

FIRST Team 1511 Rolling Thunder 2019 Chairman's Essay

Pride Honor Success. This is Penfield High School's motto and defines 1511 Rolling Thunder's 15-year journey. It expresses our passion in our team, in our community and in the many ways we raise awareness of FIRST.

PRIDE

Student Leadership: We take pride in knowing that we, the students, make administrative decisions, choose our events, plan our preseason curriculum and lead robot design and build. Our elected leadership team runs meetings, trainings and team-building exercises. Our mentors provide us many opportunities to lead which empowers us, such as having the confidence to talk to government officials and sponsors. We shape 1511 into what we want it to be; it has evolved over the last 15 years because of students' ideas and Legacy Projects.

School: PHS has always been supportive; however, last year, a crisis in our school created an uncertainty in our team's future. After an evaluation, they suggested we create our Robotics Board of Representatives, made up of 1511 teachers, mentors, parents and students. Working as equal partners, they review and revise school and team policies and goals. We're grateful the school recognizes the importance of our program and we're proud of how we overcame a huge hurdle to strengthen our relationship with the school.

Community Service: Each team member brings their passions to the team, like Honor Flight, Penfield Food Shelf, and the Cystic Fibrosis Foundation. In turn, the team supports our causes. Our goal is to raise at least \$1511 for every community fundraiser, which we raised for Golisano Children's Hospital this year. For 8 years, we've joined forces with FRC340 to run FIRST Mega Drive. We've collected over 29,000 kids' books, toys, food items and school supplies to donate to our local community, recycled 7K lbs of electronics and held blood drives. Our involvement in the community is another way to explain FIRST to new audiences.

Robot Demos: We shamelessly demo our robot wherever we can, from auto parts and ice cream stores to semi-pro soccer and baseball games. We are

transforming a culture, so we take every opportunity we can get. We've found many small things have led to a bigger impact, raising awareness of FIRST and on ourselves. We've run 102 demos in the last 5 years, 17 this year.

Our largest demo is the NYS Fair. For 2 days at the 4H and STEM buildings, we introduce FIRST to thousands of people with a goal of starting other NY teams.

Since 2014, we've organized a large-scale FIRST exhibit at the Rochester Maker Faire. We have local teams, from FLLJr to FRC, to show off their robots and promote FIRST. The exhibit is so successful that the Maker Faire Committee expanded our space to accommodate half an FRC field, FTC space, FLL table and booths for each team.

New this year, we promoted FIRST to 900 students at the Student STEAM Fest with the Rochester Maker Faire and demoed at the Science Teachers' Association of NYS Conference where we talked to teachers about starting FIRST teams in their schools.

HONOR

Expanding FIRST: We've spread FIRST to the e-NABLE Alliance, a group that 3D-prints prosthetics. We started by printing 48 hands for children. For the last 2 years, we've partnered with them to present at e-NABLECon in DC, where we also discussed FIRST. In turn, they presented with us at our Champs e-NABLE conferences for the past 2 years. They credit us with introducing them to FIRST and FIRST Global, allowing them to bring e-NABLE to over 80 different countries. This year our role in e-NABLE expanded to being THE contact for all FIRST and FIRST Global teams wanting to print prosthetics.

Helping FIRST: We're honored to help FIRST with beta-testing control systems for 10 years and providing 6 fundraising resources for the FIRST Fundraising Toolkit. As 2005 Champ Rookie All-Stars, we started hosting All-Rookie Meet and Greet at Champs for rookies to network with other teams and we provide info on sustainability like fundraising and leadership. We've hosted it

every year, even without our robot competing last year, because we uphold our FIRST commitments.

Helping Teams: An honorable team helps other teams succeed. We've helped 1125 unique FRC teams over 15 years. We share everything, like our CAD, leadership materials, strategy and tips on how to get everyone involved in build season. Last year we created a Slack group (72 members) for the FLR committee and upstate NY team mentors to use for instant support, like parts requests. Many teams use our safety program, team handbook, Chairman's resources and engineering notebook. We've helped teams from 17 countries, including raising \$2500 to support Afghan Dreamers, an all-girl FRC team.

Recent Global Outreach: In 2017, we sent 2 mentors to China to help students build an FRC robot for an off-season event. Since then, we've supported 4 Chinese FRC teams (5606, 6414, 7080, 7095) by remotely mentoring them on robot design, fabrication, electrical, competition logistics and strategy.

Main Sponsor: We're honored Harris has given us the same level of support for 15 years. They provide 9 mentors, turn student-designed parts into awesome reality and hold an annual mentor thank-you lunch. They invite us to demo at their events so we have an opportunity to spread FIRST to other businesses and engineers.

Growing FIRST: In 2014, we discovered the best way to do this is to lobby for legislation that supports STEM programs. We learned how to advocate at the FIRST National Advocacy Conference and since 2017, we've been co-organizing it. We work with our reps year-round to pass STEM legislation. We're currently advocating for Bill A671, a \$250,000 grant to start more NY FIRST teams. We've learned that we need to be persistent so we met with the governor's office last year to discuss getting this bill in the budget. We invite reps to our school and events to show them what FIRST is about so they know why it's important to support STEM funding. We were especially excited to speak with Betsy DeVos in DC last year about the Perkins Act, that promotes technical education, which passed.

SUCCESS

Progressing Through FIRST: By getting all FIRST programs in all Penfield Schools and by sponsoring 233 FLL/FTC teams every year, we've had the opportunity to inspire hundreds of students to move on to FTC and FRC. We know our program is successful because 87% of FTC 6996 students have continued on to 1511.

FLL/FTC: We run low-cost FLL summer camps on both sides of Rochester, not as a fundraiser, but as an opportunity for any kid to get involved in FIRST without barriers. Partnering with RIT, we mentor rural and city FLL students at help sessions. We provide FLL teams with EV3 kits, and volunteer at and run FLL and FTC competitions. We average 25 volunteers at each of these competitions, and 55 of the 79 volunteers at this year's FTC Finger Lakes Qualifier were 1511/6996 members.

1511 Events: We've successfully run our own events since our rookie year and improve them every year. Ruckus, the only Rochester offseason event, grew from 15 to 44 teams in 14 years. It allows teams to introduce new students to competition and lets them test new drive teams. 1511 founded and chairs the Ruckus Committee and this year, 62% of the volunteers were from 1511. Like all our events, we invite the press, it's free to the public and we webcast live, thus further spreading FIRST in our community. For 15 years, we've held Rally, our Week 0 scrimmage, at PHS where an average of 15 local teams test out their robots on a full field we build. Teams have full access to our shop, tools and mentors and we have free cake!

Mentors: Our mentors guide us through robot building and life. They put in hundreds of hours year-round, helping us strategize at offseason events, advocating with us in DC and strengthening our school partnership by working with the District. They teach us to lead through our Leadership Boot Camp, encouraging us to talk to sponsors and the public and think like engineers. They volunteer at FLL/FTC/FRC events, supporting FIRST in other regions. By joining us in LAN parties, giving us high fives and loudly singing Happy Birthday, our mentors create

a welcoming environment that enables us to get out of our comfort zones to pursue new skills.

Alumni: Our alumni have earned \$296,000 in FIRST scholarships, but the real success is that 92% have pursued STEAM majors, earning careers at Toyota, NASA and Harris. Our 1511 Alumni Association keeps us in touch with them to provide support when they mentor other teams or come back to mentor us (6 this year).

Sustainability: Our Student Achievements System is a way of inspiring us to participate in team activities while earning our trip costs. This is beneficial to both us and the team: we learn responsibility and become more involved with FIRST; the team gets year-round participation from us in every facet of the team. One achievement is fundraising. Our biggest fundraiser is Patron Drive in which each student meets with 10 businesses to explain FIRST and 1511. We raise an average \$10k each year. This year we raised \$11,645 from 54 sponsors.

Inclusive Culture: Our team is successful because of each individual on it. We make sure everyone who joins us finds their niche, no matter their strengths or limitations. Students can earn team titles/roles at any grade level. Women are well-represented on our team as our electrical, mechanical and programming subteam leads, as well as our drive team coach and Team Captain. Our FTC team has a 2:1 female to male ratio (winning the 2019 Corning Event!) and 80% of all FTC girls move on to 1511. Seniority and gender do not rule on 1511; hard work and dedication do. That's how we define our success.

We work hard to make our school, sponsors, community (and grandmas) PROUD of us. We feel HONORED to be a part of FIRST and spread it to others so that they can also have the opportunities it affords us. We define our SUCCESS by how well we improve ourselves and the lives of others.