

FIRST is about more than robots. Dean Kamen, founder of FIRST, said that his vision for the program was "To transform our culture by creating a world where science and technology are celebrated and where young people dream of becoming science and technology heroes." Team 578 is right in the middle of this cultural transformation.

Team 578 has used many methods to spread the message of FIRST. We have been featured in newspapers for enthusiasm in our community and for fostering a love of technology and engineering in younger students.

Our strongest and most innovative outreach is the Engineering Club at Brooks Hill Elementary. We wanted to create a program for younger students, but found that the Junior LEGO League did not suit our goals, so we went outside of the box and made our own. The club focuses on teaching the process of engineering: we give the children a challenge, then brainstorm in a group, after which they split into small groups, build whatever is needed for the task, then we test it and evaluate what went wrong or right. In this manner we teach problem-solving, teamwork, creative thinking, and time management, as well as simple physics, chemistry, and math. At the last meeting we had a mini-demo by our team, and our district's Lego League team which the kids enjoyed immensely. In this, the first year of the club, 50 students signed up, allowing us to create a Fall and Spring session, while still having to wait-list 17!

We have plans to start similar clubs in our other two elementary schools. In addition, we mentor a Lego League team known as the Blue Sparks, Team 3185, at Martha Brown Middle School. The kids love the program and anxiously await the day they can join the "Big League". We are also working to start a team at our district's other middle school, Johanna Perrin. Our goal is to have an engineering-based club at every school in the district. We hope to create a system that hooks kids into engineering and keeps them interested and involved throughout their education.

Other ways we spread the ideals of FIRST include:

- 1) Participating in the 2007 Mega Movers exhibit at the Rochester Science Museum; an event that drew 3,000 people.
- 2) Participating in a joint demo with team 340 at the Strong Museum of Play where children were exposed to all levels of FIRST and were allowed to interact directly with the robots; pictures of this event showing Blue Lightning members were featured in the local Fairport & East Rochester Post newspaper.
- 3) Displaying at our local library parts of past robots, photos, and information about our team, FRC, and Lego League.
- 4) Manning a booth, for the past 2 years, at the E3 fair; a science fair and Lego robot competition for middle-school students.
- 5) Participating in the FIRST display at the NY State Fair.
- 6) Holding demos for several Boy Scout and Cub Scout troops, as well as The Rochester Men's Club.
- 7) We have signed up to have a booth at Canal Days, which attracts people from all over Western New York, allowing us to spread the message to more people than ever before.

All of these activities allow us to branch out to a large and diverse population.

We show our peers the wonders of technical fields in demos that show off our robot and provide information about our team and FIRST. Our annual Engineering Careers Night brings local engineers to

talk about their careers and give tips for students interested in the field. Our team's sponsor, The Gleason Works sent their Vice President to our school for a presentation on the company and mechanical engineering. As a result of these efforts, we have created a demand for technology courses in our school. Students can now sign up for a class in Computer Game Design that will debut in 2010, despite the cutting of other classes.

The team is easily recognized by our peers. The week of competition, members participate in a "spirit week" during which we dye hair blue and wear team shirts, buttons, Mardi Gras beads, duct tape, and any blue accessories we can find. A peer was recently overheard saying that "The robotics team pretty much owns the color blue; every time you see someone with blue hair, you think of them." Prior to attending regionals last year, the team aired a short video featuring the 2008 robot over the school's morning announcements and local cable station FACT 12. After build season, a demo was held on 5/7/08 at school to keep team recognition high. This year we have arranged for a spectator bus to bring our peers to RIT to enjoy Saturday's competition and see what the hype is all about.

Robotics students have also been noticed by their teachers in all fields of study. Physical Education teacher Coach Vitticore applauded their "unity and sportsmanship", English teacher Mrs. Jones is of the opinion that "They are some of the best, most creative, most motivated, most delighted with learning, and most fascinated by how stuff works!", and math/computer science teacher Mr. Klus notes that they "demonstrate outstanding strength of character, respect, and a zest for life."

We also support our school by spraying chalk images of the school mascot on driveways for Homecoming and Graduation, by marching in the Homecoming Parade, and participating in the RAID (Rochester Against Intoxicated Driving) Walk, hosted by the school's Interact Club.

Team 578 recognizes the importance of the community and does its best to give back. We arrange Can Drives each month to collect empty cans and bottles and deposit them at a recycling center. We team up with the Fairport Rotary Club for community service such as trash cleanup and holiday crafts with senior citizens. The team helped at a technology fair arranged by a member of the Churchville-Chili team for her Girl Scout Gold Award. In order to raise awareness of the team, we march in our town's 4th of July and Memorial Day parades, rain or shine, with our robots rolling proudly beside us. The community can check out what we are doing by going to our blog hosted through the website of our local newspaper, The Democrat & Chronicle.

However, the students cannot have an impact on their community if the program does not have an effect on them. The team is very much student-driven: the robot is built and designed by students, and the team is led by a group of student leaders. But this does not mean that our mentors are not utilized to their fullest. While they do not dictate the direction that the team takes, they often provide a framework to streamline the thinking process, explaining the pros and cons without biasing the students to a certain side. This "Mentor-GPS" allows each student to develop problem-solving abilities, become self-sufficient and confident in accomplishing tasks, and learn how to work in a group. An alumnus of the team and current mentor, Dan Linford, has created summer physics classes for team members to learn more in-depth physics concepts crucial to robot-building. Our dedicated mentors are even willing to put in 10 to 12 hour days with us when build season is drawing to a frantic end.

FIRST is all about preparing students for the future and teaching life-long skills. It is also about fostering friendships, and about improving the lives of students. A shy introvert makes friends and becomes more social, the class clown takes on responsibility and succeeds, a bored student finds new purpose in schoolwork: these are the true success stories of Team 578, because life does not begin with college, or with a job, but long before that. To foster this success, we

plan many non-robot related activities to strengthen the bonds between our members. An activity might be a day of paintball, laser tag, game of Ultimate Frisbee, pool party after bike riding, or bowling. This creates trust and understanding between team members, producing a stronger team and solid friendships. More related to engineering, we organize activities like building cardboard boats that are fun as well as educational because we can learn from our mistakes during such activities.

Throughout the summer, we also work as a team. This year we worked on building two miniature robots for future demo-use. The project also served to help new leaders adapt, and to train members who were interested in switching to or learning about other subteams. In addition to the mini-robots, subteams also had individual projects such as learning how to 3D CAD, making bipeds in Autodesk, or working out code that would allow for pictures to be uploaded to the website. Once the school year started, the team continued to meet, using meetings to train new members in the basics of every subteam and hopefully finding the best fit for each member.

All of these activities are communicated to the team through two methods: a Yahoo Group, and a team forum. The Yahoo Group sends e-mails out to all members, as well as mentors, parents, alumni, and sponsors. This way everyone can stay on the same page and be quickly alerted to last minute changes and additions to our plans. The forum is where all plans are discussed. It allows us to debate and make decisions without wasting valuable build time, as well as discuss ideas for future events, compile facts, and keep tabs on what each part of the team is doing.

Being a part of FIRST is a rewarding experience for all involved and Team 578 is a wonderful example of a FIRST team; Build Season is not the only season, and robots are not the sole focus. We do not focus on the past, but learn from our mistakes and move on, anxious to achieve more as a team and as individuals. The name Blue Lightning was inspired by the team's energy, drive, and passion, which we use to further the message of FIRST, the message that has the power to change America, one mind at a time.