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**3D Car**

**Reflection Template**

My goal for this project was to create a 1 to 1 recreation of a Corvette using a 3D modeling software called OnShape. This was one of the harder projects over the year because I had a lot of trouble in OnShape because the dimensions of my model car did not fit the dimensions of the original car. Overall my project was a success and the 3D printing aspect of the project was a highlight because I had never 3D printed before and the process really fascinated me.

The steps were as follows:

Inspiration

* Pick a car that you want to recreate using a 3D printer
* I picked a blue Corvette that had sports car styling

Design

* Create an engineering drawing with the exact dimensions of the car with multiple viewpoints
* Make photos to embed into OnShape to create the car

OnShape

* Trace the photos to create an outline of the car
* Use the extrude and intrude functions, create details to replicate your car
* Use shape tools and depth tools to create the windows, exhaust, tires, and lights

3D Printing

* Use Cura Software to create support and refine details for and of your car
* Export the file to a 3D printer and print it overnight to create 1-1 recreation of my car
* Use pliers and sanders to remove all access pieces of plastic and support to present final Car

Presentation Block

* Cut wood to size to display model car
* Paint wood a opposite color to make your car POP
* Create a wood name frame to display the last name or name of your car

**The process:**

I decided to take inspiration from a blue Corvette because I like the sports car styling of it. I then created an engineering drawing of the car which included the exact dimensions of all returns and multiple angles of the car to insure its exact look. I then took pictures of the drawings to import into OnShape to get a 3D model of the car. My next step was to use features within the software to shape the car to look like my model car. This was a very hard part of the project because it took a lot of focus and creativity to make your car look identical to the model. In addition, I could not seem to figure out how to create specific details like the windshield or exhaust. However, with some help, I was able to overcome my setbacks. I then put the finishing touches on my car and exported it to a hard drive which I plugged into a 3D printer. I had to redo my file because I did not have any supporters holding up the car which made it impossible to print. I finally corrected my mistakes and successfully printed my car. It turned out to be almost identical to my original model however, it did have some flaws in the width because I was unable to curve the sides of the car. Finally, I created a presentation block for my car which I painted white to contrast the blue car. I also added a nameplate to the block to make the block stand out more with my last name on it. Lastly, I added a white stripe down the center of my car and painted the wheels white just like on the actual car

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| *The Final Model* | *Engineering Drawing* |

**Challenges, setbacks, and solutions:**

* I incorrectly calculated my initial dimensions of the length of the car which led to a small error in the final product dimensions. I was not able to solve this problem because I didn't realize my error until I calculated the percent error of the x/y plane
* I had trouble with 3D modeling because my file was corrupted and made it impossible to create an accurate box to extrude. I solved this problem by creating a new file to extrude and design to look like my car.
* I forgot to insert support in my final printing file making the car unable to print. I was able to solve this problem by creating supports and tweaking the orientation of the printing direction.

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| *Model Car Compared to Actual Car* | *The Support of The Car After Printing* |

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| *Finished project* | |