

STEMEQUITY WORKSHOP

TOTAL HOURS : (6 hrs per person, 2 people) **12 hrs**

SUMMARY

IN *FIRST*'s STEMEquity Workshop, 10 Featured Women in STEM (professional women, *FIRST* mentors and volunteers) worked collaboratively with up to 30 girls (grades 4th-8th) to construct, code, collaborate and compete with LEGO EV3 robots, solving remixed missions from the 2018-2019 Into Orbit FLL Competition. Participants conversed in curated conversations about what it really takes to "Push Through the STEM Pipeline"! This hands-on workshop covered the fundamentals of constructing and coding the LEGO Mindstorm EV3 and competing in *FIRST* LEGO League Robotics Competition.

WHO	WHAT	WHEN	WHERE	WHY
Girls, 4th-8th grade; Student and Adult Mentors and Advocates	Mentoring groups of 3-4 girls to build, code, and compete with LEGO Mindstorm robots	July 18th, 2019	Manor Tech Middle School Austin, TX	Exposing young girls to the <i>FIRST</i> program and what it entails

ACTIVITIES

BUILDING ROBOTS

This event drew in 10 girls in grades 4th through 8th along with 12 student and adult mentors. The girls were divided into separate groups of three to four, with one to two student mentors and one adult mentor to assist each team. Once in groups, each group came up with a team name, motto, logo and colors. We then mentored and helped them build an FLL robot using LEGO Mindstorm EV3 kits, and then code the robot using a drag and drop code. The main goal was to make sure our help was very hands-off, with the girls doing the work and us, the mentors, only there to provide guidance; it was up to the girls to solve the problems they ran into and come up with new ideas. The hands-off approach ensured that the girls were getting the most out of the experience as possible.

CONNECTING TO STEM PROFESSIONALS

Not only were we able to expose *FIRST* to the girls- we were also able to connect to female STEM professionals who served as mentors for the teams and also spoke on a Q&A panel. Once the mock competition was over, we had the opportunity to get the contact info of multiple different workers of STEM. Our team had many insightful discussions with these professionals on potentially mentoring us, as well as different ways to expose young kids to STEAM topics.

LEADING A PANEL

Along with helping girls learn and build a LEGO Mindstorm robot, there was also a panel of four volunteers who talked about their experience in STEM. The panel participants were chosen based on their age, with each panelist representing a different stage in a STEM student's journey- one in middle school, one a high school senior, one college student, and one adult working in the STEM field. The panelists, one being one of our very own Hydra members, were

asked questions about their experiences in STEM as a woman: the challenges they face, how they overcome these challenges, etc. The answers given by the panelists revealed each of their unique experiences. These stories helped empower the girls to be more confident and more comfortable to share their ideas and take the lead in any STEM environment.

OUTCOME

PROMOTING *FIRST*

This event allowed us to spread recognition for *FIRST* and its programs. By mentoring these groups of girls in a competitive yet fun environment, we were able to teach them about ideas important to *FIRST*, such as Gracious Professionalism. They participated in a simplified FLL competition, which really gave them a first-hand experience of what they could be doing if they joined and continued with the program.

EXPANDING OUR REACH

The attendees of this event were girls between the grades of 4-8, which meant we were able to reach out to the students in time for them to join FLL and FTC. While we helped elementary and middle school students learn the basics of *FIRST*, we talked to many different STEM professionals about our team and what we have accomplished, as well as what are goals were this year, both on the technical side and on the outreach side. This event provided many opportunities to expand our reach, not only through the students, but also from the countless different specialists that we could learn a lot from.

TELLING OUR STORY

Getting the opportunity to tell our own unique stories showed the girls that there isn't just one way to get involved with STEM. Furthermore, there isn't just one path to take if you want to become a STEM professional in the future. After the participants shared their stories and experiences, we had the girls raise their hands to see if any of them had a similar experience, in which almost all of the girls raised their hands. Letting the girls know that they are not alone in their experiences and challenges gives them the confidence they need to get over those challenges. The panelists encouraged the girls to take risks and have confidence in themselves to achieve their dreams in STEM and beyond.

POST-EVENT REFLECTION



- There were **22 total attendees**, made up of elementary and middle school students, as well as STEM professionals and student mentors. We had the opportunity to introduce girls from all over Austin to *FIRST* programs and the world of robotics.
- Each team representative worked with a group of **3-4 girls** and **1-2 adult mentors** to code, build, and compete with other teams in a mock FLL competition. Throughout this **hands-on learning experience**, the girls were eager to compete in the challenge and their eyes lit up when their creation came to life on the field.
- “I loved working with these girls; they were so eager to learn and weren’t afraid to try. Even if they failed at first, they used that as motivation to improve. They were such a driven group of kids, and I was so happy I was able to introduce them to robotics.”
- Avery
- “Participating in the panel was a really cool experience, something I had never done before. I never really thought about how my personal experience could potentially help or inspire younger girls who are going on similar journeys as me. It was also really inspiring to hear stories from the other panelists; we each have such unique stories, but we’ve also experienced some of the same things. When the girls listening to the panel said that they had faced the same challenges as us, it reminded me why we do what we do- to inspire girls to overcome roadblocks and go for what they want.”
- Mia
- **Summary:** We connected with **4th-8th grade girls in the Austin area**. Girls were put on teams, each led by one student mentor and one adult mentor, and were **introduced to *FIRST***. They learned the basics of **hardware, software, and problem-solving** with LEGO Mindstorm EV3 robots. We also participated in a panel where we could share our insight with the girls.