

## Girls Need More than a Grant: My Experiences with Girl Powered

People in science, technology, engineering and math (STEM) solve some of the world's hardest problems, but one merits more serious attention: the lack of women in these fields. Women make up just twenty-six percent of the STEM workforce, and an appalling thirteen percent of engineers. As a girl with plans to be an engineer, these numbers sadden me every time I hear them. Over my time in the program, VEX Robotics has increased female representation from twenty-three to thirty-seven percent, in large part because of the Girl Powered initiative that funds new majority girl teams. However, inviting women into programs means little if they never make it to the top.

At times, Girl Powered seemed to me like a flashy logo that artificially inflates the numbers, but in reality does little for the gender disparity. Statistics that cite improvement in gender parity are woefully misrepresentative; when one walks in the doors of the VEX World Championships, there are approximately twenty guys for every girl there. While I have stood in many lines for the women's restroom, VEX Worlds is the only place I have seen the line for the men's room be longer. Because the participation at the highest levels of competition is less than the lower levels, where every new team must start, we have failed to set up these girls for success.



As a freshman girl at the bottom of the pecking order on my own team, there were many days when I felt unwelcome, unwanted and wished I had joined an all-girls team. Everyone would talk over me and if I managed to finish my sentence, it was ignored by the older boys.



Despite the less than ideal teaching, I learned enough about building and documenting to gain my voice and have a say in the team decisions. But this is exactly why girls need more than a grant: without being accepted into already successful teams, it would take years to build up enough collective experience to be competitive. With the current approach, we cannot expect equal representation at the highest levels for many years.

As I have gained seniority, I have sought to make our team a more inclusive environment for all of our new members. Instead of one programmer spending hours alone with the robot, our team has adopted a partner programming method. That way, more than one person always understands the code, we can learn from each other, and we can catch each other's little mistakes. If we want to be successful even once seniors graduate, we need everyone to be given the tools they need to succeed.



My story ends happily because I became captain of my team and president of the club, but other girls - Emily, Becca, Eliana - left after a year or two and never looked back. Their struggles to gain a foothold on the team, to do more than organize the parts box for the third time in a month, to be heard in discussions are why I chose to spearhead a Girl Powered workshop of our own. The largest problem facing incoming freshmen isn't a lack of interest in robotics, but a failure to give incoming middle school girls the tools they need, most especially programming ones, to succeed on whatever team they join. Our workshop covers the basics of the engineering design process, block programming and algorithms, and TinkerCAD. While a single workshop will not solve every problem, our goal is to start the process of learning about robotics and show girls that they have the ability to succeed, and that they have a network of older students who want them to.



Girl  Powered

Berthoud Robotics club

**GIRL POWERED  
ROBOTICS  
WORKSHOP**

A FREE WORKSHOP TO BUILD ROBOTICS  
SKILLS, PROGRAMMING, COMPUTER-AIDED  
DESIGN, AND THE ENGINEERING DESIGN  
PROCESS

With hosting this workshop, Girl Powered has taken on a new meaning for me too: it seems to me to be a good beginning. I know that we have a long way to go, but with all the support for the idea from guys and girls on the high school teams, I also know that other people will step up and help new girls too. As part of the closing speech of the workshop, we focused on Grace Hopper, one of the first computer programmers. She inspires us because although she was alone at the beginning of her career, she brought other women with her into the field. Girl Powered to us is all about that: girls giving each other a hand up.



The same phenomena seen in VEX robotics plays out in the real world in what is known as the “leaky pipeline,” where women equally qualified as men coming out of school never become CEOs and presidents. The world needs talented problem solvers now more than ever, but it will not have enough until women join the fight, not just at the lower levels but also at the top. I want to be an engineer, a great one, so that I can mentor younger women and help them up too.