Chairman's Award - Team 2177

Print Close

2018 - Team 2177

Team Number

2177

Team Name, Corporate/University Sponsors

Boston Scientific/PTC/Palmer Family&Convent of the Visitation School

Briefly describe the impact of the *FIRST* program on team participants with special emphasis on the 2017/2018 year and the preceding two to five years

While on the team, the young women of Team 2177 learn valuable life skills including problem-solving, team-work, effective communication, technical capabilities, independence, project management, negotiation, and self-advocacy. FIRST inspires our team's enthusiasm for STEM and has led over 90% of our team alumnae to pursue STEM careers. Five team alumnae now mentor our team, and three enthusiastically volunteer at competitions.

Describe the impact of the *FIRST* program on your community with special emphasis on the 2017/2018 year and the preceding two to five years

We influenced our community as representatives of FIRST in the past 5 years when we: inspired 1000+ girls to explore STEM through Girl Scout demos/camps, introduced 700 middle school girls to STEM through STEAM day, trained 60 women on other FRC teams in technical skills via GRIP, supported the sisterhood of FIRST through FIRST Ladies, WIRE MN, and SWEet Eats, encouraged the addition of STEM electives at Vis, contributed to the design of a new STEM center, shared our team knowledge at SPLASH.

Team's innovative or creative method to spread the *FIRST* message

We work to give Girl Scouts a tangible and attainable vision of STEM. At Boston Scientific's Design Your Future event, we guided a group of junior Girl Scouts through the design process, asking them the same questions we ask when we design our robots. When they left, each girl believed she could design a robot too. We invited Girl Scouts to spend a day of build season in the shop with us so they could watch us use tools to build the robot and touch the robot before it becomes a final product.

Describe examples of how your team members act as role models and inspire other *FIRST* team members to emulate

One event at which The Robettes inspire other FIRST teams is the SPLASH event in December. Robette students ran 4 of the 15 sessions that day. The students taught 3 technical presentations: Java Programming I, Java Programming II, and Introduction to the FRC control system. The four young women who led them were among the only women presenting on technical aspects. The confidence and eloquence we displayed here is the trademark of Robette behavior, which we abide by throughout the year.

Describe the team's initiatives to help start or form other FRC teams

We support the expansion of FIRST by encouraging girls to explore STEM and by supporting all women in FIRST. Through our outreach for girls and women of all ages, we strive to spark the imagination of a student who joins the ranks of FIRST, improve the strength of existing teams, and build relationships that fuel volunteerism and promotion of FIRST. Our hope is that our outreach will provide girls and women the skills and confidence to make their own impact on FIRST.

Describe the team's initiatives to help start or form other *FIRST* teams (including Jr.FLL, FLL, & FTC)

The Robettes founded, financially supported, and actively mentor the FLL team at Visitation, the BlazerBots. Two team members have started FLL teams at their former grade schools. These teams provide a pipeline of students into our school and FRC team.

Describe the team's initiatives on assisting other *FIRST* teams (including Jr.FLL, FLL, FTC, & FRC) with progressing through the *FIRST* program

GRIP (Girls in Robotics Improving Performance) is a one day workshop in which we teach young women on other FRC teams the technical skills they need to excel on their teams. The girls receive hands on experience in mechanical, electrical, Java programming and self-advocacy, using numerous tools including the chain breaker, soldering iron, and bandsaw. This year, we impacted 30 girls, 10 teams, and teams from up to 225 miles away.

Describe how your team works with other *FIRST* teams to serve as mentors to younger or less experienced *FIRST* teams (includes Jr.FLL, FLL, FTC, & FRC teams)

We co-led a new SPLASH session on captainship with another FRC team. In this roundtable discussion, captains and student leaders from different teams were able to share strategies on how to be an effective leader in FRC. As a regional partner with FIRST Ladies, we host SWEet Eats, a luncheon for female FIRST participants to discuss their experiences and interact with members of the Society of Women Engineers. At this event, we encourage inter-team conversations and relationship building.

Describe your Corporate/University Sponsors

We receive a grant from Boston Scientific, through FIRST, paying the registration fee for one regional. 3M sponsored the SWEet Eats luncheon in 2017. We received a grant from PTC. Bonfe painted our carts pink and navy. Our school has a "Vis Give Day" encouraging online donations and we have our own donation page. We use social media to promote participation. We are blessed to have several anonymous friends, alumnae, and parents who donate to help keep the team running strong.

Describe the strength of your partnership with your sponsors with special emphasis on the 2017/2018 year and the preceding two to five years

We continue to nurture the rapport we have with our biggest sponsor, Visitation School. The school has always encouraged advanced scientific education for young women with high school science classes for women dating back to the 1940s (at that time a rarity). We significantly influenced the schools decision to build the STEM center in 2014. We give back to Visitation by volunteering at the annual fundraising gala and the middle school STEAM day.

Describe how your team would explain what *FIRST* is to someone who has never heard of it

As the first all-girls team in Minnesota, The Robettes are locally seen as "that pink team" or "that all-girls team" in a positive light, demonstrating the power of women. Girls of all ages seek us out at competitions, having been inspired by our success. We stay true to our mission statement, "To inspire girls of all ages to incorporate STEM in their lives and to revolutionize the perception of women in STEM," by inspiring girls of all ages and showing how capable women truly are.

Briefly describe other matters of interest to the *FIRST* judges, if any

FIRST is a worldwide cultural phenomenon that is elevating scientists to rock star status. FIRST builds up and inspires kids to explore STEM in a hands on approach through competitive robotic challenges. The beauty of FIRST lies in it's philosophy of coopertition (competing and working together) and gracious professionalism (behavior expectations). The secret mission of FIRST is to teach lifelong skills including organization, communication and problem solving to prepare students for the future.

Team Captain/Student Representative that has double-checked this submission.

Emily Rascher

Essay

Team 2177: The Robettes' mission is to inspire girls of all ages to incorporate STEM in their lives and to revolutionize the perception of women in STEM. Supported by three pillars, the Cultivation, Illustration, and Communication of the capabilities of women in STEM, our team actively works to increase the number of women in STEM and in FIRST, thereby spreading FIRST to an underrepresented population.

In 2017, Microsoft* conducted a survey on girls in STEM, which shows that girls become interested in STEM subjects at the age of 11, but by the age of 15, girls' participation in STEM declines sharply. It is crucial that we maintain and nourish that interest so it grows into a strong passion, which leads to the first pillar of our mission: To cultivate the skills and passions of young women in STEM. Through FIRST, our team members develop lifelong skills, inspiring others along the way. However, this growth does not stop with our team; we want all girls to have the same confidence and proficiency we do. We inspire girls to fuel their curiosity in STEM, thereby changing their perception of what they can accomplish and inspiring them to stay involved in STEM.

The cultivation of our members' skills begins at Summer Camp, a two week experience for students interested in joining the team. At camp, students explore each subteam (mechanical, electrical, programming, and business), learn about FIRST, and meet new friends. Historically, most of the new students at summer camp join the team with a new enthusiasm for STEM. Each fall, our team members teach each other skills and actively learn new information relevant to their sub-teams. This time spent improving old robots and taking on new projects, such as assembling a nanotube drivetrain, helps us prepare for a successful build and competition season. Our young women have the opportunity to letter in robotics, which challenges them to take up a project that will help the team improve. Our team's training program helps team members learn and gain important skills such as confidence, decisiveness, and perseverance that will not only serve them in robotics but also later in life. Our alumnae show the effects of this cultivation: 8 Robette alumnae returned as mentors, 3 past students have been Dean's List Finalists, one of whom is on Dean's List at the world level.

After cultivating our own team members' skills, we work to share our passion for STEM and inspire young women on other FRC teams.

We host the GRIP (Girls in Robotics Improving Performance) workshop, inviting young women on other FRC teams into our shop to develop their technical skills. While some girls are hesitant to participate on the technical side of their FRC teams, we know from experience that building skills builds confidence. By providing a safe space to learn, fail, and ask questions, we cultivate girls' skills and send them back to their teams with the confidence to take on more active roles. We included a self advocacy portion in the workshop that really struck a chord with attendees. At this year's event, 60 young women learned new technical and self-advocacy skills that will help them go further in their chosen paths and follow their passions in STEM.

At the Minneapolis Regionals, we host an event called SWEet Eats with SWE (Society of Women Engineers) with the goal of cultivating a strong network between women in FRC and STEM fields. Students and adults on FRC teams eat lunch and talk with University of Minnesota students and 3M engineers who are part of SWE. Over 3 years, we have connected 450 FRC women, building a sisterhood that leads to coopertition on and off the field.

We also present at SPLASH, a training event before build season. Robettes ran 4 of the 15 sessions this year. We taught 3 technical presentations: Java Programming I and II, and Introduction to the FRC control system. Our team's presenters, among the only women presenting on technical aspects, reached a co-ed audience of 20 to 50 students per session, boosted skill levels of all teams present, and projected a positive image for women in STEM.

Through our strong relationship with our school, we work to increase interest in STEM in other Vis students. Our team's success led our all-girls school to build a STEM center on campus. We pushed the school to add multiple STEM electives, including Intro to Engineering, Computer Science and Computer Graphics, introducing more high school women to STEM.

By cultivating our technical skills, we become effective role models for the next generation of innovative women, tying into the second pillar of our mission: To illustrate to young girls their potential in STEM. It is crucial that young girls in elementary and middle school see women participating in STEM to keep their mindset open. We know that "if they can see it, they can be it," and we show girls what they can be through Girl Scout STEM events.

For the past 4 years, the Robettes have presented to Girl Scouts at TWIST (Target Women in Science and Technology), allowing them to drive our robot and describing what it is like to be on an FRC team. This year we presented to Girl Scouts at Boston Scientific's Design Your Future event. We gave them the tools to problem solve by walking them through the same design process we use to design our robots. Additionally, we tour GS troops through our shop and volunteer with GS STEM Day Camps. The over 1000 grade school girls we've reached through these events remember the message we've shared with them; one student came to Vis to learn more about our team.

Essay - page 2

We connect with girls across Minnesota through educational presentations. We have led activities at our school's Vis STEAM Day for nine years. Here, 100 middle school girls across the Twin Cities come to Visitation for a creative experience of STEAM. Fox 9 News invited us to present at their Girls, Science and Technology event located at the Science Museum, which draws girls of all ages. At these events, we personally connect with girls about our robotics experience. It's rewarding to see girls' faces light up as they learn about our team and robot. Our presentations spark the imaginations of all who attend, galvanizing their ideas for the future. As a champion all-girls team, we illustrate that girls can be successful participants in STEM.

Our team members have started and mentored various FLL teams including the Visitation BlazerBots, the St. Joseph JagBots, and the Highland Catholic Hyphens. This youth outreach helps form strong relationships within the community and spread the mission of FIRST.

Besides specifically working with females our own age and younger, we work to ensure that everyone has a positive perception of women in STEM, leading to our third pillar: To communicate to the larger population that women are proficient in STEM fields. We achieve this goal through outreach events and the simple act of always representing women in STEM.

We constantly confront common gender stereotypes: Seeing that girls do every job to make our team not only competitive but award-winning transforms other's perceptions of women in STEM. The more successful we are, the more impact we can have. One of our male mentors had a dismissive perception of women in STEM before joining our team, yet our tenacity, enthusiasm, and competence changed his mind, making him one of our strongest supporters. The Robettes also revolutionize the perception of women in STEM via our integrity. We have been commended for the way we articulate our ideas, conduct ourselves, and display gracious professionalism. At 2017 St. Louis Championships, a mentor from another team complimented our Drive Coach and Pilot for being collected, thought out, and articulate when meeting with their alliance, joking that we should give his team some lessons. We handle ourselves well in high pressure situations, standing our ground and representing women in STEM with excellence.

For the past decade, we have have reached a wide audience at the Minnesota State Fair, which draws 1.9 million people annually. We display our robot and educate passersby about FIRST. Closer to home, we give tours of our build space to many notable people (including women from the Million Women Mentors group, guests of the head of school, an MIT professor, and prospective students) to get them excited about our mission and FIRST. In the Vis community, we showcase our team's robot at the school's fundraising gala. While running the coat check, we connect personally with everyone who walks through the door -- roughly 300 parents, alumnae, and benefactors. We show them via our successes that women are capable and proficient in STEM.

We, The Robettes, cultivate high schoolers' technical skills and passions for STEM through training and networking. We illustrate women's capabilities to grade-school girls through our demonstrations to Girl Scouts and other youth. We communicate the competency of women in STEM to the greater community through our success and outreach. Through our three pillars of Cultivation, Illustration, and Communication, we endeavor to accomplish our mission: To inspire girls of all ages to incorporate STEM in their lives and to revolutionize the perception of women in STEM.

*http://money.cnn.com/2017/02/28/technology/girls-math-science-engineering/index.html