

Our Girl Powered Journey

Before joining VEX, the phrase “girl powered” was a foggy statement for us; it was obscured by all of the stereotypes and generalizations about gender roles in STEM that were simply just accepted by society. However, as we slowly gained more and more experience throughout VEX robotics, we learned how to do things we never knew how to do before, such as designing, building, coding, and driving a fully functioning robot. We realized that everything that society had led us to believe in the past about girls in tech was wrong, and that there are really no limitations about who can impact the future. Now when we hear the phrase “girl powered,” we immediately think about how girls are the future in STEM. Our past experiences of being constantly looked down upon by other boys have only made us stronger, since they made us realize that we were the ones who needed to ignite the necessary change.



One such experience was during our first tournament of the year, which we were all very excited for. We had worked extra hard over the summer so we could excel in these matches, and



to our excitement our hard work paid off. After the qualifying rounds, we noticed that we were in 5th place, having won the majority of our matches. We decided to approach a strong team that would cooperate well with us for the elimination rounds. However, upon asking them, they informed us that their robot wasn't working anymore and was

essentially a “moving brick.” Slightly disappointed, we decided to move on and find another team. To our surprise, we later found out that their robot was actually fine, but the fact that we were an all girl team made them, and many others, think that we weren't capable of doing well and didn't deserve our 5th place spot. This opened our eyes to the inevitable injustice towards girls in STEM, and showed us how we are viewed by most others. Nevertheless, this compelled us to work even harder so we could prove ourselves to other teams how much we were capable of doing. After that tournament, we



decided to spend hours and hours each week improving the mechanical components of our robot, rewriting code to control it, and practicing the same routines over and over again when we drove. With months more of improvement and more tournaments, we were able to win multiple awards, and qualify for the State and World Championships.

When we arrived at Worlds, however, we realized that all-girl teams were a dramatic minority and that the teams were mainly dominated by boys. This came as a tremendous shock to



us, and ever since that experience, we were determined to inspire more girls to get involved in robotics. Each week, when we go to our lab to work on the robot, we help out less experienced all-girl teams to get started with VEX. We'd give our own insights and tips on designing, building, and competition strategy using our past experiences. It was an

extremely fulfilling experience to see how our help had led to so many girls to gain new knowledge, as well as exposure, to the robotics world. Even during the pandemic, we've been doing our part to encourage girls to pick up STEM, by creating a video to expose girls to programming. In addition, we've also spoken about our experiences at a STEM Education Summit, as well as a Girl Powered workshop. At the workshop, we worked closely with all-girl teams that had no prior experience with VEX and helped them build and program their first robot. We plan to continue taking these steps to introduce more girls to robotics and inspire them to join and to try to expand even further later on.



At the workshop, we also had the opportunity to meet Dianna Cowern, better known as Physics Girl on Youtube, and she is someone we look up to as our female role model in STEM. She creates fun and entertaining videos that aim to educate people on different physics related subjects. In addition to her Youtube channel, she is an active advocate for diversity and inclusivity, and has spoken about the lack of women in STEM in many of her speeches. In an interview with Teen Vogue, Cowern stated, "When someone imagines a scientist, I want

them to picture women as often as they picture men. In particular, we need a more diverse representation of ‘smart people’ in movies ... There’s no reason women shouldn’t be equally represented in these awesome fields.” We thought that this quote is a perfect embodiment of our end goal, which is to minimize the bias and discrimination against females in STEM. Her inspirational stories and dedication to bridging the gender gap in STEM have empowered us to continue working toward our goals and get more girls involved with STEM.

Along with helping other girl teams to get a strong start in robotics, we also must spend much of our time to work and improve on our own robot to ensure further success in our future. Throughout these many years of working together, we’ve run into several disagreements on how our robot should be designed, or what strategies would lead us to success in tournaments. Many view disagreements as a definite defeating factor of strong team chemistry, but in our case they only serve to further solidify it. We all must compromise at times, and we as a team grow even closer after these moments. We all view different issues from varying perspectives, and therefore may end up having many different ideas on what to do next.



However, these obstacles do not slow us down in any way. Rather, they give us further insight on completely new viewpoints that we would’ve never seen before. This diversity enhances our abilities to create a more complex robot design, and therefore increases our chances of success.

However, when we first started in VEX, we were very new to all of the topics that were introduced to us. None of us had much experience in STEM beyond basic science and math classes at school, so it was difficult for us to discuss and compromise on decisions related to



ideas that we were unfamiliar with in the first place. Initially, we all took turns trying out each role. For instance, during our first season we had two of us as the main drivers while the other two were either coaching or scouting during tournaments. When we were working in the lab, we had one Janelle main programmer, two builders, and one person who mainly focused on updating our notebook. Although we

distribute the different responsibilities on the team to each member, we have all had the opportunity to try out each role, find our strengths, and split the various roles accordingly. Through this experience, we learned where our skills lie and how we could utilize that to our advantage. In addition, we realized these roles, which are often categorized as being “male roles”, are not as intimidating as they are made out to be. People often view coding, driving, or just robotics in general as predominantly male-centered activities. However, after trying out each aspect, we realized that this was just a misleading facade, and girls are just as capable of doing these tasks as boys are. These misconceptions stemmed from a lack of girls in STEM, leading people to viewing robotics as a male activity.

Overall, our experience in VEX and Girl Powered has been extremely rewarding and showed us how big of an impact we could have on the future of girls in STEM. Throughout all of the workshops we’ve attended, and the speeches that we’ve given to motivate other girls, we realized how much change could come from such small actions. We hope that we will keep going down this path and continue to motivate more girls to get involved in tech and bring out their potential to change the face of STEM. This is our girl powered journey, and we look forward to helping many others get started on theirs.



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