

Sample Essay

I am the full on goggles-milling machine-coding-and soldering iron- kind of girl. My notebook margins are filled with designs of bridges and robot arms for Science Olympiad. I taught myself HTML and CSS to build the Student Senate website. And yes! There is a girl in Enhanced Multivariable Calculus at school: me. I've always loved math and science, testing, designing, and solving real life problems. Because of *this*, a goal of mine is to become an engineer where I can always create and learn.

The hands on process of unfolding my imagination into reality drew me toward engineering. Through investigating material strength and design, I fashioned novel devices for Science Olympiad that sometimes even surprise my mentors because of their success. A favorite moment of mine was when I proved I was not "just a girl" who liked "arts and crafts." I competed in Rotor Egg Drop, which called for an un-motorized gadget to safely land an egg on the ground. I came up with a simple and sleek model, so simple, in fact, that my mentors doubted my design. But I showed my team how the features of it would catch air, spin, and stabilize, slowing it from plummeting to the ground and cracking the egg. With this, we earned first in the state.

Continuing through the years, I dove into the world of material science, and learned about packing, tension and compression, and even art to make my designs even stronger. I experimented with gussets, the grain of the wood, angles, cross bracing, and of course the shape. Last year, my teacher taught me about maximizing the strength of the wood, and with my new found knowledge, my design for a bridge went all the way to Nationals. Science Olympiad has produced a passion in me for engineering and has taught me to be innovative and to stay creative.

My interest only increased when a local engineering internship provided me with real-life experience in problem solving. There, I incorporated code to create computer models and meshes to simulate and study the nature of electromagnetic wave propagation onto a perfect electric conducting (PEC) object. But, my professor allowed me to discover and code on my own, instead of leading me step by step. Of course, when I needed a little hint, he would nudge me in the right direction. While he gave me the basic tools, (a textbook and a computer), to solve the problem at hand, he stepped back and allowed me to investigate and explore on me own, trying this and that, reading different sources, learning code, until I solved the problem myself. I learned to question, to research, to love the struggle and the feeling when I overcame an obstacle.

While I have extracurricular activities like Science Olympiad and teachers that introduce me to the many fields of science and engineering, I only get the tip of the iceberg here. I grasp at opportunities whenever I can, whether it's a class or an internship, but the reality is, there is so much I do not know. Just beyond my reach, there is a whole engineering world out there, chock full of information, experiments, and things I could never have dreamed of before. Without going to college, I may never be able to explore it, not to mention, become an engineer and make my mark on the world. Through the years, I continued to delve in the maths and sciences with classes like AP Calculus BC and AP Physics C. But, as I progressed throughout high school, there was an evident trend. Each year, the ratio of girls to boys kept going down until family, there was only one girl in my math class: me.

Whether we like it or not, girls often shy away from science. Gender stereotypes still play a huge role in society, and while it may be a challenge, I know it can be overcome. Seeing my knowledge and work put to the test is, and will always be, exciting and rewarding for me.

Engineering is problem solving. It is what I love. I believe college will not only expand my knowledge, but also open my eyes to the complex and exciting field of engineering. And as I advocate for women in STEM, maybe I can encourage others to continue in the sciences and change the status quo.