

Chairman's Award - Team 2846

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2021 - Team 2846

Team Number

2846

Team Nickname

FireBears

Team Location

Saint Paul, Minnesota - 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.

FIRST inspires our team members which is reflected by their outstanding college performance, involvement in the FIRST community, and engagement in additional STEM programs. Many of our alumni pursue STEM careers, such as a doctorate in physics and a master's in EE. Two of our alumni have even come back to mentor the team. Alumni and mentors volunteer at our off-season competition and multiple regional events.

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

We impact Roseville through outreach events such as the RoseFest Parade and promoting FIRST in our schools. FireBears carry the Roseville community name beyond our borders to all of MN by hosting the Minnesota Robotics Invitational and participating in TV interviews by WCCO at the MN State Fair. We host an open house to display our robot and outreach efforts to parents and the community. We have a relationship with our school who allows our efforts to spread throughout the whole community.

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?

We spread the FIRST message through outreach and sponsor demos. We completed 54 outreach events in the 2020 season. A school-wide event that draws parents and students is "Ready for RAHS" an event that excites 8th grade students to become a FireBear. We were honored when WCCO TV aired a short segment featuring our 2020 annual off-season competition which increased our community reach. To the FireBears interacting with community members and interesting them in FIRST is a successful event to us.

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

In 2020 we became gold tier partners with the LGBTQ+ of FIRST to support diversity in STEM and provide resources for other teams. This partnership included 5 offseason seminars and provided literature at our competition. The FireBears assist our FTC team and mentor our FLL teams with hands-on mechanical, programming and project assistance. We paired with the FTC team for an outreach event and supported the team at their first competition where they were on the winning alliance.

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

Over the past 3 years we have offered mentoring and support to the FLL teams, we have also paired with the FTC team for an outreach event at an elementary school. We have a Gold Tier partnership with the LGBTQ+ of FIRST and through that we have done presentations to other teams about raising awareness for LGBTQ+ students in FIRST and going over LGBTQ+ Visibility in STEM.

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?

The FireBears strive to inspire and get youth excited for STEM and robotics. Through small classroom demos where we show off our robot to the Rosefest parade where we drive our robot and pass out information to young students to get them excited about STEM in their community. We demo our robot at local elementary schools and we enjoy seeing the excitement that it brings.

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

As our team continues to grow, we look forward to inspiring others and have the ability to support the development of a new FRC team. In addition, we started the Roseville Hub in 2013 to build the competitive success of our area teams and have continued into the 2020 season. The Roseville Hub has directly led to the Centurion-KnightKrawler Week Zero event and several technical presentations including a Motion Magic seminar hosted by the FireBears and presented by the Granite City Gearheads.

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

The FireBears are a gold tier level team with LGBTQ+ of FIRST. We have given 5 presentations at off-season competitions about inclusivity in FIRST and STEM. Our team works to support everyone who wants to join our team, we let anyone who wants to join the team join.

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

The subteam captain work to pass down information to new members every year to ensure when captains graduate new captains can take their place. The team uses GitHub to store documents long term and shared documents within the team on Google Drive. We have created templates on how to do different things and keep examples of everything we do. We have had two students that have come back to mentor on the team, helping to teach the new students.

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

We're grateful that we have long-standing sponsors that have supported the team for many years, including our longest partnerships with Boston Scientific, SolidWorks, and Roseville High School. We deliver and review our CAD drawings in-person to Atlas to ensure fabrication success who generously support us with in-kind sheet metal donations. The Roseville Area Community Foundation has been an enthusiastic sponsor for many years provide money or in-kind donations to explore various technologies.

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

Our team has been working to increase and improve our communication. When our team created our core values we made communication one of them knowing that it was something that was important to us. After deciding on our core values everyone on the team signed saying they would follow them in hopes of maintaining them. Our team uses Slack as our main form of communication and our captains work to keep each other up to date as well as the mentors.

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

Team 2846 strives to inspire students through presentations to elementary and middle schools and engage with the community through parades and demonstrations to foster excitement in robotics. We have mentored the FLL teams and given them assistance on mechanical, programming, and project assistance.

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.

We continue to reinforce education in STEM by increasing our outreach & finding new ways to make an impact in our community & FIRST. We surpassed our outreach goal of 40 & completed 53 events, totaling over 1000 hours & impacting more than 7,000 people in the 2019-2020 season. We are the first team in MN to be part of LGBTQ+ of FIRST, raising awareness and acceptance in FIRST. This season we completed a workshop to define our team's core values and strengthen the bonds within our team.

Essay

Introduction

FireBears team 2846 aim to reinforce education in STEM to create a better future for everyone. We show the importance of science and engineering through building robots and performing STEM outreach throughout our community. In the 2019-2020 season we completed 54 outreach events, totaling over 1,000 hours and impacting over 7,000 people. To ensure our team's success we created our core values with the help of the FRC team 1816. By creating our values we are improving ourselves, strengthening our team culture, and creating an environment where everyone feels safe and respected. We reinforce education in STEM through supporting other teams and FIRST and performing outreach in our community and school.

Supporting Other Teams and FIRST

Supporting, assisting, and helping to strengthen other FIRST teams is an aspect of FireBears culture. In the 2019-2020 season, we mentored two FLL teams and assisted one FTC team. The team has increased diversity by partnering with LGBTQ+ of FIRST. In June 2019, two members of our team attended the FIRST National Advocacy Conference (NAC) to advocate for STEM education and the Christa McAuliffe Commemorative Coin Act of 2019. We support other FRC teams by presenting seminars, sharing demonstration videos on YouTube, and hosting the Minnesota Robotics Invitational (MRI).

In 2019-2020 we mentored two FLL teams by attending after school meetings and supporting at an FLL competition. We mentored FLL students on programming robots, guiding them with projects, totaling 30 hours, and spending 8 hours at an FLL competition. We assisted a local FTC team by giving advice, teaching CAD, helping with their initial strategies, and attending their first competition of the season. We also coordinated an outreach event with them at a local elementary school, emphasizing the importance of outreach.

The team has increased diversity by becoming a gold tier partner team with LGBTQ+ of FIRST. This means our team will present a seminar at a regional competition, promote the partnership online and in our pits at competitions. We are the first and only team in Minnesota to be part of this organization. We are proud to be the team starting to talk about LGBTQ+ in Minnesota. For this partnership, we have presented 5 seminars at off-season competitions. All of the resources that we have, such as slideshows, button templates, and brochures are available on our website for other teams to view and use.

Two of our team members attended NAC in 2019 to learn how to advocate for STEM education and funding. The students met with Tina Smith, a Minnesota Senator, a representative from Senator Amy Klobuchar's team, and Minnesota State Representative Betty McCollum. Not only did the students learn how to advocate, but they also worked with two other Minnesota FRC teams to pass the Christa McAuliffe Commemorative Coin Act of 2019. The students also advocated for the ESSA Title IV Part A act which gives funding to after-school STEM programs like FIRST.

In May 2019 we partnered with team 3244 and hosted a seminar on Motion Magic with 12 teams in attendance totaling 36 attendees. For the first time in October 2019, we gave a presentation on pneumatics at JUMPSTART, a training event hosted by team 4607. The team leverages social media and YouTube to spread awareness of our team to the FIRST community. We've created videos demonstrating how to safely assemble robot batteries, explaining how to create infinite power out of used drills, and sharing our seminars including LGBTQ+ of FIRST and Motion Magic.

For the last nine years, we have hosted the MRI. 36 teams attend the event with an estimated 1,000 people in attendance. We use this opportunity to connect with other teams through "sideline" interviews, seminars, and awarding scholarships. We use a sports broadcaster-like approach in our team interviews during the MRI and the footage is used to promote the event. The competition supports 8 seminars given by attending teams throughout the day. In the last three years, we have given out \$7500 in scholarships to senior FIRST students. In addition, FIRST uses the MRI to train volunteers for upcoming regional competitions. In 2019, 45 volunteers were trained during the competition. For the first time at the 2019 MRI our local news station, WCCO, filmed a short segment about the MRI which aired the following morning, furthering our outreach in the community.

Outreach In Our Community

The FireBears believe that community outreach is key to showing the importance of STEM. We completed 11 outreach events in the 2019-2020 season within our community, totaling 426 hours and impacting over 3600 people. We track all of our outreach hours, people impacted and the number of students participated in the event to continuously improve and measure our impact.

For the last 11 years, our team has been demonstrating at the Minnesota State Fair in the Education Building and marching in the daily parade. For the last 3 years the local news station, WCCO, requested that we perform a live TV demonstration while at the Fair reaching hundreds of TV viewers. For the first time, we attended the STEM day at the Fair in 2019. This was a great opportunity to spread awareness of STEM and FIRST in the community, and we had a great time bonding with other teams. Throughout the day, we spoke about FIRST Robotics and explained how our robots work to people passing through the event.

Each year the FireBears hold a fundraising event at our local Cub Foods in Roseville, MN. We assist customers in bagging their groceries, and we have our robot on display. To connect with our Roseville community our team walks in the annual Rosefest parade, passing out candy to the kids. Every year our team hosts an open house for our community to present our robot before our competition. We invite our parents, community, and sponsors to meet the team. In 2018 our main sponsor, Boston Scientific, invited us to their family STEM day. The team received a tour of the facility in Arden Hills prior to joining other robotics teams at the demonstration. We were one of several other teams attending the demonstration including FLL, FTC, and college teams. We interacted with the Boston Scientific families, demonstrated our robot, and answered questions. For the first time, we gave a presentation about our team and FIRST to 17 members of the Lions Club of Falcon Heights and Lauderdale. After the presentation, we had one on one conversations with the members to answer questions about the team and to make connections with the members. A member of our team set up a tour at the Doppler Gear Plant in Minneapolis and we learned about different types of gears and were shown how gears are made. In the summer of 2019 one of our sponsors, Power/mation, invited us to demonstrate at a golf tournament they were hosting. We demonstrated our robot and answered questions from attendees. We have presented to the Roseville Area Community Foundation for the last 8 years and shared the team's latest accomplishments.

Outreach in our School District

The FireBears make an impact within our school district by visiting elementary schools, connecting with the school board, and actively recruiting incoming ninth-graders. We completed 13 outreach events in our school in the 2019-2020 season totaling over 129 hours and impacted over 1200 people.

Our team visited two elementary schools in the 2019-2020 season. The students were excited to see the robot in action and asked many questions. At the beginning of the 2019 school year, team members visit classrooms to promote the team and invite students to our kickoff meeting. At kickoff, we talk to students and parents about FIRST and the opportunities on our team. For the first time in the Spring of 2019, our school hosted a parking lot party where we gave students an opportunity to drive our robots. It was a cool way for us to connect with other students in a fun environment. After qualifying for the MN State High School League Competition in 2018, the Roseville Area School Board invited us to demonstrate our robot and talk about the team at a school board meeting. The board members were impressed by our presentation and applauded our accomplishments. Our school hosts an activities event for current 8th graders in January to give them an opportunity to see the many activities our school offers. We use this opportunity to display our recruitment video and answer questions from visiting the students and families. We set up the 2019 virtual reality field to allow us to engage with people and gave them a chance to see what the field looks like for a game. Our biggest recruitment opportunity is the Freshman activity fair at the start of the school year where we interact with the freshman class. We demonstrated our capabilities by playing robot tag during the freshmen assembly. We're involved in schoolwide activities such as the homecoming pepfest and for the last few years, we've used our robot to deliver the homecoming crowns to the King and Queen.

Conclusion

FireBears are changing the culture throughout our school, community, and nation. We are creating a culture change by supporting FIRST teams, increasing community outreach, and engaging with our school. FireBears are reinforcing education in STEM, showing the importance of science and engineering through building robots and STEM outreach. We're reinforcing education and outreach in STEM and reaching thousands of people. We are improving our team by applying our newly founded core values. FireBears continually pursue our mission to learn STEM skills, impact the community, make a difference, one robot at a time!