

FIRST Impact Award - Team 1511

2023 - Team 1511
Team Number
1511
Team Nickname
Rolling Thunder
Team Location
Penfield, NY - 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.
We develop leaders through outreach, STEAM fund lobbying, and 1511 curricula (CAD, 3D printing and public speaking). Professors and employers state that 1511 alumni are ahead of their peers. Our Alumni Network provides career and networking opportunities. They are advisors for each other and current 1511 students. Six alumni mentor 1511 full time, and several sponsor us. They lead at NASA, Toyota, and our main sponsor, L3HARRIS. 100% of alumni from the last 3 years are pursuing STEAM majors.
Describe your community along with how your team addresses its unique opportunities and circumstances.
The majority of our impact is focused on the greater Rochester area, not just Penfield. We recognize the unequal access to STEAM in our community so we use our resources to create equitable opportunities through STEAM Nights and mentorships with Children Awaiting Parents, Big Brothers Big Sisters, Ronald McDonald House, homeless and DV shelters. Due to our efforts, our area is highly FIRST saturated so we focus on sustaining the local teams we have started (Coach trainings, FTC mentoring).
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're known for our FLL/FTC/FRC events that bring FIRST to thousands of people in-person and around the world through live-streaming. We introduce FIRST to many at large events like the Penfield 4th of July Parade. Our small-scale events, like STEAM Nights for underserved kids, build strong bonds through one-on-one engagement. We measure results by the value of our impact; a FLL summer camp inspiring two students to join 1511, or getting state legislation passed for STEAM funds for NYS schools.
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 make it easy for others to do what we do such as lobbying for STEAM funding or running FIRST events through trainings, Champs Conferences and one-on-one help. We host our International Potluck before our regional and teach others our team dances to bring everyone together across language

barriers. We're an open source team, sharing all of our resources. 1511 students connect with FLL students at weekly help sessions and camps. We know that this inspires kids because 50% of us are FLL alumni!

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

We mentor all levels of FIRST & assist worldwide. The last 2 years, we mentored FIRST Global Team Seychelles weekly (and Uruguay 2 yrs ago). In 3 years, we mentored 26 FIRST teams 3 days/week for 12 weeks, started 38 FLL/FTC teams, and awarded over \$12,000 in FIRST grants. Our NY Advocacy Conf. teaches FRC teams how to lobby for funds to grow NY FIRST. We host an annual All-Rookie Meet & Greet at Champs to welcome and encourage new teams while sharing resources for fundraising and leadership.

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?

Our focus this year has been to expand STEAM access to underserved kids. Our STEAM Nights at Big Brothers Big Sisters and at subsidized housing give many kids their first STEAM experience. Through our free Girl Scout Badge Trainings, girls have the opportunity to earn all 3 robotics badges while driving our robot. We created a secure FLL camp just for foster kids as they cannot participate in FIRST events. Through these initiatives, we're teaching kids that a future with STEAM is in their reach.

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

Giving partners: Bombas (23,500 socks donated), Ronald McDonald House. Town partners: Rec Dept programs, PenfieldTV, town library and Barnes&Noble. Community partners: Demos with non-profit youth organizations, low-cost STEAM camps across Rochester, Scout badge trainings. Large exhibits w/ teams: Maker Faire, NYS Fair, Red Wings Baseball, Recharge Offseason Event. Together, we have expanded STEAM education, donated essential funds and supplies, and promoted FIRST while making life-long friends.

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

1511 embraces team members of all learning and physical abilities, ethnicities and gender identities. Our Achievement System allows ALL students to afford travel to competition. We met with the new District DEI Supervisor to bring FIRST to all students starting with a District-wide STEAM Week we created. We're members of FIRST's LGBTQ+ Alliance, FIRST For All and our school's GSA. We expand STEAM access to underserved youth through demos, mentorship, FLL curricula, Science Nights and STEAM kits.

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

1511 empowers its students to shape our team by incorporating their passions. Mentors and student leaders train newer members to run events and start their own, which ensures that our events are growing and continuously improving. We maintain year-round events through our SOPs on our online

Wiki, forums, trainings, and committees; and archive legacy data to secure the future of our events. A low mentor turnover rate provides continuity. Average tenure is 8.5 years, and 11 are parents of alumni.

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

Our Patron Drive is a source of new sponsors and a way for students to develop professional relationships with all sponsors. New students bring fresh contacts who become long-term sponsors. We engage them with quarterly newsletters and our Patron Book. We run large demos for 2 major sponsors and their families, including Take Your Child to Work Day and VIP Tours at competitions and 1511 events. This brings STEAM to more kids, keeps sponsors invested and recruits mentors, 4 in the last 2 years.

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

As we have increased STEAM accessibility in our community and district, we needed more school district support. To improve district involvement, we invited our new principal to our Week 0 scrimmage where she spoke about the importance of STEAM. We successfully advocated for increased teacher stipends, which led to a new teacher advisor. Because of our efforts, the school supported our ideas for a STEAM Week, including the purchase of STEAM kits; and put in 2 new 1511 trophy cases by the gym.

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

We inspire all ages to discover and pursue STEAM. We've gone from 54 to 95 year-round events since last season, creating a Thunderous Impact. Promoting and growing FIRST is critical. In the last 3 years, we started 38 FLL/FTC teams and assisted 128 teams at all FIRST levels. By graduation, every student is a confident leader and has planned/led events, given presentations and worked on the robot gaining technical expertise. Our strong alumni base provides a constant flow of FIRST volunteers.

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.

Our work to make FIRST available to every student through active STEAM advocacy is making an impact. We have strong relationships with state representatives; one spoke at our NY Advocacy Conference. She invited us to speak before the NY Assembly Education Committee to lobby for a bill to provide funds for new FIRST teams in NY. Our advocacy led to Nov. 8th being declared STEAM Day forever in New York State (NYS) and State Senator Brouk introduced Bill S1576 after our demo at the NYS Capitol.

Essay

Our mission is to broaden STEAM access to guarantee the future of FIRST, consequently changing our culture to value STEAM. Our students are leaders who drive team growth and sustainability while empowering and engaging our community.

WE CULTIVATE EFFECTIVE STUDENT LEADERSHIP TO SUSTAIN OUR TEAM

Our team culture embraces student ideas and passions, making us more invested in 1511's success. These ideas lead to new initiatives and continuous improvement of our signature events that evolve 1511 into a model of sustainability.

Starting with a student idea, and ending with real results, this year our team created the inaugural NY State STEAM Day on 11/8/22 and a corresponding District-wide STEAM Week. We gave interactive STEAM presentations with robot demos to 2,037 students at our 4 grade schools. Students dressed up as their favorite STEAM heroes all week. We also distributed STEAM kits, which the District agreed to purchase after 2 new students pitched the idea. We proved that STEAM is for everyone, regardless of background or identity.

To increase equity and access to STEAM across our District, we established a relationship with our new Diversity, Equity & Inclusion Supervisor. This led to a new connection with 6 of our school's clubs to include the entire spectrum of STEAM. We partnered with them to promote our message with posters about minorities in STEAM, hall decorations and live performances during our robot demo. This resulted in new students at our meetings!

We spread STEAM spirit beyond Penfield by donating 10 NXT kits and 2 field kits to Rochester City School 45 to be used in their classrooms. To reach a broader audience, we had STEAM book displays in the front of Barnes & Noble and our public library. To wrap up STEAM Week, we showcased FIRST to 1500 3rd-8th graders from 70 schools at Rochester STEAM Fest!

To make our events sustainable, we document the process to be replicated and improved upon. Veteran students train and mentor new students to develop their leadership style and skills. Summer projects, like a T-shirt shooting robot, sharpen our skills and integrate new students before the school year. ThunderTech, our proven fall curriculum, preps students for Build Season by teaching CAD, shop safety and the Engineering Design Process. It also includes 7 technical & nontechnical weekly subteams where students explore all things 1511!

One of 1511's core values is for every student to have the opportunity to experience FIRST to its fullest. Our unique Achievement System allows us to reduce competition costs by completing tasks like organizing outreach events or fundraisers, and attending weekly meetings. This enables every 1511 student to compete without financial worry.

1511 is a team fueled by its student leaders. We turn EVERY student into an effective leader before they leave the team. Students join 1511 to build robots; they stay because of the impact they make on their community and themselves.

WE ENSURE FIRST'S SUCCESS BY EMPOWERING TEAM GROWTH & SUSTAINABILITY

We sustain FIRST globally by helping teams around the world, 20 countries so far! In the last 3 years, we assisted 87 FRC teams, mentoring 10. We mentored Team Seychelles in the FIRST Global Challenge the last 2 years, helped Brazilian team 1156 reassemble their robot for competition, and assisted Turkish team 6838 on robot design and outreach. In January, we donated 28 NXT kits and our STEAM curriculum to FRC3015 that they used at a South African school.

As part of FIRST's Open Alliance, we share all our resources with everyone. In January, FRC teams 4400, 1868 & 1156 asked us to present on Team Sustainability for teams worldwide. We have 6 resources in the FIRST Fundraising Toolkit, leadership training on our website, a team wiki with our designs and a FIRST Updates Now "Behind the Bumpers" video. We've been a control systems beta test team for 12 years. At Champs & Regionals we present on leadership and STEAM advocacy. We've hosted Chairman's & Leadership Boot Camps to strengthen local teams. We provide all attendees our materials so that they can develop their own leaders, run their own camps and advocate locally.

Our extensive advocacy training program provides teams the tools, training and a path to enact change. We presented at Virtual National Advocacy Conf. (NAC) 2020 & 2021 and 2468's STEM Advocacy Conf. of TX 2020. Using our framework for our NY Advocacy Conference (NYAC), we helped FRC2412 start their own WA state advocacy conference. This year, we held our 3rd NYAC and grew it from a one-day training, to a multi-day, multimedia event with a confirmed, in-person State Capitol demo in May 2023. We make a bigger impact when we unite all NY teams behind a common goal.

1511 keeps FIRST teams active year-round! We've been improving our signature events for at least 18 years. Rally is a pre-competition scrimmage for local teams to test and improve their robots before competition. We host All-Rookie Meet & Greet at Champs to provide rookies with sustainability tools. Our offseason event, Ruckus, has grown from 15 teams in a gym to 36 teams in a concert venue. FRC4039 and FRC3044 used our Ruckus resources as a model for their offseason events. FRC4039: "As usual, everyone at Ruckus made us feel welcome. The event ran smoothly and teams had a great time. For our team, it was an excellent opportunity to indoctrinate our new students and to give them a chance to try out new roles at an event."

We help FIRST create a strong foundation by getting kids as excited about FIRST as we are. In the last 3 years, we started 38 FLL/FTC teams, mentoring 26 at our weekly help sessions. We created teams at all Penfield schools and many in the community that included homeschoolers. Last year, we partnered with our Rec Dept. to start FLL Explore/Discover and we mentored 9 teams weekly in the fall. This past March, we ran a weekly after-school program for 3rd-5th graders, and we're scheduled to do it this May. Our 4 FLL summer camps are low cost and spread across Rochester to bring FIRST to underserved & refugee kids. This year, we recruited 2 female 1511 members from these camps! We're actively inspiring females to pursue STEAM through our Girl Scout Badge Trainings where they earn all 3 robotics badges. We've mentored FTC6996 since 2013 and 73% of their members have moved on to 1511.

This year, we ran our first FLL Kickoff with 14 teams, where we taught them the new game, and presented on programming, judging and the Innovation Challenge, to start them strong. We mentored 11 of these teams for the remainder of the season. We've run the Penfield FLL Qualifier since 2014 and the FTC Qualifier since 2013. Our FIRST Grant Program awards funding for T-shirts, kits, game fields and travel to support teams and to ensure FIRST's success at all levels, \$12,900 in the last 3 years!

WE ESTABLISH AND MAINTAIN PARTNERSHIPS TO CREATE INCLUSIVE STEAM OPPORTUNITIES

1511's long history with lobbying has created vital relationships that turn our representatives into champions of FIRST and STEAM. Our work with Rep. Lunsford over the past 2 years led to Nov. 8 being declared NYS STEAM Day and the introduction of NYS Bills A3445 and S1576 that allocate \$250k to start and sustain FIRST teams in Title 1 NYS schools.

In the last 2 years we maximized our impact by partnering with the Student Association for STEM Advocacy (SASA). In our 9th trip to NAC, we lobbied for the CHIPS Act, which promotes more STEM jobs in the U.S., and it passed! Two days after our meetings, they passed an increase of \$100M for ESSA for 2023, totaling over \$1 Billion! NAC & SASA founder Steve Hyer, "1511 is an integral piece in building a coordinated STEM advocacy effort and they serve as a mentor and leader to teams across the United States."

We recognize that access to STEAM is important and want others to have the same. Last fall, we soldered 37 devices for visually-impaired people to experience the 2024 total solar eclipse via sound. We've introduced STEAM to underserved and refugee communities with EV3 robot programming and simple machine projects. We donate STEM kits along with commonly needed supplies (like 23,500 pairs of socks!) to under-resourced children and most recently, 2500 pairs of socks to Ukrainian refugee families.

This year, we forged strong partnerships to make STEAM more accessible. At Big Brothers Big Sisters (BBBS) we taught kids to drive our robot, program EV3s and make STEAM crafts. We were their first event since COVID. Through BBBS, we connected with Children Awaiting Parents, a local foster organization, to bring STEAM to them. Their manager, "The experience was so great it made me reach out to my daughter's school to ensure that she is signed up for their STEAM program." At Penfield Library we started Books and Bots, a storytime/robot demo for kids pre-K to 3rd grade. After holding 3 more Books and Bots events, the library purchased OzoBots to grow our program and allow kids to explore STEAM in more interactive ways. This year, we expanded the program with a new partnership with Barnes & Noble!

Large community events like our NYS Fair FIRST Demo, Red Wings Baseball Game Demo and FIRST Exhibit at the Rochester Maker Faire help us bring FIRST to new and broader audiences. Our most unique, student-created event is the Grateful Red Music Fest. This year was bigger and better with more robots, food trucks and bands, a larger Kids' Zone, twice as many attendees, and we raised \$1000 more for Ronald McDonald House. It's another way we bring our community together to celebrate STEAM!

WE ARE CHAMPIONS OF FIRST

When we motivate others to join FIRST's mission, and empower students to be STEAM leaders, it changes our culture. We've seen this culture change in our community through our partnerships that invest in 1511 and FIRST. We include other FIRST teams in our mission to make a bigger impact. With everything we do, the Thunder just keeps getting louder! ;

