

# Creating a Dynamic Spring

*Description:* This tutorial will show you how to create a spring in SolidWorks that moves with other moving parts similar to a real spring.

*Note:* this tutorial does not show how to create a spring for FEA purposes, nor will the spring actually out pressure on the model in SolidWorks. This tutorial is meant for interesting animations of springs only.

## Creating the Spring Apparatus

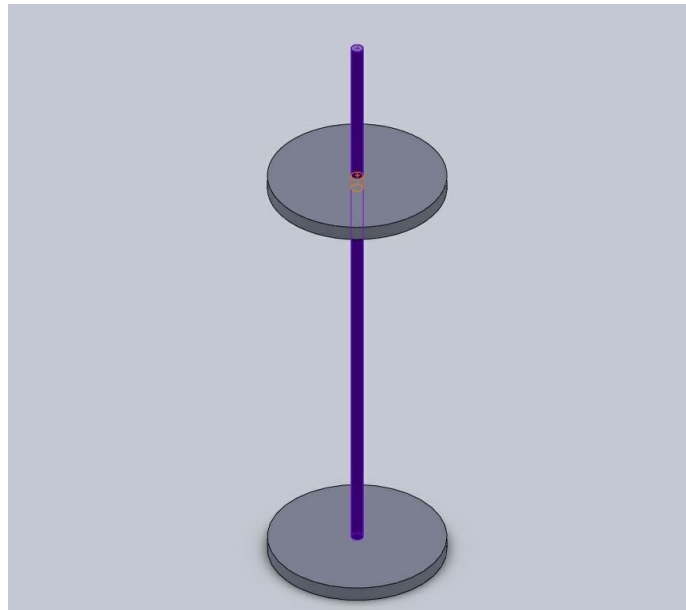
To create a spring "compressor," a top, bottom, and track are needed, these can be in many different forms depending on your application. For the bottom, a disk with a rod extruded out of it works fine as shown below.



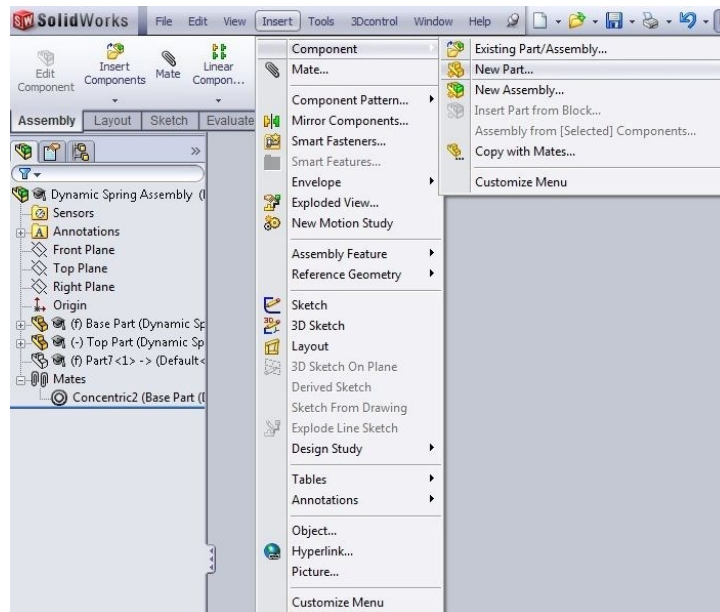
The top can be as simple as a disk similar to the one shown.



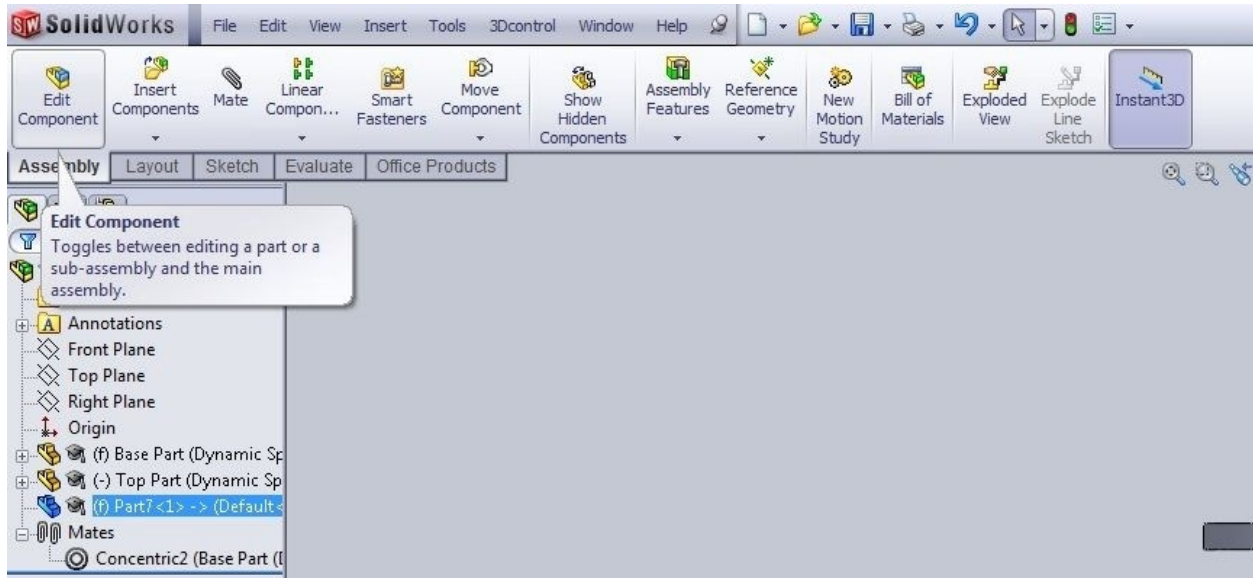
After these two parts are created, put them together in an assembly. Mating only the hole of the top part to the hole of the bottom as shown.



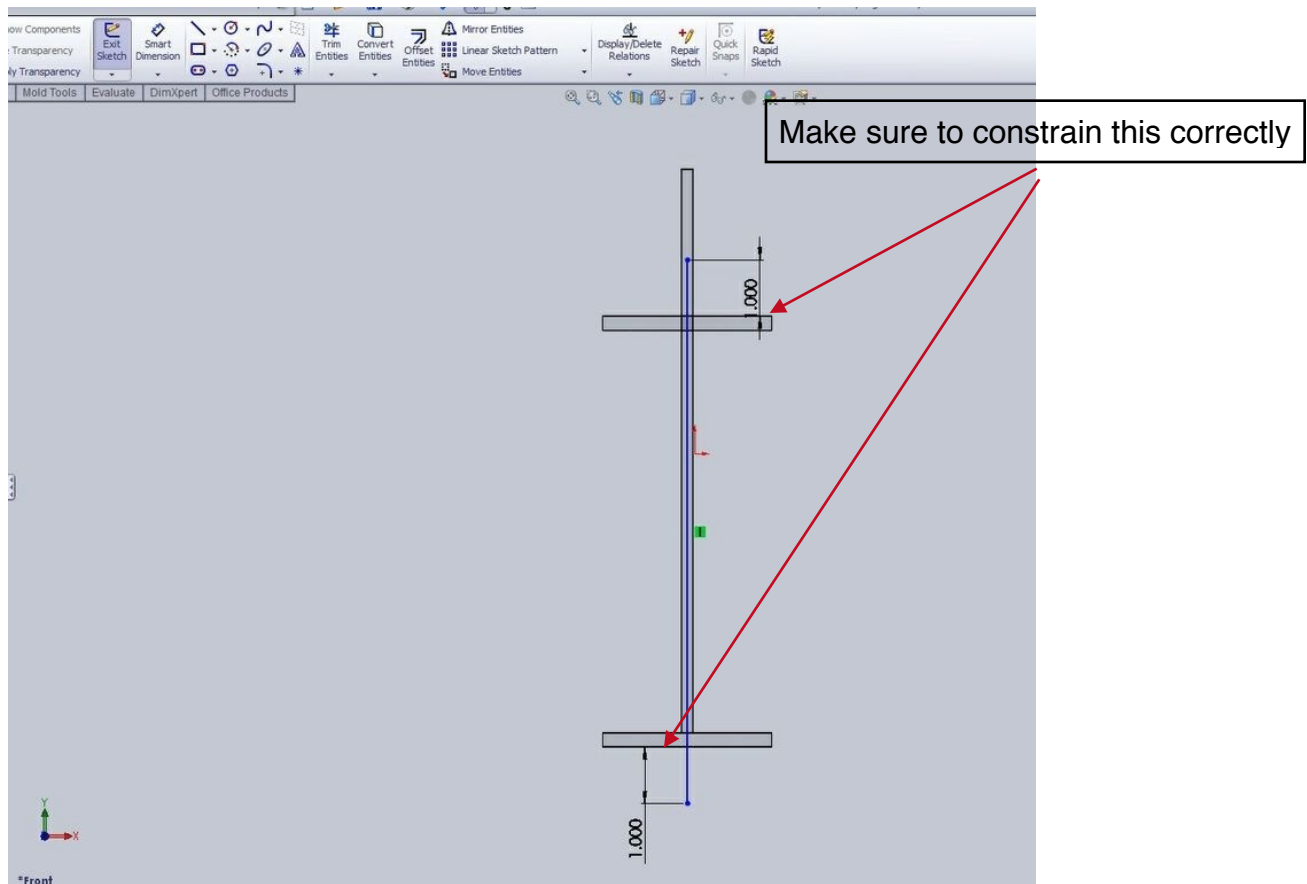
Once in the assembly with only one mate, add a new part through the "insert" drop down menu.



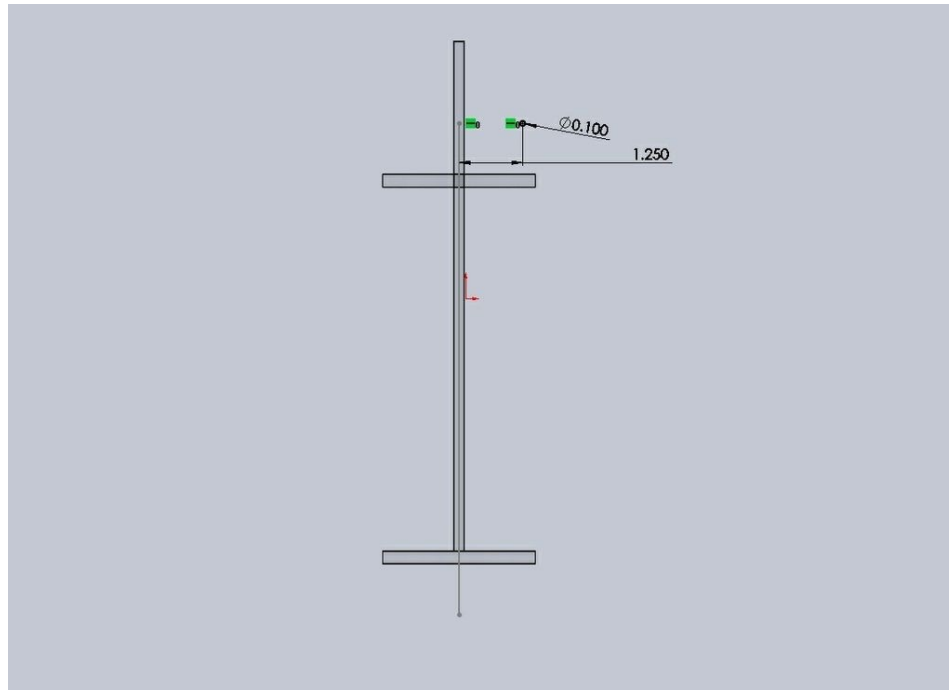
Once you have the new component in the design tree, you can select it in the design tree and then click on the "edit component" button at the top left of the screen under the "assembly" tab



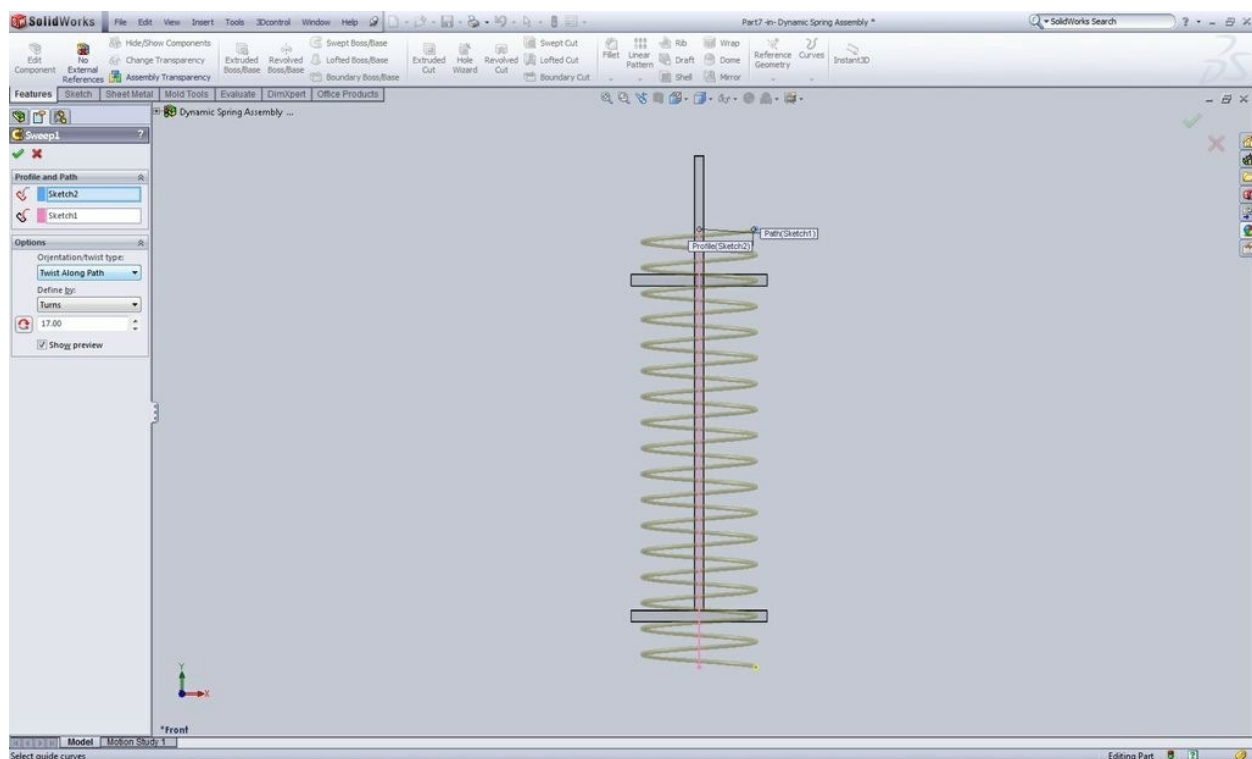
Once in, create a sketch on the front plane. Make one line constrained to the top/bottom of the disk pieces as shown in the picture below.



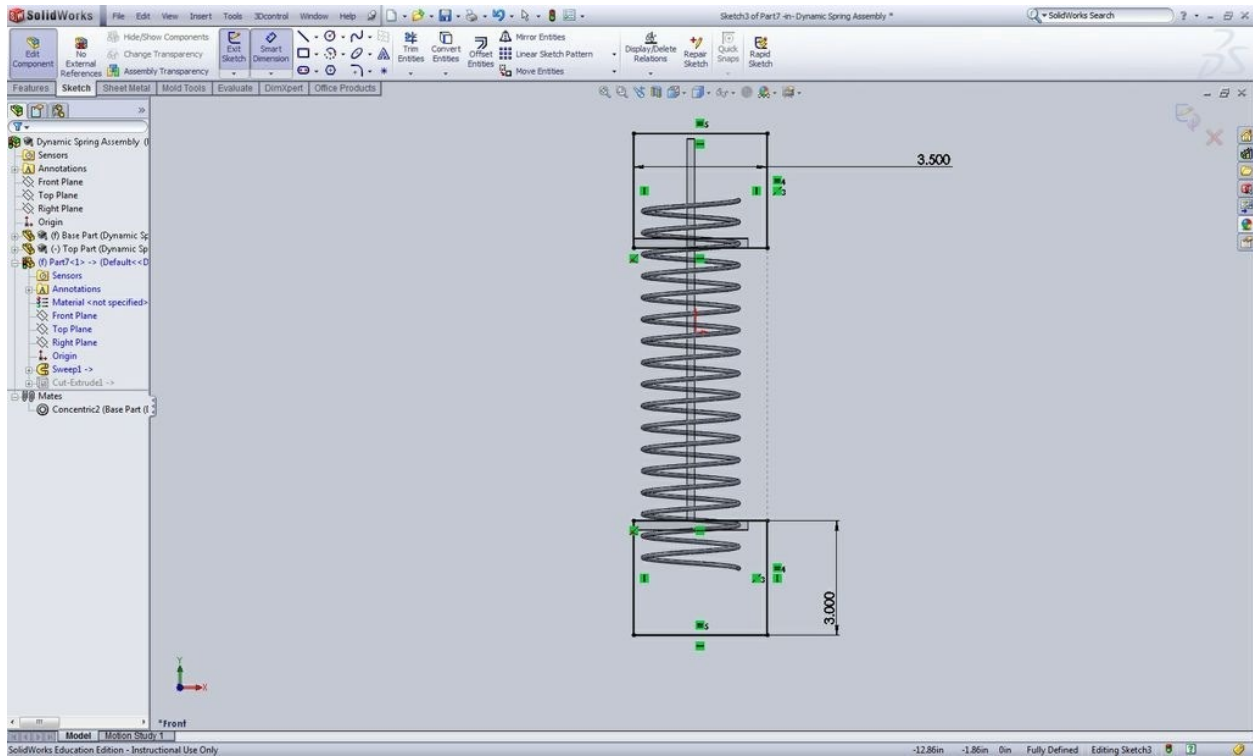
After constraining the sketch properly, the one inch dimensions are arbitrary, they can be anything you want them to be, create a new sketch on the front plane consisting of the cross section of your spring, in this case a small circle. Give it a horizontal relation with the end of the line that you made in the last sketch as well as a dimension showing how far away from the line it is.



After making this sketch, click on "Swept Boss/Base" under the features tab. Use the circle as the profile and the line as the path. Under options in the sweep feature, pick twist along path as the orientation/twist type and define by: turns, pick the number of turns, click the green check, and now you have a spring.



Next, create a new sketch on the front plane to cut the excess spring off of your creation. Create a shape to cut off the excess spring, and then use the "extruded cut" feature to cut the spring.



After cutting it you can exit the "edit component" by clicking on the "edit component" button again. Save it, it will ask if you want to save the new component, the spring, internally or externally, choose externally and specify a file path for your part. Once this is done you should be able to move the top disk of the assembly, hit rebuild and the spring will jump to where you moved the disk to. In an animation, the spring should move fluidly with your disk.