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### Final Report

In my final project, I chose to work on the Cook-Torrance Shading Model. I began by scavenging the remains of PA2 and editing the html file to my liking. I began by adding my own drop down option for my final project labeled “Final Project: Cook-Torrance Shading Model”. When you click on the option just like how PA2 worked, you will be able to see the shading on the two available models. Something I was trying to do was make an entirely new class that contained only my shader and would be accessed as the 8th option as opposed to being the 7th option (replacing task 4 from PA2). When trying to do so, I started off by adding an 8th option to the drop down menu; however, I could not figure out how to get it to work much like the other options. I was unsuccessful with my implementation of that; however, my project is still functioning perfectly without it. You can easily navigate to the Cook-Torrance shading model as intended. My project contains the contents of PA2; however, I have renamed a couple of the files for a more relevant product.

Beginning my research on the Cook-Torrance Shading Model, I read on it through the provided link in our final’s ideas doc. Trying to compare the given variables I had from PA2, I began my project very lost. However, as I began seeing examples and reading more on it I quickly realized what I had to do. Where Task 4 used to be in final\_project.html “script id=shader-fs4”, is where you can find my implementation of Cook-Torrance. What I came to realize about Cook-Torrance from working on it is that a lot of people have different implementations of it, and ironically the commonly understood formulas now were not the same before. Of all the shading we have done this by far was the most challenging. The formulas were not something I was used to interpreting for computer code. Another lesson I got from spending time with this project is the extensiveness of WebGL, and the semi foreign language of javascript. Part of my trial and error with the shading model came with the missing variables like  $K_s$ . I was able

to deduct how to obtain these variables relative to the scene provided in PA2. The project has taught me how to be resourceful and attentive to other people's code. Looking through how PA2 was coded brought me skills useful for my career.

Looking at the body of my work, I started off by trying to match as many variables and/or formulas that I have already learnt from doing PA2 with the variables required for Cook-Torrance SM. My calculations are fairly simple to follow with many of the variables being named after their formula counterparts. The variable "final" is my understanding of the given Cook-Torrance formula and how I derived it. All in all a very challenging project that had me thinking outside the box.