

FIRST Impact Award - Team 2637

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| 2024 - Team 2637 |
| Team Number |
| 2637 |
| Team Nickname |
| Phantom Catz |
| Team Location |
| Rolling Hills Estates, CA - 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. |
| -The team has a 100% graduation rate and college attendance for the last 3 years. -Attended Universities - MIT, Purdue, Carnegie Mellon and UCLA. -Most of our graduates pursue STEAM careers. -6 mentors have continued to volunteer even after their children have graduated. -7 alumni mentor the team. Former team President, Artie Levine (2018) works at Boeing, enabling us to receive the Boeing Grant. This represents the close knit community of our team that translates into long term relationships |
| Describe your community along with how your team addresses its unique opportunities and circumstances. |
| Our own community's distinctive makeup has helped inspire a large focus for our team: bringing diversity and equity to those underrepresented in the fields of STEAM. Last year, we received \$4,000 from the FIRST Equity and Access Grant, having been recognized for our work to increase equality in FIRST. We have received grants from Arizona State University, John Deere, Qualcomm and Raytheon and used these grants to cover ALL of the costs of our FLL teams. We've raised over \$10,000 through grants. |
| Describe the team's methods, with emphasis on the past 3 years, for spreading the <i>FIRST</i> message in ways that are effective, scalable, sustainable, and creative. How does your team measure results? |
| Our team formed the PCSS: Phantom Catz Sustainable Systems to ensure that our programs stay sustainable. We partner with national organizations like Living Hope for Children, Go Baby Go, and We are Brave that have a local connection to the team. These partnerships form a strong foundation for the continuation of our outreach. Our FLL teams are feeder systems that ensure STEAM is spread throughout our community. Ever since 2018, 100% of our graduating FLL members have joined our FRC team. |
| Please provide specific examples of how your team members act as role models within the <i>FIRST</i> community with emphasis on the past 3 years. |
| Many members act as hands-on mentors for our FLL teams. This year's Engineering Program Manager, Deetya, mentors an all girls FLL team 2852. Ten FRC team members are FLL mentors for teams 52716, |

54040, 30713, 30714 and our unofficial Uganda team. Three FRC female members mentor our all-girls team, acting as role models for young women. Our team is the largest provider of FIRST in our community, regularly contacted for advice by programs like The Boys and Girls Club and Miraleste Middle School.

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

Our team is always looking to assist and work with other FIRST teams. This year, we worked with 2710, providing them with facilities, Notes and 3D printing parts. Last year, our team CNCed over 40 parts for our school's VEX team, 3050 and helped run their competition. We ran a workshop at SoCal Showdown, sharing our methodology about our outreach and awards. In the past, we've opened up our practice fields and game pieces to Sea King Robotics 5285, the Taiwanese Team 9564 and other local teams.

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?

In order to spread STEAM throughout our community, we've hosted STEAM camps (now courses) since 2017. Our main focus is inspiring children to pursue STEAM through fun and educational projects. We have reached over 1180 students through 46 courses. We've run courses for special education students and internationally, including Korea, Mexico and Uganda. The courses serve as a feeder program into our FLL and FRC teams. We do not charge for our courses as we aim to dismantle economic barriers.

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

The Phantom Catz have hosted STEAM development courses with all of the schools within our district. We are commonly contacted for advice on outreach events, technical assistance and our facilities. This year, we are CNCing four gearboxes for a local team TorBots 1197. We held a laptop donation drive for the Uganda team we've formed through Living Hope for Children- essential for them to start coding. We helped Miraleste Middle School start their three FLL teams Miraleste Robomarauders A, B, C.

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

We started an all-girls FLL team that focused on empowering the voices of women. We host modified special education courses, partnering with We are Brave. Our team uplifts Native American voices with STEAM courses and FLL teams by partnering with Holbrook Indian School. We have donated supplies to Long Beach Rescue and Covenant House. We've held monthly clean-ups for our school campus. Starting an FLL team with Uganda, we provided supplies free of charge and shipped all materials.

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

With a large team of 80 members, team sustainability and transfer of knowledge are a priority. Our team is organized into subteams with a lead overseeing each group. This allows for tasks to be evenly split up between members. Before Kickoff, we focus on training, where new members learn from senior members regarding different technical and operational skills. Leads perform regular check-ups/milestones to ensure new members are not falling behind. We host regular team bonding events.

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

Our team has facilitated sponsor recruitment, retainment and engagement in a variety of unique ways. We work to reach sponsors through specially curated sponsor letters that include personalization and a plethora of information. Secondly, we are retaining sponsors by inviting them to key team events like competitions, kickoff and banquets. We send our sponsors monthly E-newsletters to keep them up to date with any and all team activities. We give shoutouts to our sponsors on our social media.

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

Due to our large team size of 80 members, our team has struggled with deadlines and keeping all of our members engaged. To address this issue, we utilize Trello and GANTT documentation as a place to document tasks for future reference and for subteams to understand the progress of other subteams. It helps keep communication across subteams easy and constant. We hold biweekly review meetings with leadership members and mentors to discuss productivity and action items to take going forward.

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

Our team has been working toward mentoring the future generation of innovators and increasing diversity within FIRST. One of our proudest achievements is instilling the love of making an impact through engineering in the world within our members. Go Baby Go is an example of how our members learn to make a difference by modifying ride-on cars for children with mobility issues and applying engineering skills to real world problems. This is a favorite outreach event with almost 100% participation.

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.

Through the PCFA, we promote sustainability within our team. Our FLL teams act as feeder programs maintaining a constant influx of new members, it also provides adult FRC mentors. Mr. Chin, a father of one of our former middle school FLL girls, recently joined our team after being an assistant mentor for FLL. He had the opportunity to interact and work with FRC mentors and the team, which influenced his decision to join. We have thoughtfully curated this program to bring in adult FRC mentors.

Judge Feedback

Who/When

Feedback

Apr 07,
2024
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PM EST

What do you think is an event that we have hosted that we should put more focus on to make a greater impact?

An area the team has an opportunity to improve.

Something that really impressed the judges.

Essay

Our Team Founded in 2008 and based in Rolling Hills Estates, The Phantom Catz began with five male members and has grown to 80 this year. Currently, our team has a 30:70 female:male ratio and about

60% of our leadership team are women. The Phantom Catz are composed of seven subteams: Mechanical Design, Programming, Electronics & Pneumatics, Manufacturing, Strategy & Systems Design, Business & Marketing and Outreach & Awards. Each subteam has a Lead to oversee and train its members along with our team President and 23 mentors, seven of which are alumni, to provide additional guidance. Through routine meetings and task tracking using Trello, we stay productive and updated on the team's progress. Our team culture emphasizes coopertition and teamwork within and across our subteams. Through our numerous outreach events, we aim to create a sustainable path to STEAM and FIRST in our community and abroad. We are the largest providers of FIRST in our community.

Phantom Catz Sustainable Systems (PCSS) Our team realized that our global STEAM courses with Mexico and Korea were not sustainable long-term. As a result, we started the Phantom Catz Sustainable Systems (PCSS). Through the PCSS, our team partners with national organizations that were started by local residents, cementing long-lasting relationships and programs. We developed a program that ensures the sustainability of our outreach programs even when students graduate or mentors retire. The primary goal of the PCSS is to ensure that our projects will make a lasting impact and eventually operate independently.

Our Strategy A common strategy for our team is to partner with national organizations such as We Are Brave and Living Hope for Children - both of which were started within our local community by local residents in Palos Verdes. We utilize them to find communities to reach out to and spread the message of FIRST. After forming our initial connection, we aim to start FLL teams to further the relationship. A prime example of PCSS is the Holbrook community - composed of economically disadvantaged Native American students from surrounding reservations. This demonstrated our wrap-around services for supporting underrepresented communities. We started off with STEAM courses and then founded and currently mentor two Holbrook FLL teams. The last two years, we wrote and received grants that fully fund the teams. This year, they will be competing in their first FLL tournament in March supported by our team, through mentoring and fundraising. **PCFA: Phantom Catz FIRST Alliance** In 2022, our team started a subsystem of the PCSS: the Phantom Catz FIRST Alliance (PCFA). The group spans 2 states, 2 countries, 5 teams and 50 students, including our unofficial team with Uganda. Alongside the two Holbrook teams (30713 & 59876), we mentor two local teams: middle school team (30714) and all-girls team (54040). The local teams are mentored by Phantom Catz students and meet at our team facilities. PCFA allows our team to provide shared resources and knowledge to instill coopertition. Both local teams have won the Core Value Award. Team 30714 has also qualified for Southern California State Championships. A secondary goal of the PCFA is to increase gender diversity within FIRST, which motivated us to start our all-girls elementary FLL team. It was a priority that they were mentored by women leaders from our team to uplift women's presence in STEAM. The effects were clear, as 90% of the team members returned for a second season last year.

Team Sustainability Our participants from our STEAM Development Courses and FLL teams have regularly transitioned into Phantom Catz team members. The local FLL teams act as a direct pipeline to becoming members of our FRC team and even recruiting FRC mentors. In fact, one of our FLL parents joined our team as an FRC mentor this year! Another example is Jihoon, a member of our team, who first encountered engineering at one of our courses, which he says fostered his love for STEAM. Last year, he began teaching STEAM courses and this year, he was a research mentor for our middle school FLL team. He has truly brought his love for FIRST to the future generation of engineering.

STEAM Development Courses Community Our team has shifted our format from STEAM camps in favor of STEAM Development Courses- placing more emphasis on the scientific principles behind each project. Our team has impacted every elementary, middle and high school (16 total) within our school district. In 2017, we hosted our first camp for a local elementary school. Since then, we have reached 11 elementary schools, including one school out of the district. In total, our team has impacted 800+ students locally. During COVID, we held 14 online STEAM courses, helping 350+ students. The Phantom Catz eliminated all financial costs for attending STEAM courses as we aim to dismantle economic barriers within the world of FIRST. Special Education In 2021, we hosted the first ever STEAM course for special education students in our school district. Our team has run this event for four years with 5 total courses. We collaborate with a Ph.D. licensed therapist to develop projects and design lesson plans to ensure the students are accommodated with their preferences. We offer multiple pathways that each student can utilize allowing a greater degree of freedom and ensuring a successful experience. After one of the courses, a mother emailed us that her son enjoyed the experience and was teaching the project to his siblings. This course has become a source of pride for our team and has been recognized by school board members of our district. This was the beginning of our mission of equality to uplift underrepresented communities within FIRST. Global Once our team reached all the schools within our district, we decided to expand our outreach to impact globally. Utilizing the personal connections of team members, we set up STEAM Development Courses within Korea, Mexico and Uganda. In total, we've reached 250+ students internationally. In 2023, our team started developing a project with a school in Uganda through Living Hope for Children, sending our STEAM Development Course curriculum, projects and school supplies to them free of charge. Our partnership with a school in Uganda followed our PCSS pathway: the advancement from STEAM development courses to a closer mentorship by establishing an FLL team. A huge hurdle was how to ship equipment to Uganda. Our team coordinated with Living Hope to deliver a FLL robot and game pieces. We shipped all the equipment to Chicago, where the principal of the school picked them up and delivered them. We had a laptop drive that provided the needed technology for coding. One of our alumni, an airline pilot, hand delivered the laptops to the organization, saving huge shipping fees. We have bi-monthly Zoom meetings teaching FLL concepts. Distance and shipping did not deter us from establishing an FLL team in Uganda!

Socal Showdown This year, our team co-hosted SoCal Showdown with teams 687 and 4201. SoCal Showdown was a new offseason FRC competition aimed at providing a more accessible local competition to Los Angeles County teams. Our team was involved in every aspect of the competition from organizing volunteers, laying down floor tile to running the competition. Over 90% of our team volunteered including 10 alumni. We hosted a workshop about our outreach, awards presentation and interviewing skills to encourage community outreach within local teams. Our team also set up stations where young students could build rocket launchers and legos. Team members enthusiastically rotated shifts, helping participants launch cotton balls across tables! We were very excited to be a part of this inaugural event. Community Impact Every year, the team takes part in the PVPHS open house, highlighting our team and robots to prospective students and their families. The Phantom Catz have marched in the Palos Verdes Holiday Parade of Lights for the last four years it was held. The event, with participants from across Southern California, is viewed by thousands through local television stations. The team was awarded Best Rookie entry and Mayor's Award. Annually, our team holds donation drives for Covenant House, Long Beach Rescue Mission, and Living Hope for Children. Over 4 years, we have collected close to 2000 items. The team also holds monthly campus lunchtime cleanups, provides machining for our school's VEX team, and shares our practice field with local teams 5285 and 2710.

Go Baby Go Since 2022, we have partnered with Go Baby Go, a program that provides modified ride-on

cars to children with disabilities. The program is dedicated to giving autonomy and providing joy to children who have significant mobility impairment. All subteams collaborated to modify the toy cars to fit each child's specific needs, working with an occupational therapist to ensure each car met the mobility requirements of the children. This year, we were asked to make special modifications for a 12V car for a taller child. In total, we built eight cars at no cost to the families. At the end of the year, our team sets aside a special day where families come to pick up their cars and take them for a test drive through a team built track and car wash. One of the kids- Yeva- was a Ukrainian refugee which our team arranged for a Ukrainian translator. This annual event helps the team understand the direct impact their engineering can have on others.

Our Impact The Phantom Catz philosophy is that STEAM should be accessible for everyone. Through our outreach program, we increased diversity in our STEAM community and have expanded to reach out globally. With every meeting and project, our team strives to fulfill our mission statement: To develop a sustainable and diverse FRC team that educates and inspires all generations to learn about Science, Technology, Math, Engineering, and Innovation. ;

