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My Skateboard
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My Solidworks project is based on a past hobby during my middle and high school years. I was interested in skateboarding initially because I wanted to be part of the “cool kids” and joined their circle of friends. Back then, I just came to the United States for about 3 years so I still wasn’t very comfortable with the culture and the language. At first, it was just to pass the time whenever my parents were late picking me up from school. But as time progress, before I knew it, I was looking forward to whenever I can ride a skateboard again, whether it be afterschool or during the weekend when I visit my friends. It was difficult learning how to ride a skateboard because I couldn’t get my balance together and would always fall over. I especially hate it whenever the wheels would roll over a small pebble and I would go flying off and injured myself. The time I was learning how to skate, I had to borrow a friend’s board and we would take turns riding it after school behind the school’s gym at the basketball court. It wasn’t until I purchase my own skateboard that I truly appreciate skateboarding and put in time and effort to try to get better. Figure 1 below display my first skateboard I ever purchase in middle school, and is still useable to this day.

Figure 1: My First Skateboard

The Solidworks features that I included are sheet metal, fillet, cut extrude, revolve, boss extrude, mirror, helix and spiral and sweep. For my skateboard, I decided to first make the base (skateboard deck) and have a visual of the board before adding in the small details. This is where I incorporated sheet metal. By activating the sheet metal tab, I sketch a rectangle on the top view, dimension it and then exist the sketch. I was asked to give the rectangle a thickness which I did. The next step is sketching the flanges, the raised part of the skateboard deck. By clicking out the outer edge of my rectangle and using the edge flange feature, I was able to create the slanted tails by giving the distance and degree dimensions. Next, I use the filet tool to give the slated tails a smooth curve. To create the holes where the screw will go, I sketch 8 identical circles on the top view with the same dimensions and just extrude cut through the whole thickness of the skateboard. Figure 2 shows a render version of the skateboard deck.
To create the wheels and bearings, I had to visualize what the front view of the wheels might look like. This just help me visualize my object because I know I need to revolve my sketch in order to create a center hole for the bearing. I added a center line below my sketch where it will revolved around to create that cylinder wheel shape. I dimension the distance to fit my bearing and use the revolved feature to create my wheel. To create the bearing, I took a similar approach. The only difference is I had to create a sketch where once I revolved around the center line, part of the wheel is hollow. It is a little hard to describe, but hopefully by looking at figure 3 below, what I mention earlier makes sense. To combine the two object, I just had to mate the inner circles and the front faces together.

![Figure 2: Skateboard Deck](image)

![Figure 3: Assembly of the wheel and bearing](image)

Lastly is the truck. I create the riser pad (bass of the truck) by sketching a rectangle on the top view. Extrude it to give it a thickness and sketch 4 identical circles near the edge and extrude it downward to show that the screws are already part of the truck and not its own parts. I then sketch the general shape and outline of the base plate and extrude it from the mid plane, where it creates the object in both directions. Next, I created the lower cup washer and the bushing by sketching a circle on the top view of the baseplate and extruding it upward. To create the hanger, I sketch the outline in the front view and extrude it. As you can see, a lot of extrusion were used to make this
To conclude the parts for inserting the wheels, I sketch a smaller circle on the front view of the hanger, dimension and extrude it outward. Since I need to recreate the same shape on the other side, I use the mirror tool to mirror what I my sketch. I try to refine the truck by using the fillet tool on all the edges. Figure 4 shows a render version of the truck and figure 5 shows a rough diagram of one of the many different type of trucks available and the name for each part.

The hardest part of this assembly was definitely the skateboard truck. From brainstorming the dimension and constructing each individual parts, the truck had the most. While this part was time consuming and difficult, it was fun to add all the little details in the end. I tried to incorporate small details like the texture of the screws by using one of the new features I learned called helix and spiral. I think having just that little details around the 4 screws attached to the base of the truck and the axle really makes the truck more realistic and improve its overall qualities.

What I learned from this course and solidworks is that you don’t have to be an engineer to learn and use this program. I came into the class not knowing how to do any of these, yet alone knowing there is even a program called Solidworks. But through practices and tutorials, I was able to make, assemble, and do a drawing for something complicated like a skateboard! Overall, I am glad I had experience with this since I know in the future I will need to use Solidworks or something similar for my major.
References