

***FIRST* Impact Award - Team 201**

2024 - Team 201
Team Number
201
Team Nickname
The FEDS
Team Location
Rochester, MI - USA
Describe the impact of the <i>FIRST</i> 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 <i>FIRST</i> programs as mentors/sponsors.
The FEDS culture fosters exploration, personal development, resilience, meaningful memories and lifelong connections between participants, mentors, our community, and FIRST. Like a family, we aim to build connections, character, self-confidence, and communication skills. Since 2017, all FEDS graduated high school with approximately 81% pursuing STEM majors leading to careers in STEM fields. Many FEDS continue involvement in FIRST beyond high school, including 20 current alumni mentors.
Describe your community along with how your team addresses its unique opportunities and circumstances.
Our diverse community is home to many robotics companies, offering many partnership opportunities through facility tours, hosting reps in our shop, and advocating for STEM education. Recently, alongside our sister school teams, we met with our Mayor, enlisting his help to convince FANUC to pilot a FIRST sponsorship program. We host an annual STEM book drive, provide free STEM workshops, promote STEM at community events including block parties, fairs/festivals, and an annual Christmas parade.
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?
Through STEM outreach, recruitment, and training, we brought 1500+ new people into FIRST, currently overseeing 78 teams we started, accounting for 64% of all FIRST programs in RCS. We advocated for a FIRST-inspired robotics class that has been taken by 200+ high school students since 2020. Through mid-fall and end of season interviews and surveys, we measure program efficacy. Committed to continuous improvement, our team measures results through quantitative and qualitative feedback.
Please provide specific examples of how your team members act as role models within the FIRST community with emphasis on the past 3 years.
The FEDS were recently recognized by our principal with a Character Award for making STEM more accessible to girls. We have consistently won the Team Sustainability Award for our business plan which shows that through student-led fundraising, the FEDS supported STEAMEX FRC 6832 for the past 5

years. We model safety, often earning the Safety All Star Award. We model FIRST values in the community with outreach to local preschools and a Legos with Seniors program at the Older Person's Commission.

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

We host an annual FTC qualifier and 4 FLL tournaments, engaging 600+ students. Since 2020, we have started and sustained 78 teams: 5 FTC, 17 FLL Challenge, & 56 FLL Explore, enlisting 600+ students. We inspire younger students through 2500+ hours of mentoring over the past five years. We collaborate with FIRST teams globally, including FTC Team Matrix and FRC teams STEAMEX, Space Cookies, and Spikes. We volunteer at many FIRST events such as FRC/FTC/FLL events in Troy, Oxford, and Lake Orion.

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 free summer workshops run by our students, 150+ cadets learned technical and business skills fostering leadership potential of all involved. 25+ girls in our STEM CADettes program experience woodshop training and technical skills through mentoring from older girls, fostering a supportive environment to pursue STEM interests. We raised funds by 3-D printing and selling jewelry to support Yuwa, an all girls school in India that uses education to combat child marriage.

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

Partnerships with businesses, district leaders, elected officials, universities, and community groups underpin key accomplishments. Examples are the substantive expansion of FIRST in our district, increased STEM resources in our community, and global projects resulting in greater access to STEM education. The cultivation of strong relationships with community leaders inspired champions of FIRST including our superintendent, school board, local university, mayor, and state/federal legislators.

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

To protect our inclusive team culture, we foster an emotionally safe space that promotes individual development and a sense of belonging. We openly discuss the role of hidden biases while celebrating the diversity of our team. We pursue continuous improvement toward equity and inclusion through training and partnering with the DEI parent network and the Black Student Union. Our STEM CADettes program provides a more accessible pathway for girls interested in STEM to explore and build confidence.

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

To ensure team sustainability, we focus on relationships, planning, and continuous improvement. We use a sponsorship scouting system, host an annual sponsor retreat, conduct robust fundraising, and create a comprehensive business plan. We maintain long-standing connections to alum who often return as

mentors. We support a plethora of K-8 teams to ensure an ongoing pipeline of new agents. Our advocacy informed our district's hiring of a CTE director who helps us support robotics districtwide.

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

We created a sponsor scouting system to log data about potential sponsor companies, ranking them according to variables associated with likelihood to sponsor to target our outreach strategy. We contact industry leaders seeking opportunities to visit their facilities and build relationships. We celebrate sponsors through regular Sponsor Spotlights on social media and on all team marketing materials. We celebrate and thank sponsors with thank you cards and recognize them at an annual banquet.

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

To increase engagement for all students, we developed and delivered intro/advanced training across all subgroups, using feedback from participants to inform improvements. We maximized new student engagement with the implementation of a "Robot in 3 months" challenge in which students worked to build a robot to meet established challenges, similar to the FRC build season process. A new progress tracker system was implemented to organize, prioritize, and communicate tasks among agents.

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

While we have teams at every school in RCS, there are more students interested than we currently have spots. We aim to ensure an adequate number of teams to meet the total demand. We are pursuing opportunities to establish FIRST Discovery programs with local preschools, with a visit to one this year. We are advocating with our school board, with Rochester United, for a STEMnasium to share across FTC/FRC teams. We would like to continue building upon our global partnerships.

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 cultivate strong relationships and a family-like culture, something we fiercely protect. Our agents emulate gracious professionalism, hard work, and collaboration. The mottos "more than robots" and "once a fed, always a fed", combine as keys to our long-term sustainability. Informed by student feedback, our team's operations proudly promote the FIRST mission, retain alumni connections, inspire participants, attract new sponsors, and provide STEM outreach to our local and global communities.

Judge Feedback

Who/When	Feedback
	We want to work with Ohio-based FIRST programs to help them advocate for a state grant program. Do you have any advice for us about how to build relationships with Ohio teams? An area the team has an opportunity to improve. Something that really impressed the judges.

Essay

Over the past 27 years, the agents of change, from Team 201, the FEDS, have been dedicated to promoting FIRST in our community and beyond. Our diverse team actively expands access to STEM education through three initiatives: Operation FIRST, Operation Outreach, and Operation Global. The mission of the FEDS is to inspire students to be STEM leaders through mentoring and innovation. Our team operates in seven subgroups: electrical, programming, mechanical, machining, CAD, scouting, and people and culture. Our team culture values continuous improvement through open communication and productive feedback loops within a supportive environment. We conclude each season with exit surveys and interviews, which inform summer training and development projects. Each summer, we hold free workshops for our community teaching STEM skills. We hold an annual leadership retreat for team bonding and goal-setting. Student leaders develop and deliver structured training across subgroups to ensure every FED receives the same foundational knowledge. Agents choose specialized areas for advanced training. Reflecting student feedback, we implemented a new training model this fall. Mentors created a mock robot challenge, using simplified elements from previous FRC games. Agents had two months to apply the skills they learned to compete in the challenge. This was highly successful as it created an exciting way for new students to engage in hands-on work immediately. This increased the collective skills of agents during our regular build season; a major team goal this year. We recently streamlined team management systems using technology, offering agents opportunities to learn and apply STEM skills. Working with an alumni mentor, agents developed, tested, and refined a google database that allows students to sign in/out of meetings using a scannable ID, track their own progress toward team goals, a project management tool and a user-friendly app version. Another innovation informed by our agents is our open-sourced sponsor scouting system. Students collaborated to create a database sorted by variables associated with companies' likelihood to sponsor our team. Agents worked to collect information about multiple nearby businesses to assess "likelihood to sponsor" and prioritized targeted outreach to companies with the highest scores across variables. In its third year of operation, this tool continues to improve our sponsorship solicitation with 12 new sponsors this year. Our team motto "Once a FED, always a FED" reflects our pride in maintaining strong connections to our alumni. By establishing the expectation of continued involvement, providing multiple ways to stay connected, and hosting annual get-togethers like "FEDS-giving", many alumni stay connected. We see our alumni relationships as a key to the long-term sustainability of our program, which is reflected in the fact that our assistant coach and 20 of our mentors are alumni.

Operation Outreach Agents developed a program called STEM CADettes which works with middle school girls to mentor them through the transition between middle and high school robotics with support and encouragement. This program has served over 30 students, most of whom have stayed involved in robotics throughout high school. Participants in STEM CADettes learn woodshop and technical skills, taught by fellow female mentors in a supportive space that acknowledges common barriers faced by girls in STEM. By maintaining strong relationships with our community leaders, our team aims to start Lego Discovery programs at local preschools. For the second year, our team visited a private childcare center, Above and Beyond. Agents donated Lego Discovery sets while facilitating a workshop. We are also engaged in discussions with other nearby preschool programs to bring Lego Discovery to them in the future. The FEDS organize an annual STEM Book Drive to collect books to donate to Little Free Libraries in Pontiac. Partnering with other STEM-focused school clubs such as National Technical/Math/Science Honors Societies, the FEDS have been able to donate 400+ books to nearby libraries. We also established a new "LEGOs with Seniors" program at the Rochester Older Persons Commission (OPC). Agents visited seniors weekly at the OPC and built legos and relationships as the seniors shared life stories with the agents for the second year. One participant, T Square, shared his own coding work with our students and stories from when he was an engineer. We were able to host him in our workspace,

where we shared our Impact presentation for feedback, gave him a tour of our shop and had lunch together. Furthermore, the FEDS model FIRST values by maintaining close ties with our sister school teams, the AdamBots (FRC 245) and the CyberCats (FRC 5436) as part of our “Rochester United” coalition. Students from all three teams meet weekly to discuss ways to maximize our collective resources and power to advocate for STEM education. Currently, Rochester United is advocating for district investment in a STEMnasium to provide meeting space and practice areas for our ever-growing FIRST programs. Rochester United also met recently with the Mayor of Rochester Hills, to increase synergy between FIRST programs with area robotics companies. Our agents served on the Michigan Advisory Council (MAC), advocating for our legislators to allow more funding for STEM programs. Agents model inclusion and aim to celebrate diversity, improve equity and increase inclusion. We recently shared presentations with our community’s DEI Parent Network on topics related to women in STEM and hidden biases. As an m.e. Ambassador, in partnership with Space Cookies FRC Team 1868, the FEDS contribute to menstrual equity for FIRST participants by providing products at FRC events. We presented and attended workshops alongside Ink and Metal, FRC 5773 and initiated a collaborative campaign called H.E.A.R. (Hearing Empowerment at Robotics) with FTC Matrix in India to advocate for sign linguists at all FIRST events. We organized a Peace Summit at the World Championship in Houston last year, bringing teams together from all over the world to make posters and discuss the prompt “what does the world need more of, to be a better place?”. Celebrating our team’s diversity is coupled with honest self-reflection and intentional efforts to improve inclusion, as evidenced by our STEM CAD-ettes program, our advocacy, our engaging onboarding program, and our commitment to improving based on feedback.

Operation FIRST We aim to grow and sustain the FIRST pipeline in our school district and beyond. Since 2021, our team maintains 78 total teams, including 5 FTC, 17 FLL Challenge, and 56 FLL Explore. If our team was a school district, our team would have the 2nd highest number of registered FIRST teams in the state of Michigan. Carrying out our commitment to sustain these programs and ensure FIRST access at all 20 schools in our district, 500+ students and many new mentors have joined the FIRST family this year. Our support includes grant facilitation, financial oversight, direct student-to-student mentoring, volunteer recruitment and training, meeting space coordination, the ordering and distribution of supplies, and hosting qualifiers and tournaments. Agents hosted our 5th annual FTC Qualifier at RHS with students taking on vital volunteering roles such as referees, inspectors, and scorekeepers. This event draws 150 volunteers and 600+ students. We hosted 500+ students for 4 FLL tournaments each year since 2021. Also, our district hosted its first FRC Regional Competition in 2022, which we plan to host again next year. The FEDS fiercely protect team culture and long-term sustainability, reflected in robust fundraising, marketing, and risk management, which has been recognized by winning the MSC Impact Award and a district Sustainability Award in 2023, and the Entrepreneurship Award in 2022. These awards reflect the FEDS’ innovative approaches to sponsor outreach, budgeting, and operational planning. We build strong relationships with sponsors by visiting local companies. We celebrate sponsors with gracious shoutouts on social media, on all team marketing and at our annual sponsor night. Team fundraisers include a massive returnables drive, concession stands, restaurant events, and donation solicitation at outreach events. In feedback surveys, students consistently describe our team’s culture as inclusive and “like a family”. Even so, we pursue continuous improvement through assessment, learning, and goal-setting. These factors inform our overall longevity, enabling our agents to make a significant positive impact on participants and the greater community.

Operation Global Our team deeply values the diversity of the global FIRST community, and seeks out collaborative opportunities to work collectively to problem-solve the world’s problems. For several years,

our team has benefitted from a strong alliance with FRC Team 6832, STEAMEX, based in Monterrey, Mexico. Supporting each other's journeys through FIRST, we have engaged in mutual mentorship, cultural exchange, fundraising, and relationship-building. It was extremely special to our team that we were able to meet STEAMEX in person at the 2023 World Championships in Houston. We have also worked with The Scrunchie Project, a nonprofit organization with the goal of developing educational access for girls. Through this partnership, we raised \$600 by selling scrunchies, sewn by our agents. We donated these proceeds to Yuwa, an all girls school in rural India that uses education and sports to prevent child marriage. Our team is rooted in our team's inclusive culture, emphasizing relationship-building and sustainability. As Agents of Change, we represent the FIRST community with a passionate commitment to the FIRST mission and values, aspiring to be Gracious Professionals as we collaborate to make the world a better place.;

