Redefining the Face of STEM

When I first saw the Girl Powered website, one line of words caught my eye: "Redefining the Face of STEM." At the time, I was confused. What was wrong with the face of STEM for it to be redefined? *Why* did it need to be redefined? Of course, I knew that it had something to do with "girl power" but I couldn't know the full meaning of that short phrase. Not until I had experienced what it meant to be a girl in the STEM field; experience the injustices that we undergo every day. This is our story, and the story of girls all over the world.

Until middle school, I never took any STEM classes (except mandatory math and science in school) or STEM extracurriculars. I never realized the full extent of what it meant to be a woman in the STEM field. Perhaps this was because I was surrounded by female doctors and
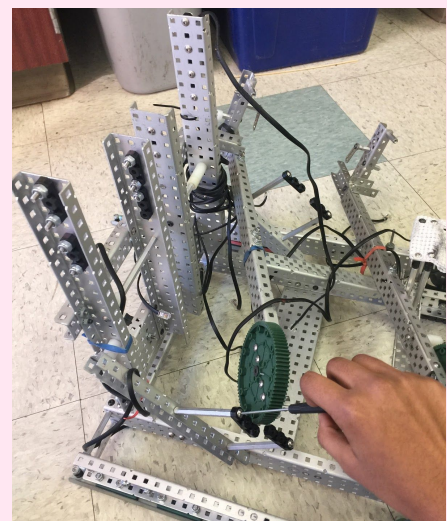

engineers - my mother, her friends, even my friends' mothers. Perhaps this was because I lived in Silicon Valley, the beating heart of most tech giants. Whatever the case, I was completely unprepared for what I would face in middle school. I took my first STEM elective in 7th grade. Including me, there were three girls in that class, along with twenty-one boys. That same year, I joined the school's robotics club. Redwood Robotics had close to a hundred members, ninety of them boys. That's when the staggering truth of the matter splashed me in the face like cold water. To say that women were outnumbered in the STEM field was a gross understatement.
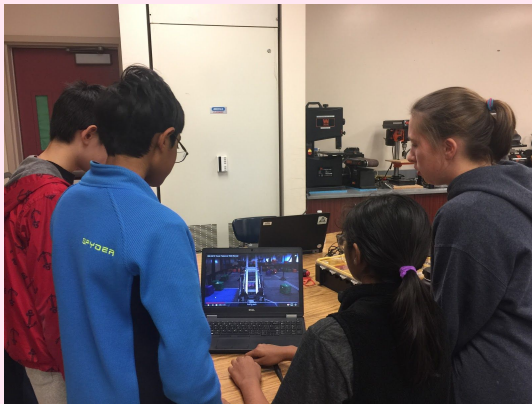
Because there were so few girls in the club, we stuck together, even forming an all-girls team. However, most of us were new to robotics, so it was hard to make significant progress. The robot ended up as nonfunctional after almost every meeting. And the whole time, while we were desperately trying to fix our robot, we could feel the boys' glances at us. We could hear them saying to each other, "Oh, yeah. The girls team? They suck. Like, they're really bad." If they saw one of us overhearing them, they would quickly add, "No offense," like that justified their comments. From that point on, we were not doing robotics for ourselves. We were doing it to show the boys that we deserved to be in the club as much as they did. Every

success was met with glancing at them, as if to say, "See? We did it." Every failure was met with

lowered eyes, ashamed faces, and the team surreptitiously looking around to see if any boys had witnessed our mistakes. And there were a lot more failures than successes.

About a month later, we were working on our robot when we made a huge accomplishment; we finally got our autonomous code working. So great was the success (at least for us), that we forgot about showing it to boys. We merely jumped up and down, celebrating the achievement *we* were able to make. That's when we realized how wrong we were to seek approval from the boys. All along, we should have been doing robotics for ourselves, not for others. From then on, we never spared the boys a second glance.

A year has passed, and I am now on a mixed girls-and-boys team, with five boys and three girls. In the beginning, the team dynamic was extremely...weird. Two out of the three girls had come from an all-girls team (including me) and a few of the boys were new to robotics. Our first discussion as a team felt like all of us were singing the same song but no one knew the words. Fortunately, because of the majority of the team's inexperience with robotics, none of us girls were ever put down. We were all learning together, so in the beginning we mostly taught

ourselves important skills: one day the whole team would crowd around a single computer, watching how to build a gearbox on YouTube; another day we would have a programming website open and would explore our way through the Vex Coding Studio. As we learned more about VEX, we also learned more about each other, and the team dynamic grew humorous and relaxed. We became more than people randomly thrown together on a team. We became friends.

Once we all had some experience with VEX, we began to specialize in areas that would eventually dictate our roles. I'll be honest - I thought that the girls would be shunted aside while all the boys got the important roles. Even though we were all on the same level, *even though* we were friends, I was sure that their subconscious biases towards us would surface when we decided roles. Thankfully, I was proven wrong. The first role we decided was our project manager, with the choices being between Kyleen, a girl, and Daniel, a boy. We voted anonymously, and when the votes were tallied in, Kyleen won. She won because she was a good leader; she won because she was experienced; she won because *we wanted her*. No one cared that she was a girl. When we then decided our individual roles, they were based upon our strengths and weaknesses, not our genders. All decisions we made were strategic choices, always to better the team and our robot. I cannot remember a single instance where a conclusion was reached based on someone's gender or race, and I am glad for it.

Of course, our team is not perfect - what team is? Yes, we have arguments. Yes, we get annoyed with each other. Yes, we make mistakes. But each time, we try to listen to each other and acknowledge everyone's view points. Because our team is made up of many different people with many different identities and personalities, there will always be different views on the same matter. In fact, that is what allows us to consider so many contrasting ideas. That is what allows our team to be complex and unique.

Girl Powered means so many different things to us - it's a spokesperson for underrepresented people, not just girls; it's a positive role model for women in the STEM field; it's a motivation for synergy between many groups of people. Girl Powered is the voice in my head, saying, "Go for it, girl." It's the voice in other people's heads, saying, "Don't believe it when people tell you that you can't, because you can." For us girls in STEM, Girl Powered is a powerful reminder that we are not defined by our gender, but instead by what we achieve. Now we can confidently and proudly say that we, too, will work to redefine the face of STEM, for ourselves, and for girls all over the world.

CREDITS
"Redefining the Face of STEM" by 95070F - Redwood Robotics
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Special Thanks to:
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**In the last picture, the person to the left is not photo approved.