

Chairman's Award - Team 2429

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2020 - Team 2429

Team Number

2429

Team Name, Corporate/University Sponsors

Spartan Boosters / Industrial Metal Supply / Jet Propulsion Lab / Girl Scouts of Greater Los Angeles & La Canada High School

Briefly describe the impact of the *FIRST* program on team participants within the last five years.

90% of 2429 alumni attend a 4 year university with 80% majoring in a STEM field. After being inspired by their involvement in FIRST, 75% of 2429 members decided to participate in other engineering projects by joining the MATE underwater robotics and The Solar Car Challenge, building an underwater ROV and a car to race using solar energy. Additionally, Girl Scouts and Boy Scouts who are members of 2429 have also used FIRST as a platform to achieve their Gold and Eagle Scout projects.

Describe the impact of the *FIRST* program on your community within the last five years.

Team 2429 continues to be the leading tournament partner and sponsor for LA FLL. In the past five years, we have run and hosted 34 tournaments in total. This year alone, we have hosted 7 tournaments: 3 practice, 2 qualifying, and 2 LA regional championships. All stipends we are granted from hosting these tournaments are donated directly back to FIRST, which has amounted to over \$25,000. Additionally, this year we have hosted 4 FTC tournaments: 1 practice and 3 inter-league tournaments.

Describe the team's methods for spreading the *FIRST* message in ways that are effective, scalable, sustainable, and creative.

2429 spreads the message of FIRST by showcasing our FRC robots in our community. Whether it be parades, car shows, or concerts, whenever there is a community event being held, 2429 is there showing off our FIRST creations. We also are involved in numerous events throughout our school district such as at school assemblies, lunch/after school events, and GATE program demonstrations at our local elementary schools.

Describe examples of how your team members act as role models and inspire other *FIRST* team members to emulate

14 of our FRC members spend the FRC off-season mentoring 4 FLL teams, and 2 of our members mentor an FTC team. These members work to ensure a positive and fun environment for these kids so that they will continue to be involved within our FIRST programs in the future. Additionally, at our FLL and FTC tournaments, we invite other teams to volunteer at the tournaments, and serve as a role model to teams that may wish to host some of their own FLL or FTC competitions in the future.

Describe the team's initiatives to help start or form other FRC teams

We assisted the development of an FRC team at the Sherman Oaks Helping Group, a special ED school. We served as a guide on FIRST game mechanics, strategies, engineering, and programming related expertise. Additionally, at the FLL tournaments we host, we offer workshop tours and invite attendees who express an interest in starting a FRC team to view our workshop. During the tour, 2429 team members tell interested adults and older FLL students all about FRC, and showcase the FRC robot.

Describe the team's initiatives to help start or form other *FIRST* teams (including Jr.FLL, FLL, & FTC)

This year, we partnered with the Girl Scouts of Greater Los Angeles and hosted a badge day for Brownies. We helped these girls earn the "Designing Robots" badge during one of our qualifying FLL tournaments, and many of the scouts expressed their interest in joining or starting their own FLL team next year. Also, during the FLL tournaments that we run and host, we invite FLL teams with older students to view our FTC work space to show them how they can continue their FIRST journey.

Describe the team's initiatives on assisting other *FIRST* teams (including Jr.FLL, FLL, FTC, & FRC) with progressing through the *FIRST* program

In the past 10 years, our BetaBlockhead FLL program has housed 4 FLL teams (including 2 all-girls teams) with youth mentors from 2429. Our Blockhead FTC program houses 1 team for rookies interested in joining FRC. With 6 in house teams including our FRC team, not only does 2429 provide mentorship, but we have also been able to create a smooth transition from FLL, to FTC, to FRC. This program allows us to maintain a student's interest in STEM from a young age until they join our FRC team.

Describe how your team works with other *FIRST* teams to serve as mentors to younger or less experienced *FIRST* teams (includes Jr.FLL, FLL, FTC, & FRC teams)

Every year our team participates in the Foothill scrimmage, an event honoring friendly competition by offering tips to each other with FRC teams 589 and 696. Similarly, we work with our in house FTC team and invite FTC teams from neighboring schools to participate in friendly scrimmages at our workshops, and provide these teams with pointers on how to improve. In the past we have also dedicated time to developing a new team at the Helping Group a Special needs school in Sherman Oaks.

Describe your Corporate/University Sponsors

We have many corporate sponsors including Glenair and Industrial Metal Supply, which have provided us with in-kind donations. Additionally, as a JPL-RAP house team, we are funded through their STEM initiative program. Our sponsorships also consist of support from the local community. Habit Burger Grill and Panda Express have also helped us through community engagement and restaurant fundraisers. Lastly, La Canada High School provides an accessible work space year around.

Describe the strength of your partnership with your sponsors within the last five years.

We maintain close relationships with our sponsors by providing team updates in the form of a newsletter. As a JPL house team, their continued sponsorship of our club has shown how strong our relationship with them is. We have also maintained strong relations with our school; for the past decade they have allowed us to use their old woodshop as our workshop. Additionally, we have worked with our sponsor, Girl Scouts, to set up robotics badge day events.

Describe how your team would explain what *FIRST* is to someone who has never heard of it

FIRST is a set of robotics competitions based on teams building and programming a robot that performs tasks in a yearly challenge. FIRST lets participants become excited about robotics and STEM with its competitive atmosphere, and also maintains a peaceful and cooperative relationship between different teams at competitions. FIRST is about more than STEM as well, as it heavily emphasizes the importance of creating a positive atmosphere where everyone can feel welcomed and learn while having fun.

Briefly describe other matters of interest to the *FIRST* judges, if any

Team 2429 emphasizes the importance of year round participation within FIRST programs. That being said, many of our FRC members utilize the off season to mentor younger students through FLL and FTC, and they also spend time learning more. During the off season, students will learn how to CAD, weld, program, and many other technical skills that are valuable during the FRC season. Essentially, 2429 is heavily involved in FIRST programs all throughout the year.

For FRC teams older than 5 years, briefly describe your team's broader impact from its inception.

2429 continues to partner with LAFLL, fueling its growth and success in the region. By hosting 7 tournaments free of charge to the region, we have created a sustainable program for LAFLL by stimulating growth of FLL teams through low registration cost. As a team, we continue to strive to develop a welcoming space for people of all ages to learn and grow. Through our 13 years, have worked to bring together our community by spreading FIRST with every opportunity presented.

Team Captain/Student Representative that has double-checked this submission.

Aletta Hill

Essay

3 Building Blocks to Success

Founded in 2007, Team 2429 The La Cañada Engineering Club aspires to inspire long term interest in STEM to students throughout Los Angeles. As a well-established partner of FIRST, we are devoted to growing engagement within FIRST programs throughout the Los Angeles community, one block at a time.

Block 1 - Commitment to FIRST

As the leading host for FLL tournaments in the Los Angeles Region, our partnership with FIRST extends beyond FRC. We have sustained a stable FIRST presence in LA for elementary and middle school students by hosting and running over 48 FLL tournaments over the last 10 years, with 7 tournaments this year alone. At our tournaments, we work to provide an exciting and memorable experience for attending teams while establishing an example for growing FLL tournament partners to follow. Additionally, Blockhead events are entirely student-run, providing over 35 volunteers from judges, referees, and scorekeepers, to audiovisual production. Blockheads work back-to-back 12 hours a day on multiple weekends to ensure these events run smoothly and efficiently. Tony Ayad, the Operational Partner for LA FLL, reflected on his experiences at our tournaments, writing, "the work you did, the smiles and constructive feedback that you shared, and the long days away from your families all served a cause that is greater than ourselves. You invested your time, your talents to inspire the next generation to strive beyond what is possible." Our tournaments provide fun and exciting experiences for FLL students and form the building blocks for the pursuit of STEM engagement in FTC, FRC, and mentoring roles in the future.

In addition to supporting FIRST through our FLL tournaments, 2429 supports FIRST financially. A stipend is provided by the region to host tournaments, and 2429 donates the entire stipend directly back to LAFLL, accounting for around \$6,500 this year alone, surging to over \$25,000+ in the last ten years. Furthermore, the LA region has one of the lowest tournament registration fees in the nation by having significantly lower infrastructure costs fueled by 2429's long term partnerships. We maintain our devotion to FIRST and assist in its ability to have a positive effect throughout LA and inspire more students to get involved in STEM programs. By providing necessary tournament space and financial resources, our collaboration plays a vital role in the region's annual 13-15% team growth.

To strengthen our commitment to FIRST, we have taken over the responsibility of hosting and running practice and league meets for FTC. This year, we ran 4 FTC tournaments right in our workshop. When our team heard that Temple City High School was no longer able to host the practice and league meets, we recognized the obligation in front of us and cherished the ability to extend our impact to LAFTC. Every role at our FTC tournaments, other than the referees and inspectors, is filled by members of 2429; the scorekeeper, MC, set up/clean up crew, concessions, and AV production are all run by members of 2429.

Our team also invests an effort to introduce neighboring schools to FIRST. 2429 has helped start an FTC at a nearby school Flintridge Prep, and mentored an FTC team at Temple City and San Gabriel. We have also mentored FRC teams at Westchester High School and at The Helping Group, a special needs school based in Sherman Oaks. Many of the students at the Helping Group schools are academically talented, especially in math and science, however, many have trouble socializing and communicating due to autism. By introducing them to FIRST, we were able to give them a place where their brightest skills can be brought to light. Delivering inclusion allows them to participate in STEM, improving their teamwork and cooperation skills.

Block 2 - Commitment to Our Community

2429 has also worked to inspire engineering and STEM skills as well as gracious professionalism to people of all ages in our local LA area. As we search for new and innovative outreach events we strive to provide STEM to all age groups. This year we hope to introduce a new outreach program to our local seniors, showing them the ins and outs of robotics through our FIRST programs.

We frequently demonstrate our FRC robot and other engineering projects to numerous events, ranging from school assemblies to GATE after-school programs, parent nights, football games, parades, and car shows. We have also hosted an engineering week at our school, where we run lunchtime activities for students and faculty to participate in. Last summer, our FRC robot and other engineering projects were featured at a "Summer Concerts in the Park Series" to over 500 people, sparking interest in FIRST to people from a wide variety of ages, including younger students who were especially interested in joining our FLL program. In La Canada Flintridge, we have appealed to our city council to have March 14th declared as "Appreciate an Engineer Day", which is now celebrated within our town.

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During the off-season, Blockheads participate in two other challenges where we apply solar power to boats and cars. Participation in Marine Advanced Technology Education (MATE), and The Solar Car Challenge has allowed members to utilize FIRST values outside of FIRST competitions, introducing Gracious Professionalism and Coopertition to those who were previously unfamiliar with it. We have embraced these values and even been recognized at the Solar Cup competition, earning the teamwork award due to our gracious professionalism. By participating in these competitions, we continue to empower the meaning of Coopertition away from only the FIRST competition field.

Additionally, 2429 has been able to establish engineering classes within our school district. Both at the middle and high school level, Blockheads proposed the adoption of classes to teach design and manufacturing skills to our local students. To this day, 4 Project Lead the Way courses are held at La Cañada Middle and High School and are packed full of students interested in exploring the world of STEM. This year, we have been able to dedicate an after school class to our club that has 27 students enrolled, many of which joined the club after enrolling in the class. This has allowed for even more students to hear about 2429 and consider jumping into the FIRST world.

This year, we partnered with the Girl Scouts of Greater Los Angeles to set up an opportunity for young girls to explore STEM. During one of our qualifying FLL tournaments, 2429 hosted a badge day for girls to earn their "Designing Robots" badge, where we invited young girls to come to our school and showed them how engineers think and design. As this was hosted simultaneously to an FLL tournament, we gave the girls a tour of the competition to spark their interest in participating in FLL. Additionally, many of the teams that come to our FLL tournaments are Girl Scout teams; to these girls, we offered a chance to earn their "Showcasing Robots" badge during the competition. This allowed for over 20 girls to earn a STEM badge. We plan on annually creating badge days during FLL tournaments in an effort to expose more young girls to FIRST and its programs.

2429 has hosted E-Waste drives for the past 8 years. Through our drives, we have cemented our presence within our community by providing a reliable source for our local community to safely dispose of unwanted products in an environmentally friendly way. We have collected and recycled about 36,000 pounds of waste in the past year alone. We have also donated over 600 pounds of pasta and pasta sauce to Caterina's Club through our FLL food drives from the past 2 years.

Block 3 - Commitment to Sustainability

To the younger members of our community, 2429 creates a sustainable pathway through FIRST, and for a future in STEM. We have created a "Farming System", or program for students to continue their growth in engineering. By housing our FLL, FTC, and FRC teams all under one roof, we have created an intentional transition from one FIRST program to another for our younger members.

Every year since 2009, 15 of our team members mentor 4 FLL teams, and provide them with support and assistance. Through our FLL program, we are able to recruit elementary and middle school students who have a passion for STEM, and ensure that this passion is able to develop and grow as they continue getting older. Additionally, we decided to create our Blockhead FTC program after we realized many of our FRC rookies took a year or 2 to fully understand engineering principles. Senior members of our FRC team dedicate their time to mentor a FTC team and focus on teaching these newcomers the technical skills they will utilize during the upcoming FRC season. Our philosophy for cultivating a love for engineering, especially for younger children, is to establish an environment that explores and develops student-centered designs and ideas. By having a flexible and hands-off approach in our programs, we empower members to be creative and confident in their ideas.

Our Aspiration

Through 2429's 13 years of perseverance and dedication, we have created a cohesive team that places an importance on STEM within our community. We have learned that FRC is not only about the robots that we build, but the relationships we form and the impression we make on those around us. As members continue to join and graduate from La Cañada Engineering Club, all Blockheads remain a part of one team and one family. Together, we continue to develop and perpetuate a stem focused culture throughout our community, one block at a time.