

Chairman's Award - Team 226

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2021 - Team 226

Team Number

226

Team Nickname

Hammerheads

Team Location

Troy, Michigan - 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.

Our team, the largest student-run organization in Troy, has continually offered opportunities for individuals to develop their STEAM interests through training sessions and bootcamps. Our students are equipped with engineering, business and interpersonal expertise. Currently, our alumni work at companies such as Amazon, SpaceX, Microsoft, and NIH, and many have returned to mentor and volunteer at FIRST events, even coming back to participate in our live Career in STEM YouTube series.

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

During the pandemic, we organized a Troy city-wide drive to provide relief to victims of Midland flood. We also utilized our team resources to CAD and 3D-print 1160+ face shields in response to the FIRST 1 Million PPE Challenge. To allow our students greater participation in all subteams, we creatively scheduled our online meetings to allow students to attend multiple subteams, expanding students' skill sets with the new addition Data Analytics subteam.

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?

With 55+ outreach events in 2019-20 season, Team 226 has reached a state-wide audience through the Michigan State Fair, Maker Faire Detroit, and Ann Arbor Hands-On Museum where we showcase our robot and technologies like Microsoft's Hololens. With the success of our feeder program, we hosted a seminar at Worlds about creating and sustaining similar initiatives. We also hosted a Chairman's 101 seminar at the Bloomfield Girls Robotics Competition to share our knowledge to other FIRST teams.

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

Our members prioritize spreading FIRST and STEM within our community by hosting and volunteering at numerous events such as our own district qualifiers (Jr.FLL->FRC) and various other FiM competitions. Our team has had 3 Dean's List Finalists and 1 Winner who have actively used their skills from our team to create their own businesses and organizations. Additionally, our team provides and trains youth mentors to mentor FTC/FLL teams for which one of our members received the Youth Mentor Award.

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

To ensure the success and sustenance of younger FIRST teams, we hosted 15 FTC drop-in sessions, an FTC kick-off, FTC Town Halls, qualifiers for all levels of FIRST, and a week-long student-run FLL Summer Camp. Through our efforts, the amount of FIRST teams in Troy has increased from 17 to 57 prior to the pandemic. We've also assisted rookie Teams 8361 and 8362 by inviting them to our workshop and providing build assistance. With FRC Team 201, we also assisted with the awards process.

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?

Through our RoboCare initiative, our team attends local elementary and middle schools to prompt younger students to partake in STEM initiatives and learn to innovate. We also host the Troy Science Festival, an event with numerous STEAM-oriented and sponsor booths, to engage young students and spark their interests in design and creation. To foster effective communication and interpersonal skills, our seniors host mentorship and leadership training seminars for both our students and community.

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 principal partner, the Troy School District heavily supports our endeavours, from aiding our recruitment and funding processes to giving us opportunities to showcase our robot at homecoming parades, in classrooms during the National Computer Science Week, and at school events like Trunk or Treat. Along with partnering with FIRST teams like with Team 254's CADathon, we've also collaborated with organizations like The Detroit Red Wings and NASA to host local events about FIRST and STEAM.

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

With over 100 students from various cultural and socioeconomic backgrounds, the Hammerheads constantly work to create an inclusive environment, not only within our team but within the FIRST community as a whole. With 8 subgroups, diverse member representation, and open door policy, we ensure that anyone interested gets the opportunity to join FIRST and learn STEAM skills, and for these efforts, we were awarded the FIRST Diversity and Equity Access Grant earlier this season.

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

Through our Troy Youth Robotics feeder program, Open Houses, and team initiatives such as Sharktails, where our senior members ensure the perpetuation of knowledge to new grades of our team, we are able to ensure a steady influx of knowledgeable members. In order to sustain our team, all of the procedures behind our events and build season are documented in the Design Folder and the 226 Impact Magazine, which we share to other FRC and FIRST teams to learn from as well.

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

Our sponsors are a key component of our success. Our dedicated Sponsorship subgroup contacts both local and multinational businesses, sending them student-produced sponsorship packages. To maintain our relationship with them, we interact through recap videos, newsletters, year-end celebrations and holiday parties. Additionally, we host annual Sponsor Showcase and Robot Reveal events with a facility tour so they can see what we achieved from their support.

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

Female membership on our team has increased to just over 30%, but we are constantly working to get more girls involved. In the last 5 years, we've attended a greater number of girls competitions, hosted more events aimed at inspiring young women. Our female student leaders have increased with 11 of the 30 positions including the President being held by girls. Our FIRST Equity and Diversity Grant award will further these efforts to focus outreach to girls.

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

With inspiring mentors and student leaders as well as a structure that allows members to bolster their skillset, our members become well-rounded individuals and actively work to better themselves and their community. We take pride in cultivating a generation of new business leaders, engineers, and innovators as they take their experiences from our teams to organize companies, work at large-scale businesses, and create their own initiatives to drive our community to a better tomorrow.

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 are constantly working to promote and sustain STEAM and FIRST through new events and initiatives. Recently, we held a STEM Fest event, in partnership with the Detroit Red Wings, to expose STEAM to students from lower

socioeconomic backgrounds. In addition, we collaborated with other teams to create an audiobook version of the FRC Game Manual for students with disabilities. We truly believe in giving everyone the opportunity to be involved with FIRST and STEAM, no matter their circumstances.

Essay

MISSION

The Hammerheads are always resilient and flexible in the face of extraordinary circumstances, and with the recent pandemic, these qualities have been especially important. As a result of our inherent drive and ability to persevere, we've emphasized self-improvement and making the best of our resources. This season, we truly showcased our ability to adapt quickly in the way we learn, collaborate, and compete, while also advancing our team and its long history of success.

ADAPTABILITY

Our Team

Team 226 is the largest student-run organization in the Troy School District, composed of two high schools, accumulating to 100+ students within Troy. To sustain a team of this size virtually, we host weekly online training bootcamps and leadership seminars during the off-season to ensure the perpetuation of knowledge. Our primary goal is to allow students to explore all aspects of STEAM, regardless of skill, gender, or race; therefore, not only do we offer room for engineers and scientists to grow, but we also ensure that students with nontraditional STEM interests, such as the arts, are also represented. Through our efforts, we were awarded a \$4,100 FIRST Diversity and Equity grant to further grow the culture of serving minority groups.

Intra-Team Initiatives

Instead of holding subgroup meetings concurrently as we would in-person, our leaders staggered the meeting times so students could join multiple subgroups and actively participate in their projects. With 8 engineering and business subgroups, we also offer recordings of all training sessions and events to our members and parents. These elements allow students to develop new skill sets and focus on self-growth.

We hosted a team-wide CADathon, design contest, and business plan challenge for students to continue exploring various aspects of FIRST. Our leaders prepared these challenges with financial statements, game fields, and models, while providing feedback on each student's project, allowing for teamwide growth. We also hosted a local NASA's annual Space Apps event. With such efforts to better the team and its individuals, Team 226 has had 3 Dean's List Finalists and 1 winner in the past 5 years.

A new Data Analytics subteam was also created and is led by one of our alumni. More than 90% of our alum have attended university and many pursue STEM-careers, staying involved with 226 by mentoring and volunteering.

Community

The well-being of our community and environment is a top priority for our team. We annually host 4 Adopt-A-Road clean-ups and a beach clean-up at Lake St. Clair Metropark, uniting local FTC teams to help out. We've also partnered with Step on Poverty to rake lawns in disadvantaged neighborhoods and attended Moonbeams for Sweet Dreams at the Beaumont Hospital at which our team introduces children to our LED-panelled robot, bringing holiday cheer to children who are unable to leave the hospital room.

Our ability to adapt to our community's needs was displayed by our Midland Flood Drive. After a devastating flood, our team set up a city-wide drive within a week, collecting household goods and PPE for struggling families. Our team also moved swiftly to CAD and 3D-print face shields in response to the FIRST 1 Million PPE Challenge, assembling 1160+ face shields that we donated to need-based healthcare and frontline workers.

Media

Recently, we began our Careers in STEM Series, a live bimonthly talk show where 226 members interview alumni on their careers and FIRST experience, featuring individuals from SpaceX, Microsoft, Amazon, GM, and various other companies. This series has garnered hundreds of views on YouTube and has shown students how FIRST guides their careers. Representing multiple industries and STEM careers, we intend to share the show in future community STEM outreach efforts.

Last season, we collaborated with other FRC teams to create an audio version of the 2020 FRC Game Manual for individuals with disabilities, promoting inclusion and diversity.

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Various media outlets recognized our efforts at our annual Salvation Army event for which we built a bell-ringing robot to replace the role of a human bell-ringer, raising nearly three times as much money as previous years and garnering attention from FOX News, The Troy Times, and Detroit News. Students on our team have also been featured and interviewed at events including the Detroit Maker Faire and Bloomfield Girls Robotics Event.

Advocacy

To ensure continued promotion of STEAM, we've annually attended the Michigan Advocacy Conference to speak with our representatives and senators for 5 years. This season, our members also attended the National Advocacy Conference to learn about large-scale FIRST funding. Additionally, local legislators like State Representative Padma Kuppa and State Senator Mallory McMorrow have attended and spoken at our events. Through this relationship, we've advocated for increased STEAM funding in the state and introduced FIRST to many local lawmakers.

ADVANCEMENT

Troy Youth Robotics (TYR)

Initiated in 2017, our city-wide feeder program, TYR, was designed to promote the growth and sustenance of FIRST teams within Troy. Initiatives such as our week-long FLL summer camp and Robocare prepare younger students for the upcoming season by letting them explore STEAM related activities. We also host events and competitions for all 4 levels of FIRST. Our FLL qualifier, Sharkfest, with the addition of our student-run Jr. FLL Expo, FTC and FRC demos, and the Troy Science Festival ensures that students of all ages are exposed to FIRST's various programs and their real-world application.

In addition, our team hosts numerous events for FTC members such as our offseason competition, MAYhem, and our annual qualifier, Sharknado. To introduce community members to FIRST, we host annual town halls and an FTC kickoff. Ensuring the sustenance of TYR teams, we hosted 15 FTC drop-in sessions last year, providing teams with practice fields, and train our members in mentorship, with one of our students winning the Michigan Youth Mentor Award. Since TYR's initiation, the number of FIRST teams in Troy has increased from 17 to 57 just prior to the pandemic. Many of our teams advanced to the Michigan State Championships and some qualified for the FIRST World's Championships.

Girls In STEAM

Working towards a future where females are represented equally in the STEAM workforce, our team participates in several female initiatives annually. Our female leaders have spoken at various talks and seminars including The International Day of The Girl and the Girls in STEAM Ted Talk at our local library, teaching young girls about the importance of engineering. To further our commitment, we've partnered with community organizations like the STEAM Sisters to speak at local schools. The female members on our team have also been actively involved in representing our team at the Bloomfield and Grand Rapids Girls Competitions, at which our female seniors have won scholarships 2 years in a row.

STEM Outreach

Emphasizing public accessibility to STEAM programs and initiatives, our team outreach has grown from a mere 10 to 55+ events where we interact with a state-wide audience, introducing them to our robot and technologies like the Microsoft HoloLens at events such as the Ann Arbor Hands on Museum and the Michigan State Faire. We've also directly impacted thousands of individuals through the Fenton Arts are the Hearts and Troy Family Daze 4-day events. To make STEM-related opportunities available to those who have limited resources, we met with members of the Congo in Detroit and also took part in the first annual STEM Day with the Detroit Red Wings at Little Caesars Arena. This season, we hosted virtual versions of many events including the Troy Public Library Outreach event and our city-wide robotics town halls.

Sponsors

As they're a large component of our support system, we have worked to create a symbiotic relationship with our sponsors, including General Motors, Altair, Bosch, Continental Automotive, DENSO, and NASA. They've enabled us to meet with industry leaders to introduce them to FIRST and our team. To establish stronger connections, we update sponsors frequently through weekly letters, season recap videos, and Sponsor Showcase events. With student-produced sponsorship packages, we encourage new companies to get involved, giving them an understanding of how they can impact a generation of STEAM leaders.

Troy School District (TSD)

With the help of the TSD, our team has been able to successfully carry out our goals for 22 seasons. We take part in homecoming parades, Charity Carnivals, Club Fairs, and events like the National Computer Science Week, where we present our robot to computer science classes. The Hammerheads meet at, build, and utilize our school's workshops and CAD rooms and are featured in city-wide videos and newspapers. Most notably, working with the school board, Team 226 was able to add a robotics class to the TSD's curriculum.

FIRST International Engagement

The Hammerheads actively collaborate with international organizations like the Ashwini Charitable Trust with whom we provide STEAM education to at-risk children in India, where two of our members have also worked to start FLL teams.

Additionally, we provided guidance to teams globally by working with the Compass Alliance Call Center. Partnering with BuildOn, our team members travelled to Haiti to build schools in impoverished areas and donate funds.

This season, our members readily adapted and implemented major changes to best accommodate our situation and ensure optimum growth. The Hammerheads continue to learn and place an emphasis on self-improvement while working to advance our current initiatives and successes. Through this journey, we prioritized and created unique ways to spread STEAM together since individually we are a drop, but together we are an ocean!