

Chairman's Award - Team 2723

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2019 - Team 2723

Team Number

2723

Team Name, Corporate/University Sponsors

The Boeing Company/Leavitt Signs/S & S Textiles/Brown's Bakery/Progressive Stamping and Fabrication/Climate Craft/DS Solidworks&Mount Saint Mary High School

Briefly describe the impact of the *FIRST* program on team participants with special emphasis on the 2018/2019 year and the preceding two to five years

"FIRST Robotics program has opened my eyes to an entirely different side of life and to experiences that I never knew existed." -- Katie "Because of FIRST I have learned how technology, science, art and business are all connected and are very important the world we live in." -- Bria "FIRST has allowed me to make close professional connections to businesses all around my state. These relationships will benefit me all throughout my life." -- Zack

Describe the impact of the *FIRST* program on your community with special emphasis on the 2018/2019 year and the preceding two to five years

We have a multi-layer approach, spending over 5200 hours representing FIRST in the last 4 years. We bring new students to our school community through mentoring at feeder schools. We give back to our city, serving the needy and running educational camps. We represent FIRST through high-impact demonstrations (we planned and ran a huge robotics exhibit at the 1st & 2nd annual Tinkerfests with over 17,000 attendees, among many others) and appear on local news broadcasts and in newspaper articles.

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

Team Rocket's creative method to spread FIRST's message is to catch students while they are young to train and evolve them to be future STEM leaders. Most students go through life without ever hearing about FIRST and Team Rocket is working to change that. Many of our demonstrations, workshops, and school outreach are geared to the younger generations to start them off early in FIRST progression of programs so it is not something they just discover during high school or not at all.

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

Team Rocket puts others first, especially in leadership. In the last 4 years we have had 4 separate FRC and FTC Dean's List Finalists and one winner. These role models, along with other leaders show new members not only how to do technical work, but how to become better people. Rookies are welcomed with open arms, and friendships and relationships are always being created on the team. Leaders inspire others to grow and to reach out to the community, making it a better place.

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

Although we've not started any new FRC teams yet, we have begun to mentor them. Last season, prior to the Oklahoma Regional, FRC 6462 Techjoynt was struggling and lost several members. Team Rocket helped them complete their robot and even provided members to assist on the drive team. They even won the Rookie Inspiration award at the competition! Our long term plans are to build a facility when we can help start and sustain FRC teams in Oklahoma City, where FIRST is underrepresented.

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

Over the last 4 years, we paid the entry fee and ran 14 FTC teams. Current students on our team started an FLL / FLL Jr. program at St. Charles Borromeo School 8 years ago, with 22 FLL and 19 FLL Jr. teams during that time period. This very first FLL team in our school system inspired new programs and classes at 8 more schools since then, all due to the efforts of current team members. We started 3 FLL Jr. teams for children of adults taking ESL evening classes at our high school.

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

In the past four years, we have volunteered at over 30 FLL and FTC competitions or training sessions. We ran 4 FLL Qualifiers, hosting over 100 FLL/Jr. FLL teams. We ran FLL and FTC kickoff events the last three years for over 130 teams (1,250+ people). We presented workshops for over 95 FTC teams at five separate events the last four seasons. Our Youtube series to help FTC teams learn how to program has over 22,000 views. We provided assistance to 25 FRC teams at competition last year as well.

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 are building a pipeline of talent through mentoring to sustain Team Rocket and help build up other FIRST teams for years to come. In the past four years, we have mentored 19 FTC teams, 20 FLL teams, 11 Jr. FLL teams, and 1 FRC team. We make frequent visits or host them at our workspace. This year one of these FTC teams and four mentored FLL teams qualified for the Oklahoma State Championship. We mentored Team St. Kitts and Nevis for the inaugural FIRST Global competition in 2017.

Describe your Corporate/University Sponsors

Our founding sponsors were Boeing and ITT Technical Institute. In 2014, we had just one sponsor. After three years of student led grant-writing and personal networking efforts, our primary sponsors are Mount St. Mary High School, The Westerman Foundation, Boeing, PTC, Leavitt Signs, Progressive Stamping, Brown's Bakery, EGR, and the Catholic Foundation of Oklahoma,. Our budget has increased from \$6,000 in 2014 to about \$40,000 in 2019.

Describe the strength of your partnership with your sponsors with special emphasis on the 2018/2019 year and the preceding two to five years

Over the last 5 years we have strengthened our relationships with older sponsors, while reaching out to new ones. We showed our program to thousands of people at the Boeing 100th Anniversary Celebration and recruited 4 new engineering mentors. Students routinely reach out to local businesses to forge long lasting relationships. These efforts, combined with others such as running events at Dell's facility and partnering with our local SWE chapter have helped these partnerships continue to grow.

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

"Imagine a competition that allows you to not only show your expertise in robotics and technology, but that also allows a fun and friendly environment that teaches lessons that will help you throughout your life. That is what FIRST is, and what FIRST represents." - Zack "FIRST is the opportunity to explore the future in a style of friendly competition. It is a community that is about working hard to to learn, and also inspire others, especially the next generation, to STEM careers." - Bria

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

Team Rocket strongly believes that the strength of FIRST comes from the Gracious Professionalism of its members. We love to work with teams in our community and around the world. We are collaborating with FRC 1902 Exploding Bacon on their #FIRSTLikeAGirl initiative. FTC 4924 Tuxedo Pandas from Virginia helped us get involved in the FIRST Global STEM Corps. Our members actively seek opportunities to help grow teams not only in our state, but worldwide.

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

Bria Smith

Essay

FIRST Robotics is not just an after school activity. It's a culture, community, movement and family. Team Rocket's mission is to teach others about this great program that helps students become leaders in the fields of science, technology, engineering & math. Our numerous large outreach events, workshops, competitions for younger FIRSTers, summer camps, after school activities and mentoring make a big impact in our school and community to share the importance of STEM education in the world of ever-changing technology.

Comeback story

FRC 2723 was founded in 2008 as "Atomic Shock." There was much enthusiasm, grants from Boeing and ITT Tech Institute, and 20 students attending the 2009 Oklahoma City Regional. With little success in awards or in the robot game over several seasons along with a lack of mentorship and organization, interest in the team waned. The loss of experienced team members, mentors, and sponsors coupled with no plan for continuity and sustainability left 2723 with only one member attending the 2014 Regional. We barely had a robot - FRC 1296 fixed and programmed it for us at the competition and loaned us a drive team member. Morale was at an all-time low. A 2014-15 entering freshman was told by a senior: "Don't let anyone know that you are in robotics unless you want to be made fun of." Our budget barely covered the entry fee, and very few records were kept from these early years of the team.

For the 2015 season, that lone, determined member helped recruit new students and mentors who arrived with several years of FLL experience. We went from one core member to five, built our first offensive robot, had a Dean's List Finalist and started planning how to grow and sustain the team so 2014 wouldn't happen again. In late 2015, Atomic Shock was reborn as Team Rocket, creating a new name and a fresh start. This is where our story begins.

Stats on team growth / budget

Since then, we've evolved quickly with our outreach, team growth, mentors and sponsors. We've grown from those 5 members in 2015 to 23 contributing student members (2019). Those members have over 5200 hours of service representing FIRST through running events, helping other teams, and sharing FIRST in our community on over 250 days in less than four years. These connections helped grow our budget from sponsorships from \$6,000 in 2014 to about \$40,000 in 2019, and made a huge impact on our school, student members and community.

Women in leadership roles, alumni

Team Rocket celebrates our diversity and encourages female and other underrepresented groups to take leadership roles by ensuring all have an equal chance to learn and express their ideas. The team captain role has been held by a female the last five years, and women hold other key roles. We sponsor and mentor both all-girls FTC and FLL teams each year to encourage girls to join FRC in the future. Courtney Barry, a Computer Engineering major at Oklahoma State University and 2015 Dean's List Finalist says "Team Rocket has helped me become a better leader through being captain and having to guide everyone, a better public speaker through outreach activities, and a gracious professional through interactions with other FIRST teams." Several of our recent alumni are highly motivated women studying STEM fields at major universities.

Community Service

Team Rocket believes that STEM education and community service go hand and hand to build character and leadership. In 2016, we collaborated with FTC team 8498 "Evil Purple Sox" from Virginia on their project with other FIRST teams around the world to collect and donate over 3000 pairs of socks for the homeless in various communities. Locally, we collected over 250 pairs for Sister BJ's Pantry for the homeless of Oklahoma City. We created a garden for a nursing home as part of a teammate's Eagle Scout project, built a pitching robot for the Fraternal Order of Police's charity softball game, and assisted at the Regional Food Bank and Habitat for Humanity several times, impacting thousands of people. We also took part in Devon's STEM day at the Bricktown Ballpark, where we shared STEM with hundreds of children.

Service across borders

Our outreach crosses state and international borders. Two years ago, we joined the FIRST Global STEM Corps, mentoring the national team from St. Kitts and Nevis in FIRST's new olympic-style robotics competition. Two years ago we worked with the Argosy Foundation to design and build a robot for a FIRST VISTA working to bring FIRST robotics to students in underserved areas of Milwaukee, Wisconsin. We serve the e-NABLE Community Foundation, who provides 3D printed prosthetic hands to people in war-torn countries. A sample hand we printed has traveled the world to spread the organization's purpose. As a result, in 2016 we were awarded an \$8,000 grant from Team Tinker to purchase 3D printers for the purpose of education and to produce prosthetic hands for e-NABLE.

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High impact demonstrations

Team Rocket is developing relationships in our city and state to get the word out to everyone about FIRST Robotics. For the second year in a row, we were invited to run a massive, 30-robot exhibit at Science Museum Oklahoma's Tinkerfest, with a combined total of over 2500 people getting hands-on with our robots (17000 in attendance). We've assisted at the STEM Safari exhibit at the State Fair of Oklahoma (5 years in a row), held hands-on demonstrations and workshops at the Barnes and Noble Mini Maker Faire, Boeing 100th year anniversary celebration, the Career Tech Summer Conference, the Metro Family's Kid's Fest, the Boy Scout STEM Jamboree, the Oklahoma City Astronomy Club, the Shawnee Mall, a tech-oriented Vacation Bible School at a large church, OK Women in STEM Conference and the Oklahoma City Zoo. We estimate that over 50,000 people have been exposed to our team and FIRST through these direct interactions.

Local news

Because of our work in the community, we've been given several opportunities to share FIRST in the local media including multiple stories in the Oklahoman (a major newspaper) and on a sweeps week story about robotics on KWTV, Oklahoma City's highest rated TV news station. The audience for these stories exceeded over 1,000,000 people.

Mentors

We have grown our mentor pool the last two years from having no outside mentors to having engineers, programmers and business people from Boeing, Dell, the Federal Aviation Administration, OG&E, the US Navy, Progressive Stamping, Tyler Media the University of Oklahoma, ClimateCraft, Wichita State University, and Oklahoma State University. These mentors provide guidance and enthusiasm for us and are invaluable for giving us guidance on college, career and life choices. One Boeing mentor pulled out his sketchbook and showed us an airplane he had designed, which was really cool! One recent alumni was telling us about her college computer classes and was it very inspiring to hear about what she was learning firsthand. Learning basic engineering principles from professionals and hearing about their real-world experiences are very exciting.

School impacts

Throughout the past three years we have become an important part of our school. We interact with other students to let them know that robotics is not just for "geeks and nerds" but that it's like running a technology company with help from real-world mentors. Last year, for the first time, we received a school budget to help pay for our team's expenses. We volunteer to work concession stands, sell 3D printed roses for Mother's Day, run a Game Night and use the money raised to support causes like helping to pay the medical bills of an injured student. Last year, the robotics team was featured in a city-wide ad campaign for our school. We have lobbied to add new STEM classes, which were added last year: Computer Aided Design and AP Computer Science. Last year, we received a \$15,000 grant from the Westerman Foundation to purchase a laser cutter which we will share for the school's benefit.

Recruitment

To recruit new members, we are building a pipeline of young kids in FIRST. We have several K-8 feeder schools to our high school, and we reach out to their students through summer camps, demonstrations, FLL sign-up sessions and mentoring. In 2014, only one school had any robotics team or program, but through our leadership we are now up to 7 and it continues to grow as more teams attend our competitions and camps. We demonstrate at the high school Open House and Freshmen Orientation. Last spring, we ran a Sumo Bot competition at St. Charles school, volunteered at their Science Night and signed up 35 FLL/FLL Jr. team members.

Summer camps

We have run STEM summer camps for K-8 students the last several years that serve as a fundraising opportunity for our team and introduce kids to the basics of FIRST robotics. There are 50-100 kids in attendance each summer. As a result, the Westerman Foundation awarded us a \$10,000 grant to purchase new educational robotics kits to help us reach even more kids. Two of our team members were recognized for their experience with teaching younger students, being awarded with jobs working for a private STEM education company. Through this work they have run robotics camps and after school programs for kids all across the state, spreading the message of FIRST to an even greater audience.

Conclusion

Team Rocket has launched into orbit! We've developed sustainability for the long term by creating a strong base of FLL/FLL Jr. teams and getting kids excited about STEM careers. We're building a strong foundation for ourselves and developing strategies to help other teams avoid our mistakes and sustain themselves. We're increasing awareness of FIRST in our community through our high visibility, and are the go-to team in Central Oklahoma when teams need help.