Matt Sigda
Trumpet
I picked a trumpet to make for my Solidworks project because it has a curvy design which I thought would be challenging. Although I don’t play the trumpet I do like music that has the trumpet in which I think had apart in me choosing this item. I started this project off by first making the valves for the trumpet. This is where is discovered the first big challenge in making a trumpet, which is that I had to eyeball all of the dimensions. For the valve I just extruded circles and kept making new planes. I also had to make extruded cuts to make the holes for the other tubes. The next task I set out to complete was the main body of the trumpet. For this I used a loft to get the part that had a changing diameter and then used a sweep to get the rest since it had the same diameter throughout. I shelled the result to make it hollow. Next I made the trumpet mouth which was also a loft but had three circles so I could make the opening’s initial big diameter decrease at a faster rate than the second half. I used a lofted cut here to make I hollow. I then started on the mouth pipe and mouthpiece. The mouthpiece was a simple series of extrudes and making new planes, but at the end I filleted the sharp edges to replicate where a mouthpiece would enter. The mouthpiece was a revolve which used a lot of 3 point arcs and splines. Then came all of the curves connecting all of the pipes. For these I made half of the curve and mirrored it over to save time. Lastly I made the housing for the valves and the other small pipes used to make the sound. The housing of the pipes was just an assembly of hallowed out extruded cylinders which was surprisingly easy. However the smaller curves was surprisingly very difficult to mate to the main body. After a lot of trial and error with the mates I found that I just had to line the ends of the pipes up and it would be able to put in manually. This semester I learned that solidworks is very helpful tool in the design process. Especially with the advancement of 3D Printing, understanding how to make a CAD model of something is very important. Also solidworks has taught me how to look to find different ways to solve a problem.