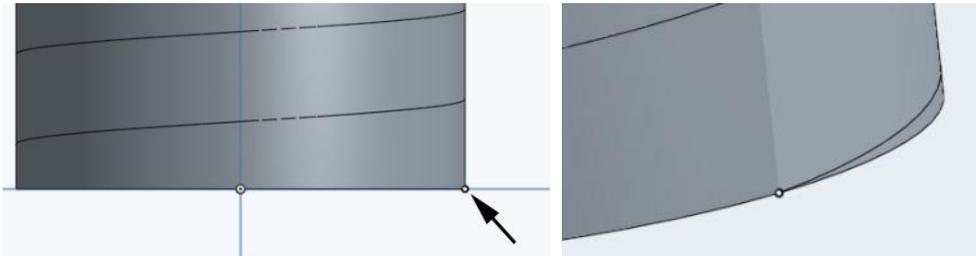


6. Select the Helix tool  and then click on the tube surface to attach the helix to it. Set the number of Revolutions of the helix to 15. Close Helix 1.

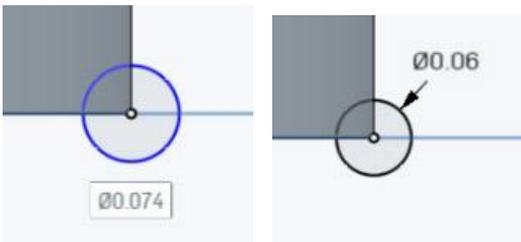


7. Create a new sketch on the front plane and make the view normal to the sketch plane. Select

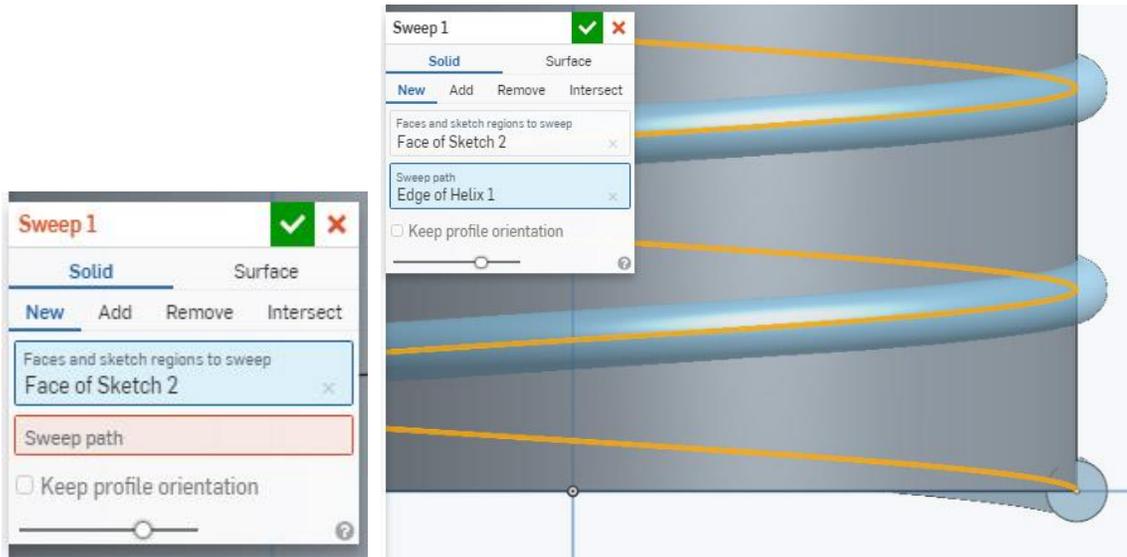
the Use tool . Zoom in to the bottom of the tube surface and place the mouse cursor over the right corner (arrow). Click the mouse to set a point at that position (point pictured below at arrow). The Use tool allows you to create a point on the Front plane, which happens to coincide with the start of the helix (see rotated view on right below).



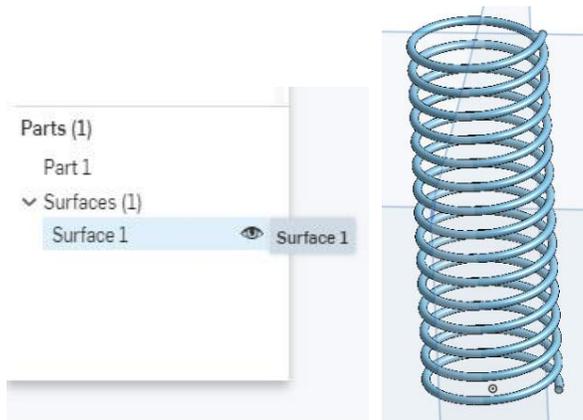
8. Select the Circle tool  and draw a circle with the center point matching the point created in Step 7. The use the Dimension tool  to set the diameter of the circle to 0.06 inches. Close Sketch 2.



9. Select the Sweep tool  and click on the circle created in Step 8. This selects the circle as the object to sweep. Now click into the Sweep path slot in Sweep 1 box, then click on the helix to set it as the sweep path. You should now see the spring wrapped around the tube surface along the helix. Close Sweep1.



10. Now that you have created the spring, you can hide the imaginary tube surface. In the Parts list on the left side of the screen, find Surface1 listed. Put the mouse cursor on Surface1 and then click on the eye icon to hide the surface. Now you can view the spring without the surface.



You have completed this lesson.