

Chairman's Award - Team 2341

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2021 - Team 2341

Team Number

2341

Team Nickname

Sprockets

Team Location

Shawnee, Oklahoma - USA

Describe the impact of the *FIRST* program on team participants within the last 3 years. This can include but is not limited to percentages of those graduating high school, attending college, in STEM careers, and in *FIRST* programs as mentors/sponsors.

Alumni have earned \$83,000 in FIRST scholarships and pursued engineering because of FIRST training. 91% of our members attend college, 66% graduating with STEM degrees. FIRST connects team members to STEM professionals and businesses, helping with jobs and internships. 2341 approached the Career Tech Board of Education to create a path for FIRST members to receive 1 elective high school credit per year. Now all Oklahoma team members can include FIRST in achieving graduation from high school.

Describe your community along with how your team addresses its unique opportunities and circumstances.

Our community has a population of around 31,000, with a poverty rate of about 21%. The per capita income is \$23,000, which is 12% below the poverty level for the state of Oklahoma. We created and wrote a grant for STEM on Wheels, which takes robotics and STEM lessons on the road to communities with the highest poverty in our county. Our team yearly writes grants to fund FLL teams in our area so that we can lead those students to STEM careers and help to eradicate poverty in our area.

Describe the team's methods, with emphasis on the past 3 years, for spreading the FIRST message in ways that are effective, scalable, sustainable, and creative. How does your team measure results?

After meeting a team from Africa at Championship, a team member/mentor traveled to Africa to mentor two schools, taking LEGO robot kits and parts. We also shared FIRST at the Tinker Air Show, which we organized, reaching about 285,000 people. We routinely start and mentor LEGO and LEGO Jr. robot teams, helping them with registration, robot kits, and guiding them through their seasons. We keep a spreadsheet with specific data about attendance, man hours, and how many people we have impacted.

Please provide specific examples of how your team members act as role models within the FIRST community with emphasis on the past 3 years.

We share our practice field with about 10 teams per year, manufacture robot parts for teams (14 so far), and strengthen FIRST by running events such as Robot Rampage, Brainstorm Night and Robot Showcase (last big practice), setting the tone for Coopertition. We helped Team 8074 finish building and programming their robot this season. We also taught Team 3152 to program CAN bus for robot communication. We mentor FTC, FLL and FLL Jr. teams, attending practices and competitions with them.

Describe your team's initiatives to Assist, Mentor, and/or Start other *FIRST* teams with emphasis on activities within the past 3 years.

Team 2341 shares FIRST at STEM camps, STEM and Aerospace Day, and the OKACTE educator's conference. We seek potential coaches at surrounding schools. The past 3 years, we started and led Teams 6891, 6900, 7473, 8086 and 8074 through their rookie years. This year, we have trained the KTC Monsters through Zoom and Imperial Watch at our shop. We help teams build, program and create presentations, giving support throughout the year. This makes 156 teams that we have started, mentored or assisted.

Beyond starting teams, what initiatives have you done to help inspire young people to be science and technology leaders and innovators? What results have you seen from your efforts in the past 3 years?

Before COVID, our STEM on Wheels program reached about 100 kids in poverty. We hope to return to that initiative soon. Our new outreach event, STEM Aerospace Summer Camp, will serve 25 students in its first year. We provide STEM lessons and information at Wise Guys/Girl Power, STEM Day, Tinker air shows, our Safety FIRST curriculum, rocketry classes, Mother/Daughter STEM night, our Le'go Your LEGO Drive and Engineer for a Day programs, reaching an average of 150,000 people per year.

Describe the partnerships you've created with other organizations (teams, sponsors, educational institutions, philanthropic entities, etc.) and what you have accomplished together with emphasis on the past 3 years

OSU gives us \$700 per year to build a practice field, where we host 10+ teams per season. In return, we manufacture parts for their Baja racing team. New this year, we will host the Outlaw Invitational for all Oklahoma teams, supporting Oklahoma teams working together. Many of our sponsors attend our practices or competitions. A huge connection with our sponsors is their support for our Le'go Your LEGO Drive. The Sprockets believe that the more exposure we provide, the more FIRST will grow.

Describe your team's efforts in the past 3 years to promote equity, diversity, and inclusion within your team, *FIRST*, and your communities.

Our team encourages females to take on leadership roles within the team. For instance, we have a female driver, lead scout, Chairman's Award presentation leader, and Team Captain. In fact, this year, our team wrote the FIRST Equity and Diversity grant in hopes of starting 9 new FLL teams consisting of low income students, rural students, female students, and students in minority groups. We want to open the opportunities for STEM careers and robotics to students in all minority groups.

Explain how you ensure your team and the initiatives you have created will continue to run effectively for the foreseeable future

Senior team members take on mentor roles with our younger members. They provide skills classes and shadowing so that younger members can carry on the legacy. Members look for grants to fund outreach, and all members are involved in those opportunities, embracing what it means to be a Sprocket. We keep a spreadsheet for our data so we remember the things that have worked for us. Our school commits \$30,000 per year to our team, and we work to make sure our relationship with our sponsors continues.

Describe your team's innovative strategies to recruit, retain, and engage your sponsors within the past 3 years

To recruit sponsors, we get involved in their activities, such as Boeing Friends and Family Day and Tinker AFB air shows. To retain them, we continue to stay involved with them, visiting their businesses and making sure they know we appreciate them. We engage our sponsors by inviting them to eat with us on Mondays at our team meal and inviting them to our practices and events. Our sponsors also send mentors to work with us and offer our team members internships (20 so far) after graduation.

Highlight one area in which your team needs to improve and describe the steps actively being taken to make those improvements.

Our team would like to connect more deeply to our local and global community. In addition to a team member/mentor visiting Africa, steps taken include asking international teams to join our STEM International, sharing our STEM on Wheels Curriculum around the globe. Members have also traveled to Japan and Italy, sharing FIRST. Our local community efforts include our Le'GO Your LEGO Drive, Community Clean-up projects, Cancer Bowl-A-Thons, the Family Promise Walk, and blood drives.

Describe your team's goals to fulfill the mission of *FIRST* and the progress you have made towards those goals.

Our team encourages its members to become science and technology leaders by giving them the reigns in brainstorming, design and programming. Students run the machine shop equipment and make decisions about game strategy. Two team members met with the Director of Career Tech to accomplish getting high school credit for after school robotics programs in Oklahoma. They succeeded. Members have received Dean's List awards and honors/scholarships from organizations for their STEM leadership.

Briefly describe other matters of interest to the *FIRST* Judges, including items that may not fit into the above topics. The judges are interested in learning about aspects of your team that may be unique or particularly noteworthy.

During COVID, our community scrambled to find PPE for our first responders. Even though we couldn't meet as a team, students took home 3D printers loaned to us by the Army National Guard and our school. We made over 300 face shields and over 100 ear protectors for 2 clinics, 3 hospitals and 2 schools. Nurses and doctors thanked us and gave donations to our team for helping the community. This helped us feel engaged in a solution to this crisis and a strong connection to the people in our area.

Essay

This year will always be remembered for the effects that COVID has had on our community. It will be remembered for a snowstorm that caused the loss of clean water, heat and electricity, leaving many of us in life threatening situations. But we will remember this year for something else that is far more impacting than all of these challenges. We will remember the progress we have made and who we were as we dealt with these challenges. Marie Curie stated, "I was taught the way of progress is neither swift nor easy." Our team has embraced our hardships and worked together to overcome so many obstacles, and from this, we have learned to love each other and persevere.

Our team of 16 (11 boys/5 girls) has strengthened our program by building relationships. Meeting on Zoom much of the year has made us realize that every moment with each other is precious. When we started "in person" meetings this year, we had dinner and game nights so that we worked well together when the season began. Gaining this appreciation for each other has helped our rookies feel like part of our Sprocket family and confidently move into their roles on the team. We are not a team because we work together but because we respect and care for each other, in spite of our obstacles. We are more than just a group of students that build a robot. We're family.

Our mentors, 3 whom are Woody Flowers Finalists, are vital in helping us achieve our goals in and out of FIRST. They have guided 25% of us through the progression of programs, beginning with FLL. Our mentors attend our awards ceremonies, sporting events, and graduations. They help us discover our lifelong passions, leading us to career choices that will enrich our lives. Not only do they invest in our futures, but they also set an example of perseverance for us. They help us write scholarship applications and assist us in finding jobs and internships as well. Being on the Sprockets helps provide a well-detailed road map to our futures.

Since becoming a team, we have participated in 55 separate events that unite us with our community. This is the 10th year for our Le'Go Your LEGO Drive, in which we collect new LEGO kits to give to children's hospitals, for therapy, in cities where we compete. This year we plan to collect over 1200 kits for donation in Oklahoma City, Tulsa, and Louisiana, bringing our total donated kits to 3450 at 13 different hospitals in 7 states. We also yearly participate in and run Mother/Daughter STEM Night, SOAR3 STEM Camp, and our new STEM Aerospace Summer Camp, a week-long aerospace camp for middle school kids. Also new for 2021, is our STEM Equity Outreach. A team member, being Latina, who has a passion for seeing more minority students on FIRST teams, is developing a program to bring FIRST to southern Oklahoma City, where the low socioeconomic Mexican youth get few opportunities to join FIRST. Our team has rallied around her and will support her in getting the job done.

STEM is more than a set of skills; it's a lifestyle. We are excited to say that after having to put our 29 different STEM events on hold, we are now beginning to slowly re-implement them. One of our summer programs that impacts over 900 children every year, SOAR3, allows kids to attend a low-cost camp where they can learn about STEM careers through hands-on activities. Team members are also members of the Gordon Cooper Regional STEM Alliance, connecting STEM to business leaders, higher education, and politicians. We attend quarterly meetings to make decisions about improving STEM in our community.

Last summer, team members wrote a \$15,000 grant to the AVEDIS Foundation to fund STEM on Wheels, a health and nutrition program of STEM lessons for kids ages 7-11. The lessons are 100% team written and are taught, free of charge, at 26 schools. By eliminating the need for money and transportation, more students are able to take part in our camp. Because this camp is on hold temporarily, team members have worked with our grant provider to change over to STEM at Home, creating STEM kits that allow kids to have hands-on learning during quarantine. Our total impact in STEM each year is over 380,000 people.

A special International effort this past year began at the FLL World Festival in 2019. One of our FLL teams loaned parts to a struggling team from Kenya. We offered to continue giving help to them after World Festival was over. A team member and mentor traveled to Kenya last summer and visited them at Alliance Girls High School. We sent boxes of Legos and gave them FLL training. Then the team member and mentor traveled to another school, Alungo Secondary School, and delivered a robot kit in hopes of starting a new team. They gave an orientation to FLL and offered our continued support. Team members have also traveled to Japan, Rwanda, and Italy to do outreach, and we have met with a family who is moving to Nepal, sending them with LEGOs and intentions of starting an FLL team.

Our team has started 6 FRC teams, 3 FTC teams, 52 FLL teams, and 34 FLL Jr. teams. Last year a team member started an FLL Jr. team through a local Cub Scout group. Team members attended every practice, guiding the rookie coaches along the way. This year, we are starting an FLL team from New Lima. We will provide training to them this season, and they will compete in the 2021 FLL season. By doing things like this, we learn leadership skills and make ties within our community.

The Sprockets also attend/hold events where we share FIRST with an average of over 163,000 people each year. Lieutenant General Donald Kirkland's publicist asked us to help organize the STEM City hangar at the Star-Spangled Salute Air Show at Tinker Air Force Base 2 years ago. We invited other FRC, FTC and FLL teams to come share FIRST with us. We brought a full field and had robots playing the Deep Space game so the community could see what we do in FIRST. A total of 285,000 people attended that event last summer. Before COVID, we were to also organize the 2021 STEM City to share FIRST with the state of Oklahoma. However, it was put on hold until further notice. We will be excited when we can get back on track for the next air show.

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Our team strives, even in crisis, to continue to spread our love for FIRST. Our total FIRST teams started, mentored, and assisted is 156. We have trained 25 FLL Jr. coaches, helping them find funding for their teams. 2 team members actively coach/mentor 4 local FLL teams, helping with building, programming, presentations, and competitions. We co-hosted the FLL State Championship 2 of the last 3 years. Members raised \$10,000 to run each event and helped plan the competition, judge, emcee, and reset the fields. We annually host an FLL Regional Qualifier and FTC Qualifying Event. The past three years, we have led 6 FRC teams through rookie seasons and have even helped some qualify for the World Championship, including the Asher Indians. Each year, we share our full practice field, machine shop and water jet with 10+ local teams. This season we have helped the rookie team, Imperial Watch, to finish their robot and troubleshoot their programming. We also have Zoomed with Team 3152 to give assistance with their robot this year.

Our team continues to grow relationships with the government to increase awareness for robotics. We have attended the Governor's STEM Summit, Aerospace Day, and STEM Day at the Capitol. We talk with legislators each year about funding for STEM and robotics. This past year, our team accomplished getting elective credit for every Oklahoma FRC participant. Team members gained support from State Senators, the State Superintendent, and the Lieutenant Governor. In addition, our team visited the Oklahoma Career Tech Board of Education. Because of this, robotics team members get up to 3 credit hours towards graduation.

Our team has influenced over 1,183 people in our community through our safety programs. Because we cannot visit elementary schools this year, we focused our safety programs on our own team, hanging posters to remind students to practice safety protocol (wear safety glasses, wear masks). We also required team members to take a performance safety test. We have included safety reminders in our STEM at Home kits as well. We will soon be back to the 26 schools in our area teaching them our student created safety lessons, such as last year's Environmental Safety program. In addition, our mentors are 100% ALICE certified and 100% of our returning team members are certified in FirstAid and CPR (the rest will be certified as soon as they are allowed to participate in that training). We have won 5 Industrial Safety awards and 5 Safety Hard Hats for our safety initiatives.

91% of our team graduates go on to college and 66% pursue STEM careers. An alumnus in his junior year is pursuing a paid internship with Lockheed Martin after receiving a FIRST scholarship. Our alumni have gotten jobs at Boeing, EnviroSystems, and Tinker. Team members have received a total of \$83,000 in FIRST scholarships. We maintain strong relationships with our alumni who attend our practices and competitions. One recent alumni helped a team member receive a \$19,000 scholarship by teaching interview skills. Our alumni continue to uphold the Sprockets mindset by supporting the team's mission of spreading FIRST and STEM.

As Albert Camus, Nobel Prize Winner, stated, "In the depth of winter, I finally learned that within me there lay an invincible summer." Through the encouragement of our coaches, mentors and teammates, we are learning to overcome what, at times, feels like the impossible. We are discovering that we are stronger than we think and, with our team rallied around us, we will become our best selves. FIRST is and always will be our foundation for seeking STEM careers. We embrace the opportunities we have been given by being a member of the Sprockets, Team 2341, and those opportunities have created in us a lifelong love of engineering.