FIRST Impact Award - Team 1511

2025 - Team 1511

Team Number

1511

Team Nickname

Rolling Thunder

Team Location

Penfield, NY - USA

Describe the impact of the *FIRST* program on team participants within the last 3 years. Think about percentages of those graduating high school, attending college, in STEM careers, leadership skills, and serving as mentors/sponsors in *FIRST* programs.

We build our students into strong, lifelong STEM leaders. Through our leadership boot camp and student leadership team, students develop problem-solving and public speaking skills that last them long after high school, proving to be successful in college, job interviews and careers. 100% of our students graduate high school and 96% of them attend college. After the team, 94% have gone on to work in STEM fields and 12 have returned and are mentoring our team this year.

Describe your community along with its unique opportunities and circumstances. Think about your geographic region, diversity of town/school, language barriers, socioeconomic barriers, and cultural expectations.

The Penfield and Rochester City school district's boundary is one of the highest in the United States for racial segregation. The city schools are 90% minority; Penfield schools are 82% white. In response to the 46% child poverty rates in Rochester, we became a Bombas Giving Partner, distributing their socks to these underserved communities. We spread awareness of STEAM and engage with our diverse community through STEAM Fest, reaching 1125 students from western NY schools.

Describe the team's methods, with emphasis on the past 3 years, for spreading the *FIRST* Mission in ways that are effective, scalable, sustainable, and creative.

At our unique Books & Bots events, we encourage kids to get involved in FIRST with a read-aloud STEAM book and interactive robot demo. We have expanded Books & Bots to 7 events in 3 local towns. This year we started our Jr. Driver's License program, which qualifies kids to drive our robot at future events. On the license we have a QR code that provides more information on FIRST. We run our own annual music festival, Grateful Red, where local bands play while we provide STEAM activities for kids.

Describe your team's goals and the progress you have made towards them to fulfill *FIRST's* Vision.

Our primary goal is to create student leaders who are building a world that embraces STEAM. We built the FIRST community in Penfield from the ground up. As role models for younger students, we started FLL summer camps our rookie year and have developed the full FIRST progression, from FLL Discover

to FRC. 1511 students grow leadership skills by organizing programs focused on STEAM education. We elect a student leadership team that creates our preseason curriculum and makes team decisions.

What impact has your team seen from your efforts described in the above question? How does your team measure impact?

We maintain statistics on student progression through FLL, FTC, FRC and beyond. Our robust FIRST programs develop STEAM leaders that continue to lead in their fields: Mo, tech teacher and FRC lead mentor; Matt, engineer at L3Harris and 1511 mentor; Kadence, lead mentor for an FRC team in an underserved community; Shauna, flight controller at NASA for the ISS, visited us to talk about how FIRST and 1511 changed her life. This inspires our current students to be excited about their futures.

Please provide specific examples of how your team and team members act as role models within the *FIRST* community with emphasis on the past 3 years. How do you share these best practices with other teams?

We empower our students, who then lead all of our outreach events, initiatives and fundraisers that our team runs and creates. Our website documents and shares everything, including our robot designs and code, and FIRST support events. We ran 52 FIRST support events, which is 50% of the events we ran this past year. At competition, we make friends with teams, from welcoming international teams with a potluck at our school to teaching teams our competition dances and cheers.

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

Through our regional FLL and FTC Qualifiers, where 87% of the volunteers are members of 1511, we sustain teams in central and western NY. We started and mentored 57 FLL teams and we host the FLL Kickoff at our high school. In addition to our yearly design reviews, we added weekly trainings this year for our FTC team, 6996. We've mentored FIRST Global Team Cabo Verde and Team Seychelles and FRC9110 from Brazil. We joined the global Aspire4Impact initiative, sharing outreach and Impact knowledge.

What other initiatives have you created, grown, sustained, or participated in (*FIRST* or otherwise) to help inspire young people to be science and technology leaders and innovators? What outcomes have you seen from your efforts in the past 3 years?

We run FLL summer camps in 2 towns to increase accessibility and teach kids about STEAM. We host Girl Scout Badge Night, where scouts earn all their robotics badges. To boost our impact, we started STEAM Week where our students talk about STEAM at our district's 4 elementary schools. During interactive assemblies, we demoed our robots and gave all 2100 students STEAM kits. During STEAM Week we held robot demos at the Rochester Maker Faire and our new demo at the Strong National Museum of Play.

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

To conduct an effective nationwide advocacy program, we develop relationships to expand STEAM into underserved areas. As leaders in advocacy, we partner with the Student Association for STEM Advocacy as a charter member to sustain the National Advocacy Conference. We started the NY Advocacy Conference and found a key ally in NYS Assemblymember Jen Lunsford. These partnerships led to NYS

STEAM Day, the passage of the CHIPS and Science Act, and increased funding for the Every Student Succeeds Act.

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 is a safe place for everyone, inclusive for LGBTQ+, special needs, socioeconomically disadvantaged, and culturally diverse students and mentors. This year we created RoBuddies, a sensory-sensitive STEAM program for Best Buddies, a club for students with cognitive disabilities. Our Thunder & Lighting program pairs new and returning students, making all feel welcome. We modify our STEAM experiences to be inclusive, such as braille signs on our robot and a 3D printed robot model to touch.

Explain how you ensure your team and the initiatives you have created will be sustainable.

Our operations, events, recruitment, financial and robot design resources are documented as SOPs to ensure ongoing sustainability. We sustain ourselves by focusing recruitment in our school on students with different skillsets, from art to tech. Our initiatives create a steady pipeline of students from our FLL and FTC teams. 1511 is sustained by students engaging with 373 businesses through our Patron Drive. L3Harris, our main sponsor, sustains us with financial, mentor and machining support.

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

Our team is presently remodeling our system of robot integration. Integration enables us to build a successful robot in alignment with the team's identified strategies. We are restructuring communications among subteams by actively pre-planning integration meetings, allowing each subteam to know and resolve design constraints of each mechanism or part of the robot. We are currently implementing these changes and will document the newly streamlined process.

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, particularly noteworthy, or had a large impact.

Our unique Achievement System allows us to reduce student travel costs through team participation such as organizing outreach events and fundraisers or attending weekly meetings. It makes FRC1511 accessible to all students in our school. Students are motivated to lead events, including 32 demos this past year. The 104 events we ran solidifies our part in the community and sustains our team. This System enables all 48 1511 students to compete without financial worry and grow into student leaders.

Judge Feedback

Which of our new events this year do you think was most impactful?

An area the team has an opportunity to improve.

Something that really impressed the judges.

Essay

We are 1511 Rolling Thunder. Student leaders drive our team, making it a sustainable role model within the FIRST community. Our students create life-changing opportunities for children in our community through interactive STEAM experiences. We established a nationwide advocacy network to spread STEAM to everyone.

LEADERSHIP AND SUSTAINABILITY All students are welcomed onto Team 1511. We actively promote our team within Penfield High School (PHS) through posters, videos and an after-school orientation meeting. 31 students were onboarded to the team this year through our ThunderTech preseason curriculum teaching technical and non-technical skills on 1511's 7 subteams. New students are paired up with and supported by a returning student through our Thunder & Lightning System. We provide opportunities for new students to engage with the team through 2 leadership team roles.

As part of student leadership development, we run Patron Drive, our largest fundraiser. Students go out into the community, present about FIRST and ask local businesses to support our team. Our founding sponsor, L3Harris, has shown ongoing support and investment in our team. Our relationship is mutual; L3Harris provides 6 mentors, and we run robot demos at their facilities. We have 5 parent mentors, 33 community mentors, 3 teacher mentors, and 12 alumni mentors.

Another way we sustain ourselves is by recruiting members from lower levels of FIRST (currently 117 in Penfield Robotics). To keep these younger level teams growing, we host and run FLL and FTC Qualifiers annually, where 87% of the volunteers this year were 1511 members. 1511 also runs events directed at younger levels of FIRST year-round, ranging from the 4 FLL Summer Camps we run annually to holding FTC training and design reviews. This year, 1511 students have increased mentorship of FTC6996 by leading multiple subteams and giving presentations on award submissions, scouting and presentation skills. We have ensured that every school in our district has a FIRST team, and our team has started 58 FLL teams over the last 3 years.

To support FRC teams, we run Rah Cha Cha Ruckus, an annual Halloween-themed offseason event where about 36 teams come to play that year's game. It gives new students a feel for what competitions are like and teams can train their drivers for the new season. We also run Rally, our scrimmage event with a full-sized practice field. Last year we expanded this to a week, giving 10 teams more time to refine their robots before competitions. For 20 years, we have run the All Rookie Meet and Greet at Champs, regardless of whether we qualify, where our Meet the Rookie book provides rookie teams with our resources. Judges have used this book as a reference when evaluating rookie teams. We make our resources available online on our wiki and website for anyone to use. This contains information on everything we do from building a robot to running outreach events. New this year, we published our robot autonomous program, ThunderAuto, for free on the Microsoft Store.

To sustain FIRST across the world, we mentor 13 teams through Aspire4Impact and the FIRST Global program. This year was the first time we mentored a Brazilian team, FRC9110. We use our 21 years of experience to teach them about all aspects of building a robot, running and sustaining a team, and spreading STEAM and FIRST to their communities.

OUTREACH AND EDUCATION To foster interests in STEAM and FIRST, our strong student leaders create programs that appeal to all ages. In 2024, we ran 32 demos in our community, reaching 12,432 people. To get a more accurate number of visits, we implemented a hand tally counter system to track the number of children and adults that attend our demos. This year we transformed our demos to be

more interactive with Jr. Drivers Licenses. When children learn to drive our robot, we award them with a custom laminated license card. The card also contains a QR code to learn about FIRST and our team. This cements their experience and they have come back to our other events to drive again!

We partner with our school district who provides space for us to build robots and run competitions. This also allows us to promote our team and FIRST at school events, including our Homecoming and Club Fair demos. To include classmates with intellectual and developmental disabilities, we worked with PHS's Best Buddies Club to create a new, accessible, STEAM education program called RoBuddies. We further our relationship with our school district by running elementary school educational hands-on programs like Indian Landing STEAM Night and our Harris Hill Academy robotics classes.

We host robot demos from all levels of FIRST at our annual signature event, the Grateful Red Music Festival. We combine local bands, food trucks and a kids' zone with STEAM activities for 200+ visitors. At this event, we raise funds for our team and different charities such as Ronald McDonald House, Autism Up and supporting veterans at Nucor House. We partner with our town and Penfield TV to promote Grateful Red and bring FIRST to our community.

To expand our reach to underserved communities in Rochester, we were selected to be a Bombas Giving Partner to deliver socks, a most requested item, to local charities. In the past 3 years, we've donated over 23,000 socks to 13 organizations across Rochester, such as Cameron Community Ministries and Big Brothers Big Sisters. For organizations that support children, our STEAM kits are included. Through our efforts, we're providing kids necessities while also increasing their access to STEAM.

We hype up our community through our STEAM Week. Beginning in 2022 we have given simultaneous STEAM presentations and robot demos at all 4 of our elementary schools annually reaching over 2,100 students. Enhancing the excitement, we send the kids home with our STEAM kits to show-off what they learned. 3,200 additional kids experienced our STEAM Week demos at STEAM Fest and the Rochester Maker Faire. New for STEAM Week this year, the Strong National Museum of Play invited us and 4 of our robots for an interactive exhibit in their main atrium.

Because of our long-standing relationship with the Rochester Museum & Science Center (RMSC), they invited us to be a 2024 total solar eclipse partner. We soldered LightSolar Kits to help people with visual impairments experience the eclipse. During the ROC the Eclipse Festival at RMSC, we ran a 2-day robot demo where we reached 2,622 people. The event also featured demos from FLL and FTC teams that we invited. In addition to these events, we've demoed at the museum 7 times over the past 3 years.

Because these transformative experiences are so powerful we want everyone to value STEAM.

ADVOCATING FOR FIRST AND STEAM As the biggest problem for underserved and underrepresented areas is funding, we leverage our extensive network of advocates that focuses on expanding comprehensive STEAM programs in these areas.

We have attended every National Advocacy Conference (NAC) since its inaugural event in 2014, allowing us to train a decade's worth of student advocates that develop our advocacy network. At NAC, our team lobbies for increased funding for educational programs. Our recent successes include the Every Student Succeeds Act and the CHIPS and Science Act, both in 2022, which fund STEM engagement programs. We are proud that in 2024 our region has received $7.5 billion in grants from CHIPS to

construct new manufacturing plants, an initiative that will create over 50,000 STEM jobs locally. Our region has been given the honor of being the first ever Federal Tech Hub designation.

As a charter member of the Student Association for STEM Advocacy (SASA), who organize NAC and work to secure annual meetings with our US Congresspersons, we advocate for legislation to provide opportunities to underserved areas. At NAC our students give presentations to other teams and 3 of our students have been selected to intern with SASA. Through this work we've also had meetings with the White House Office of Science and Technology Policy and the Deputy Secretary of the US Department of Education, where all students shared personal stories of how FIRST impacts their lives.

To expand our advocacy goals of spreading FIRST and STEAM within NY, our team created the New York Advocacy Conference (NYAC) in 2019 and have run it every year since. 10 teams attend NYAC to learn how to develop and sustain their own advocacy programs. Through meeting coordination and presentations, SASA helps our team sustain NYAC every year. We're currently working to introduce legislation for funds to start and sustain FIRST teams in NYS.

Our team works closely with our NYS Assemblymember Jen Lunsford to help pass bills to fund STEAM programs in NY, starting FIRST teams in all Title I Schools. Our team attends the annual STEAM Day event at the NYS Capitol in Albany where we meet with legislators and run demos for them to experience STEAM first-hand. Our work directly led to the declaration of November 8 as the annual NYS STEAM Day.

This year for STEAM Day, 165 students from Penfield Robotics, representing all levels of FIRST, were recognized at a Penfield Town Board meeting for their efforts. At the meeting we advocated for a FIRST community facility and demonstrated our robot. We also met with the Monroe County Executive to locate a facility with space for all levels of FIRST. This would create shops and practice fields for teams from across Monroe County. Annually we meet with our Board of Education to give a robot demo and present our team's accomplishments.

Our student leaders grow and sustain initiatives for our team enabling us to better spread FIRST and STEAM to people in and beyond our community. We're passionate about training the next generation of STEAM leaders through our educational programs that channel our advocacy efforts. Through all of this…

The Thunder just keeps getting louder!;