

## Sustainability

For the students on FIRST® team 1741, robotics is more than just a club or a team: it's a community. Our team creates an environment where students learn not only engineering but also life skills such as team building and leadership. As a team, we strive to create a team-wide relationship that encourages students to stay involved and to invite others into the FIRST® community. We do this in order to ensure that when we have members graduate, the number of new students fill and exceed the losses. It is our team's goal to make sure we learn from each previous year's experience in order to foster the true spirit of FIRST®. We as a team, strive to promote sustainability and implement it into everything we do.

### Maintaining Team Sustainability

To guarantee that we have a steady flow of innovative minds, we support three different FIRST® related programs that feed into each other. One program that we created this year is "Girls Engineering Awesome Robots" (GEARs), which connects high school and middle school students with elementary school girls in partnership with Girl Scouts of America. We plan on starting a boy's version later this season. This year we had 30 girls in third through fifth grade participate. This involvement gives them an interest in robotics that carries through to FLL teams. We have two FLL team in five elementary schools, as well as both of our middle schools. Designated students from our team have been assigned to mentor one team from each of the FLL teams in our schools. This partnership further excites the younger students about what they have to look forward to. Planting this seed of excitement and motivation is crucial in the blossoming of young engineering minds. This year, we started an FTC team that is a blend of kids from both of our middle schools, and a portion of our team's freshmen. This encourages team building in students who are not yet at the FRC level. Our most recent accomplishment has been to be approved to award varsity letters to robotics team members that meet the criteria. We are only the second team in Indiana with this distinction.

### Sustaining Inspiration in the Minds of Today's Youth

By sustaining leadership, we can be a model and a stronghold, ensuring that every year is better than the last. We strive to make sure that each individual student has a job specified to his or her talents. This idea of tailored opportunity gives the students a personal experience of importance and leadership, which will prepare them

for their future on Red Alert, as well as their future outside of Red Alert. Beyond our team, we make it a personal mission to bring a passion of engineering, science, and technology to our community and the communities around us. We hold demonstrations at three of our local libraries annually. These demonstrations promote awareness of engineering, science, and technology to all who attend. As a team, we make sure to invite all members of the community to stop by and to learn about FIRST® and Red Alert Robotics. Through the demonstrations, we have the opportunity to display our robot, which ignites curiosity and interest about the FIRST® program in young children who attend. At events we attend, we often provide a “Silly Science Fair” for small children. The fair consists of science-themed coloring pages, non-Newtonian fluids, building with K’nex and Legos, and paper airplane aerodynamics. These activities promote creativity in science, and show the children that science is fun.

For freshman orientation this year, our school held an ice cream social. Red Alert decided that this event would be an excellent opportunity to introduce new students to our team. We set up a station in order to display our robot and give the incoming students a chance to interact with it. Many of the freshmen seemed interested in not only the robot, but also what we as a whole team have to offer. Also, furthering our connection to the school, we participate in our school’s homecoming parade every year. We are the only extracurricular activity to actually participate and have a float. All of the school outreach events that we do are meant to increase awareness of our team in our school. This inspires new students to join, no matter what grade they are in.

FIRST® team 1741 is proud to say that we independently run the Indy South FLL tournament every year. This year, 21 teams participated. By having our team organize and run the competition, we make sure that we learn from past mistakes, as well as have volunteers who are well versed in the spirit of FIRST®. The well-trained referees for the game are from our team, and have experience from their own years in FLL. For the awards, we have a student in each of the judges’ rooms to add a perspective that an adult-only panel would lack. Not only do our students add the experience of being in FLL and running an FLL tournament in previous years, they also provide an example for the FLL students, and encourage them to stay in FIRST®.

### Sustaining FIRST®’s Greatness

While it is important to keep our team going, it is even more important to us to carry on the ideals of FIRST®, such as gracious professionalism, coopertition, spreading knowledge of science and technology, and giving students the opportunity to do STEM activities that impress even our professional mentors. We work to make sure that all of our team members are instilled with not only engineering skills, but morals and values

that they can pass on to others throughout their life. One-hundred percent of our alumni have graduated high school and gone on to college, and about half have continued to be a part of FIRST®.

Our team also takes pride in our problem-solving skills. Whenever we see a widespread problem at a competition, we work to the best of our abilities to assist in any way we can. For example, at some of the competitions, we noticed that several teams had difficulty submitting their Chairman's Award video. To remedy this problem, we shared blank CDs and taught them how to burn their videos onto a disc and provided the necessary media release forms. Now we make sure to bring CDs to every competition. We also bring spare tools and materials (including materials we will not need for our robot) but for any other team that may need them as well. At most competitions, we will bring our spare game pieces and will lend them to the practice field. At the Queen City Regional last year, we shared our basketballs and full sized goals, in addition to FIRST® team 3180's robot and pit equipment. We helped start FIRST® team 3180, and continually work to make sure that they remain a strong team. Another way we help is by giving 3180 a care package full of supplies at the beginning of each build season. This year we donated shelving for team 3180 to solve a reduced space issue they faced.

FIRST® team 1741 makes sure that we not only support the FIRST® community, but our surrounding community as a whole. Ever since we had visually impaired members of our team, we have helped at Indianapolis's Vision Walk, as well as provided a large print game manual. In a more global sense of community, we have participated in Operation Christmas Child, we packed shoeboxes for children in need, and mailed sponsor letters for Kids Against Hunger. Since FIRST® has a focus on helping the environment; we make sure that we sell energy efficient light bulbs at our school's craft fair. We also created a program called "Green Alert", where we recycle our trash and help with recycling around the school.

To make sure that our students know the values of FIRST®, we embed significant FIRST® terms – like gracious professionalism and coopertition – into their minds in order to make sure that these ideals are prominent in all of our decisions. We do everything we can to guarantee that all of our students are well prepared for their time on team 1741, as well as their careers afterwards. All of our students are required to take a game rule quiz, a safety quiz, and a non-engineering quiz before they are allowed to travel each year. This prepares our team to understand all aspects of the team and many team members can step in when a captain is missing. One example of our preparedness is how we give everyone the opportunity to become some sort of leader, and work with them to develop their leadership abilities. Our strong belief in FIRST®'s values has caught the attention of many engineers; several of them are now mentors

on our team, regardless of whether they have, or have ever had a child on our team. Fourteen of our twenty mentors do not have kids on the team; therefore we will not lose a mentor solely because his or her child graduated. Another way we demonstrate our commitment to the ideals of FIRST® is by our tradition of having a student drive coach. We believe that giving students the opportunity to coach gives them a unique skill set. These skills include patience, self-control, awareness, adaptability, and planning, which are lifelong skills.

### Our Impact

Although ambitious and always seeking to be the best, our team never compromises the values of FIRST® or our desire to learn new things. Our team has worked each year to make sure that we do not lose knowledge and leadership when students graduate, but instead build upon the knowledge that had been passed on from the year before. This guarantees that our team will live on and sustain itself long after our current members have left. The structure that FIRST® provides for us makes sure that not only our students are at their best, but that our entire team can be at its best. As we have worked to follow FIRST®'s values, our students have not simply gained more confidence, but have also prospered. By being a part of an organization whose goal is to change society's perception of STEM, we have found ourselves changed for the better.