

Women in STEAM and how we Implement it in our Lives

We are three girls from team 5691Z at Bryant High School in Arkansas. Girl Powered to us is an opportunity to showcase abilities and make a more comfortable environment for other girls interested in STEAM fields. Furthermore, rather than the gender itself being the diversifying factor in our perspectives during class, our backgrounds and interests allow for different lenses to come together to create. For example, a group member is interested in band, another in art and design, and another in arithmetic. With band activities, students have communication, memorizational, and ethical skill sets. Having a student based in art and design allows for accurate representation of the machines or robots in drawings, spatial accuracy, and an eye for details. Any engineer needs to be proficient in arithmetic and formulas, therefore that group member is very helpful as well. Having expertise in those fields allows for more information to be exchanged while maintaining a deeper understanding of their own concepts. In the beginning, a teammate expressed discomfort due to their lack of knowledge in this area of engineering, however they soon were able to ease themselves because of other girls within competitive engineering. Simply having a girl in engineering is powerful to other girls, it gives them a space to create and enjoy engineering while getting used to the environment. Another team member's first experience with engineering piqued her interest in that career pathway, but only when she was invited to a girl powered engineering trip did she focus her energy into it.

Sarah's interest in engineering began in middle school, "It started when one of my middle school teachers pushed other students and I into competitive engineering in the VEX program. Although skeptical at first - I knew it would be challenging - my minute fascination for engineering grew into a love and passion over the four years I competed. I participated in various engineering classes, such as intro to engineering and design and modeling, while also being in

competitive engineering. During my third year of competing, I was intrigued by the notebook aspect of competitive engineering, and adopted that as my full time duty. However, that year my team faced many problems with communication and the notebook began to reflect this. I felt so defeated and began to think that the work I put into the notebook was not worth it. One thing I never



forgot was when my coach encouraged me to persevere, which drove me to put in the hours to make our robot and notebook into winning material. When we won excellence that year at state, I felt pride because I knew that everything I had put in was worth it despite its hardships.”

“Engineering was first introduced to me this year. I had never expected myself to be in one of these classes, but inevitably, here I am. The occupation I had for myself changed a



number of times. I wanted to be an engineer since I liked working with my hands. My friend and I planned on taking engineering together, and even though it was a huge jump into deep waters, I took the opportunity to make my dream come true. Unfortunately, she dropped the class before the year started, but I decided to stay, even though I didn't

really have close friends in that class. Because this is my first year in robotics, I am very new to everything it has to offer. The first few days of class were very nerve-wracking. I couldn't decide

whether or not to drop out of the class or stay, until I saw other girls on the teams. Although this sounds bad, I most likely wouldn't have stayed in robotics had it not been for them. I wouldn't have felt very included nor useful since I didn't really know anyone and wouldn't be comfortable with asking for help. I felt comforted by the fact that there were people I already knew in engineering, and from then on I decided to stay with my new friends and make amends with work." states Mia. When we think of girl power, we think of the countless hours of work and dedication so many girls have devoted to engineering and life in general. Our experience in different pathways of STEAM and our background have led us to be proactive, and innovative thinkers who can persist through any obstacle we encounter. Women in STEAM show everyone else that anyone can be who they want to be, no matter their background, ethnicity, or gender. In simpler terms, girls support girls.

As for me, Anette, it was during my eighth grade year that I was introduced to engineering by chance. During that period of my life, my primary career focus was on fine arts and graphic design, so I had decided to focus all my alternative classes into those fields. However, by some odd luck, I had been put into an intro to engineering class. While I didn't necessarily want the class, I wasn't upset by this as I



had previously been interested in engineering and how machines work. At the beginning of that year, I had a small amount of curiosity about the different fields within STEAM, though that quickly changed when I had been invited to a Girl Powered trip to Henderson college. That trip changed my perception of engineering and my career goals. I was able to experience the jobs of

nurses, astrophysicists, environmentalists, etc. and I was shocked at the various types of engineers and the amount of women within those fields that weren't tied down to the gender based jobs. From then on, I put more work into learning simple machines and mathematics, along with 3d design. To me, Girl Powered means more opportunities to be explored.

All three of us have tried various roles on the team. I have taken the role of designing through auto-cad and have started to teach Mia while participating in building as well. Along with learning 3D graphic design, Mia has helped with other online challenges, and notebook.



Sarah has built, co-driven, and written the notebook in her three years of competing along with teaching both Mia and I general information about robotics. "I have had plenty of time to figure out what I love most about robotics, and what has benefited me.

Writing the notebook has given me organization, communication, and work ethic skills that I believe are important for competitive engineering as well as life in general. I love building and coding, but they don't give me the sort of perseverance and problem solving ideals that notebooking gives me." says Sarah. We've all learned through trying out different jobs what fits



our passion the best. Our fellow teammates are inclusive which allows us to be comfortable on the team, while doing what actually interests us. We have utilized our strengths and interests to carry out actions that will benefit others. Along with helping with our schools peanut butter drive to restock our food pantry, we also put together a thanksgiving food drive to gather

food for our local food bank. Here, we built a giant turkey shaped box to store the food that our school brought in. Not only does this help the people in need in our community, but it also raises awareness that engineers can impact their community and use their abilities to the fullest, as well as compete and build complex robots and machines. We are always accepting of new engineers in our program, because we believe that with several great minds, success is a guarantee.

Recalling Mia's introduction to engineering, having other women in STEAM was a key factor to what made her so comfortable in robotics, and we hope that when other students see that there are people like them in engineering, they will feel more confident and included to pursue such an amazing field.

A STEAM role model that inspires us is Katherine Johnson, who was an African American woman in the 1950s. She was a physicist, mathematician, and aerospace engineer at NASA. She won the Medal of Freedom in 2015 and overcame many hardships because of her gender and ethnicity. Her perseverance and victory over her struggles has motivated us, and will continue to inspire young women in the future. She and her friend's battle in NASA for recognition through diversity of both gender and race has changed society. This diversity, when accepted and included, allows for different people with different experiences to formulate ideas that can all contribute to a successful team. We are able to connect with each other because of our backgrounds in band, art etc. Having different fields of expertise allows us to share information and to get to know each other better along with learning about what makes up an engineering team.

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