

Girls 'n' Bots

Being girl-powered in robotics is the STEM-version of a sisterhood. In our robotics community, the girls from all schools are very close to one another, sharing each other's pains, struggles, and victories.

(Left to Right) Ria, Olivia + Sydney.



We have figurative "roles" among the girls at our school. The eldest is looked up to as "robotics matriarch" by the others, and once she's graduated, the role gets passed on to the next. This started with someone who graduated from robotics last year and she is someone who we all look up to. We chose to create the "robotics matriarch" as a support system for girls and newer students in the program. Being given the title comes along with meaningful conversations and lots of support.

(Right) Olivia + Sydney at a tournament.

When we think of girl-powered we think of how girls are often not heard in STEM and robotics fields. How some of the brightest students may be afraid or frustrated to take steps that benefit their passions and their future just because of their gender. Girls play a huge role in our robotics program and have a lot to offer. These are our stories:



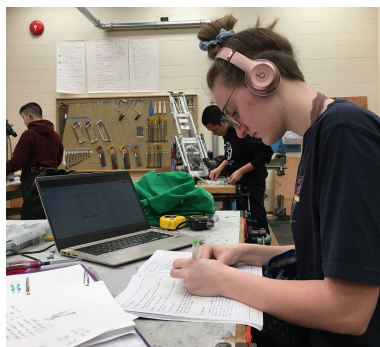
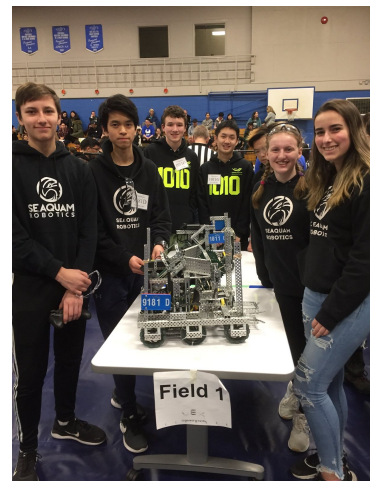
Olivia Roschat, 16, Team Captain, Design Book Extraordinaire.



I was invited to join a senior team with four other people who were in grades 11-12. There was one other girl and the other 3 were male. I was thrilled to join the program. At the time, our school's robotics program only had 25 students, with 23 being male. When I joined the program, I looked up to a grade 11 girl who was on my team. She was the first girl in the program, and to me, that was a huge deal. She was the first "robotics matriarch" and always had this super positive energy that lit up the room.

(Right) Olivia + previous team at Provincials

My journey in robotics started in 2017. I felt that I was but a mere whisper in the program. Despite how excited I was at first, I stayed quiet, often not expressing my ideas to the rest of the team in fear of being called stupid. We were an average team, not qualifying for Provincials but still managing to have fun



competing.

(Left) Olivia working on Design Book.

In my second year in robotics, I was on a team with 4 boys that were in the same grade as I. The year started off well, but I later felt unheard once again. If I presented an idea to the team, it would often get shut down or deemed stupid, but if I told one of the guys on my team to present it, the rest of the team was more likely to accept it with open arms. At one tournament, I was told to represent our team for alliance selection for the reason of "the guys will pick you

because you're pretty, not because we have a good robot." We qualified for provincials through skills and had 3 weeks to prepare. Among pre-tournament anxieties and troubleshooting, there became even more tensions within our team which made communication difficult come tournament time. On the day of Provincials, there was word going around that the rest of my team was planning to form a "super team" with nearly everyone on my team other than myself. I now knew that I could no longer be with people that don't value me, my work, and my ideas.

(Right) Our team members and alliance partners.

This year, I am the captain of my team. 60% of our team this year is made up of girls. I am focused on the management, scheduling and design book portion of robotics and keeping our team on track. Due to past experiences of stress in robotics, I developed a productivity process that spreads out and organizes our team's workload in hopes of reducing the risk of burnout. My goal for this year is to inspire more girls to pursue STEM fields. In hopes of achieving this, Ria and I have created a "junior robotics club," which teaches younger students the foundations of robotics; communication skills, and match strategy.



Ria Sachdeva, 15, Primary Coder.



I am a second-year robotics student, in grade 10. My main tasks on the team consist of coding both driver controls and autonomous, along with wiring, and build of the robot. When I entered the robotics program, I was shocked to see that the males outnumbered the females 1:7. I thought that there would be fewer females in the program, but not to this extent.

My first team consisted of three males and one other female, all new to the program. My interest at the time was building the robot. In the beginning, everyone was working well together and the workload for the build was evenly divided. This did not last long. As the first month went on, it was obvious that the males on the team started to do what they wanted, without any intention of communicating their plans to the girls. I then felt as though I had no role on the team and was not heard as well as I hoped for.



(Left) Ria working on programming skills.

One day, I was after school with nothing to do on the robot and decided to watch a senior team's programming skills run. I was immediately fascinated. Before entering the robotics program, I had little to no knowledge or passion for coding. I quickly realized that the other girl on the team and I could make programming the robot our main role. I learned how to code from the coaches and seniors in the program. Within a few weeks, I saw my robot move for the first time. This moment was so gratifying as I had finally seen my contribution to the team pay off.

(Right) Our team strategizing with our alliance at the first tournament.

Although I was usually the one to code, when it came to other aspects of the robot, I was treated as a junior member on the team, with the less important tasks handed to me and little to no time for me to code what I actually wanted. I wished to be treated as an equal and made the decision to change teams. My



team for the rest of the year had its own struggles and challenges until this year when we formed a new team. It is a good mix of senior and junior students, males and females. In our current team, I feel as though everyone is heard, everyone has the opportunity to contribute, and day by day, our team is growing stronger and closer together.

Sydney Gillie, 14, Builder



When I first joined robotics I was a little uncomfortable, I didn't know anyone very well and I was put off by how few girls were in the program. Eventually, I realized that nobody cared that I'm a girl, we were there for the same thing, to build robots. Everybody in robotics is passionate and spend hours every day in the shop. Seeing people so invested and happy doing robotics has inspired the same passion

in me. Even if you don't know people's names you end up jamming out to music together and trading advice. I thought everyone would be focused on their own problems, and to a degree, everyone is but if there is an issue there are at least three people over their shoulders giving advice and encouragement.

(Right) Sydney working on the drill press.

I have definitely learned a lot from Olivia and Ria. My team is the reason why I didn't end up leaving the program for another elective. I seriously considered it at first, I felt sidelined in that I was both new and one of five girls in a sixty person program. However, I stuck through it and I have no regrets about where I am in the program. I've worked on the design journal and looked over the code, but mostly I work on the build. Robotics has taken over my life, and I wouldn't have it any other way.



Robotics is definitely a male-dominated program, but we're changing the robotics program for good. We have realized that we have to pave the way for the next generation of girls in our program. Support systems were previously not in place for female students, but we've started the foundations. We want it to be a place where people with interests in STEM can grow and learn, regardless of their gender. And above all, we want girl power to make a difference and create role models for the next generation of leaders in STEM and robotics.

Credits

Girls 'n' Bots by:

Olivia Roschat

Ria Sachdeva

Sydney Gillie

Team: Seaquam Secondary 9181X

Other Members:

Guransh Rajput

Austin Vokey