

FIRST Impact Award - Team 3008

2025 - Team 3008
Team Number
3008
Team Nickname
Team Magma
Team Location
Honolulu, HI - USA
Describe the impact of the <i>FIRST</i> program on team participants within the last 3 years. Think about percentages of those graduating high school, attending college, in STEM careers, leadership skills, and serving as mentors/sponsors in <i>FIRST</i> programs.
We have inspired 2 PhD candidates, 2 working on masters, and 50+ pursuing higher education, which is 100% of our team in the past 3 years, compared to 62.6% in our state. In the past 3 years, 3 of our alumni annually volunteer at FRC regionals and 3 mentor FRC teams. Outside of FIRST, our alums have helped lead the creation of a STEM lab at UH Manoa, created million-dollar businesses, and went into major engineering firms, using what they learned from our team to extend STEM across the board.
Describe your community along with its unique opportunities and circumstances. Think about your geographic region, diversity of town/school, language barriers, socioeconomic barriers, and cultural expectations.
We are from a public school with a limited budget, we fundraise \$30,000 to spend on tools, robot, and outreach, forcing us to be resourceful. We build a modular robot to pack in suitcases for our overseas competitions. Being on an island means we are more disconnected and have less STEM opportunities. 16% of Hawaii students plan to pursue STEM, compared to the 24% nationally. This drives us to provide STEM education to our community through programs like academies, tech labs, and weekly classes.
Describe the team's methods, with emphasis on the past 3 years, for spreading the <i>FIRST</i> Mission in ways that are effective, scalable, sustainable, and creative.
In the past 10 years, multiple KRA students have advanced into FIRST programs. Through KRA, we open STEM to 100+ students annually over 14 O'ahu schools, sharing skills and building confidence to use as they transition to FIRST programs. The IS, created entirely by us, stays at each school for a semester to let students and teachers advance their technology skills. Our members dedicate their summer to writing additional grants, raising more than \$35,000 and creating new, updated curriculums.
Describe your team's goals and the progress you have made towards them to fulfill <i>FIRST's</i> Vision.
Our mission is to prepare future STEM leaders by providing educational experiences. Since 2013, the Kalani Robotics Academy (KRA) has provided opportunities for Hawai'i's keiki (children) to learn and develop skills in STEM topics. Our AstroMaker program reaches lower-income schools, teaching robotics with SPIKE Prime kits, reaching 30+ students each month. The Innovation Station (IS), built by our members, travels to schools to make 3D printers and laser cutters accessible to all students.

What impact has your team seen from your efforts described in the above question? How does your team measure impact?
From our efforts, we have seen students in our community gain interest in FIRST, as they enroll in FIRST programs after attending our classes. Our academies are measured by how many Keiki we teach: 563 students across the island. Our number of returning students has increased from 20% last year to 50% this year. AstroMaker is gauged by the number of students reached, 120+. The IS has stayed at 4 elementary schools in the past 2 years, affecting 1500 students and 100 teachers.
Please provide specific examples of how your team and team members act as role models within the <i>FIRST</i> community with emphasis on the past 3 years. How do you share these best practices with other teams?
Magma supports FIRST by volunteering at FTC, FLL, and more with 100% member participation, accumulating 435 hours this year through pure tournament volunteering. We are the only school in East Oahu to host tournaments, promoting robotics growth and expanding access to STEM. Originally started to help foreign teams at the Hawaii Regional, our Magmites initiative has also grown into a mechanical support station for teams in need, showcasing our commitment to teamwork and inclusivity within FIRST.
Describe your team's initiatives to Assist, Mentor, and/or Start other <i>FIRST</i> teams with emphasis on activities within the past 3 years.
Our team is currently mentoring 6 FRC teams, including 2 teams in Japan, and 2 FTC teams. Magma raised \$16,000 to start a Hackathon initiative, which invited members of our community to participate in a condensed mock FTC season, resulting in 8 FTC teams starting. This caused a 25% increase in the amount of FTC teams at the time. We also allow other teams such as Kauai Bots, Hibana, Hanabi, and Yukikaze to use our shop annually during Hawaii Regional since they don't have a home base on Oahu.
What other initiatives have you created, grown, sustained, or participated in (<i>FIRST</i> or otherwise) to help inspire young people to be science and technology leaders and innovators? What outcomes have you seen from your efforts in the past 3 years?
Island Innovators brings robotics education to afterschool programs at a community park, teaching 16+ students every session engineering basics using LEGO EV4 kits. Our connections to FRC Japan through 9494 Hanabi, 9629 Hibana, and 26214 Yukikaze Technology allow us to help them with their documentation and presentation skills virtually. Through ASYMCA, we introduce children of military personnel to STEM with hands-on activities, such as building and coding robots while fostering teamwork.
Describe the partnerships and relationships that you've created with other organizations (teams, sponsors, educational institutions, government, philanthropic entities, etc.) and what you have accomplished together, with emphasis on the past 3 years.
We've partnered with teams like Space Cookies to support menstrual equity in Hawai'i and Taiwan, providing menstrual products at FTC and FRC events. The UH Manoa's JESSE Program taught our members real-world engineering experiences. Collaborating with local schools and the DOE, we've introduced Pre-K-5 students to robotics, inspiring many to join FIRST. The DOE has also allowed us to reach 1700 students across 4 schools with the IS, along with reaching 30+ community leaders with a STEM booth.
Describe your team's efforts in the past 3 years to promote equity, diversity, and inclusion within your team, <i>FIRST</i>, and your communities.
Our Island Innovators and AstroMaker programs bring free robotics lessons to afterschool programs at parks and 4 schools. The IS democratizes technology for public schools. These programs normalize STEM education to all, regardless of socioeconomic status. Our students also started Girls in Technology, Engineering, & Computing, and Scisisters, camps targeted toward girls, giving 73 young women a safe space to learn within the STEM field, which they are underrepresented in.

Explain how you ensure your team and the initiatives you have created will be sustainable.	
Everything on our team is student-led, from robot to outreach, while our mentors only step in to get us back on track. We make and regularly update Standard Operating Procedures (SOP), including documentation of contacts, schedules, and flyers. The SOPs and guidance from experienced members help guide those who have never planned an event before. Often, an upperclassman will be paired with an underclassman to work on initiatives. We also teach new members to write grants for program fundraising.	
Highlight one area in which your team needs to improve and describe the steps actively being taken to make those improvements.	
Our team members strive to be more well-rounded. Magma consists of two subteams: Mechanical and Design, and Public Relations. Members often specialize in one category, with limited knowledge of the other. We are currently addressing this problem by hosting training nights annually, which teach the basics of tool training, CAD, programming, media, project management, etc so members can expand on them later. These are open to both new and returning members, so we can learn from the other subteams.	
Briefly describe other matters of interest to the <i>FIRST</i> 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, particularly noteworthy, or had a large impact.	
Team Magma is involved in many non-robotics initiatives. Supporting sustainability, our milk-to-soap project donated 170 bars of soap to those in homeless and violence shelters. To further our members' technical skills while supporting our community, we have built the Learning Opportunities Facility for Special Education students at school. We have also participated in the HOSA Medical Innovations project, where we designed 12 devices to aid those with physical disabilities perform daily tasks.	
Judge Feedback	
	Which outreach activity do you feel we execute most effectively? An area the team has an opportunity to improve. Something that really impressed the judges.
Essay	
Aloha, we are Team Magma #3008 from Honolulu, Hawaii. Isolated by the Pacific Ocean, we are faced with the unique challenge of building a community with limited resources. We persevere through multiple barriers, such as lack of space, sponsors, and mentors. Our resilience has resulted in a resourceful team that uses the strengths of aloha to develop a foundation of STEM and robotics within our islands. Our goal is to better our community through STEM and FIRST by perpetuating Hawaiian principles through our outreach. Kuleana (responsibility to our educational community), Malama (caring for our FIRST community), and Laulima (collaboration within our community and beyond). KULEANA “We don’t just build robots, we build people.” Our team’s kuleana is split into two parts: the responsibility to pass on knowledge within our team, and the responsibility to sustain STEM education within our community. Team Magma focuses on inspiring and nurturing future innovators. We watch our members grow from those who knew nothing about project management, team development, or STEM, to becoming knowledgeable, enthusiastic STEM advocates, with over 40% of our alumni volunteering and mentoring FIRST programs yearly. The kuleana to sustain our team falls upon the shoulders of our upperclassmen. This teaching method allows members to cultivate new skills, sustaining our program with each passing year. One example of this is when upperclassmen mentor underclassmen through writing grants, guiding them to learn how to fund our programs. This past year, we have gotten 12 grants that allowed us to start the Island Innovators and continue the Innovation Station, 8 of which were written by students. These valuable skills being passed down help younger members develop independence,	

allowing future generations to continue our programs' vision. Our kuleana to ensure STEM within our community is shown through our academies that target underrepresented populations to provide opportunities for growth and success. Our Kalani Robotics Academy (KRA) is a week-long camp open to K-8th graders. Established in 2010, we started with only two programs, which have grown to seven distinct, student-led classes run simultaneously. Programs include EV4, which enhances students' programming skills; Makerspace, which improves students' technological skills with 2D and 3D software; VEX IQ, which allows students to develop teamwork and competition skills; and STEM, which focuses on the building and engineering design process. We've reached 2,500+ Keiki (children) since 2010, and 490 kids in the past 3 years. We've also created audience-specific academies like Girls in Technology, Engineering, and Computing (GTEC). Here, female members create a safe, supportive environment for girls to expand their passion in STEM. By creating these initiatives, we aim to inspire our members and community for a future in STEM. These academies are how we reach out to feeder schools, inspiring future members to join our program. Since 2010, 26% of the students we taught joined a robotics program in our state. Our kuleana is to continue these camps every year to reach our local community and uplift STEM education in Hawaii. MALAMA "Malama i ku'u kaiaulu," this Hawaiian phrase means caring for our community, the root value of our team. Through various initiatives, our team finds ways to give back and care for our FIRST community. One way is through our mentoring program, established in 2010. Our members help mentor and develop other teams in our state and beyond. Currently, we are mentoring six FRC teams, including two teams in Japan, two FTC teams, one VRC team, and 4 VEX IQ teams. Embodying malama, we created Magmites. At Hawaii Regional, our members, called "Magmites," go out to provide other teams with tools and help with building. Born from a history of aiding teams from visiting countries that may not have all their necessary resources, it now stands as an official support system. The Magmites have directly assisted 12 FIRST teams this past year. Being a part of the FIRST community, we feel a need to give back and provide opportunities. We have constantly been one of the biggest student bodies that volunteer at each competition with 100% of our team volunteering. Our team has hosted back-to-back FLL and FTC competitions since 2013. We are the only team on the east side of Hawaii to host these competitions, reaching 15+ teams each. Partnering with Hawaii FIRST Robotics and fellow robotics teams, we created a 48-hour Hackathon aimed at creating more Hawaii FTC teams. The event featured workshops on programming, mechanics, and public relations, giving participants an overview of FTC. Throughout the program, attendees built, competed, and networked with other teams, condensing the FTC season into two days. At the end of the Hackathon, students received their robot and starter kit to support them in the upcoming season. To sustain this initiative, we secured sponsorships and donations, raising over \$30,000 to support and start 8 FTC teams, creating a growth of 25% more teams in Hawaii. Then, our Hawaii Expo was created in 2024, where we rallied 31 other FRC teams to create a fun activity for younger students. Our team had booths where we demonstrated STEM activities, and showed off the robotics pathway in the state. This initiative allowed 30 keiki to observe the competition, fostering an early appreciation and love for FIRST. We look forward to continuing this expo for many years to come. Moreover, we showcase the FIRST programs outside of competitions. This year, our head mentor, Bryan Silver, won the 2025 Hawaii State Teacher of the Year (TOY) Award. We toured a group of 14 other district TOYs around our school displaying what he does in and outside of the class, inspiring them to help their STEM communities by showcasing FTC matches, the FRC robot, various outreach events, our portfolios, documentation, and how FIRST impacted us. Step by step, we'll foster the FIRST community through our magmites, mentoring, hosting competitions, expos, and encouraging others to malama the FIRST community too. LAULIMA Laulima—cooperation—is the heart of Team Magma. Through collaborations made with different organizations, our team has built projects and made advancements in the STEM community. Started in 2010, our Bristlebots are brought to elementary schools to spark young children's interest in STEM through basic circuitry concepts. Bristlebots are easy-to-build, vibrating toothbrush head robots. Our alumni created this company in 2012, and our team has collaborated with them to make robots accessible to students for 13 years. Recently, we've partnered with the Department of Education to establish the Innovation Station (IS). The IS is a 40 ft shipping container housing 3D printers, laser cutters, EV4 kits, STEM lessons, and coding kits. Creating and testing materials, our students dedicate their summer to building curriculums inside the IS. We run workshops to guide the teachers and students with the new technology, allowing them to learn and teach others. We also do monthly maintenance checks to aid and resolve any issues with the machines. The IS drives to a different school each semester, enriching 1700+ students' education in the past 2 years, bridging the gap between STEM and the classroom. For the past 12 years, our team has collaborated with the Armed Services YMCA (ASYMCA) to run camps every summer. This 3-4

weeklong camp is offered specifically to children of military personnel, who are constantly moving and unable to access STEM education. Dating back to 2013, Team Magma has supplied student teachers and robotics curriculums while ASYMCA connects us with children interested in STEM, reaching 170+ students each summer. These collaborations help us reach students beyond Hawaii and share the message of FIRST, with 27% joining FIRST afterward. Addressing the lack of robotics programs in low-income schools, Team Magma partnered with AstroMaker, an organization from Brazil, to pilot the first LEGO curriculum in Hawaii in January 2024. By implementing it in EV4 after-school programs, this initiative serves as many student's first robotics experiences, with over 200 Keiki completing the coourse. Similarly, our team started Island Innovators in August 2024, the first collaboration between the City and County and a robotics team. Each semester, it offers a free STEM class, reaching 16 students with a curriculum designed by our members. Beyond robotics and STEM education, we start and participate in other events that encourage sustainability and cultural exchange, as it is just as important to sustain these as our team and initiatives. Our members created the Garden 2 Cafe (G2C), developing innovative technologies for school gardens and lunches, starting with our cafeteria, reaching over 1,717 students. Our team also collaborated with our Japanese sister schools to participate in the Japanese Super Science Fair (JSSF), where students share problems in their region and create solutions with over 3,000 students. Our team values Laulima through the creation and collaboration of our many projects. With these collaborations, we spread the FIRST message while enhancing our community. Over the past 16 years, we've built a community that prepares future leaders and engineers by providing opportunities and experiences in STEM, with 95% of our alumni pursuing STEM fields. From our efforts, we've created 243,000 contact points, 67,000 in the past 5 years and 43,000 in the past 3, allowing us to reach our island and build future leaders. From its very inception, Magma has been expanding. Like the lava that flows to create new life, we continuously grow, positively impacting our community as we extend our reach. We are proud of how far we've come—the community impact, the students, the friendships, and the connections—and are honored to give back to this program, enriching the community and ourselves.;

