

## Chairman's Award - Team 2468

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2021 - Team 2468

**Team Number**

2468

**Team Nickname**

Team Appreciate

**Team Location**

Austin, Texas - USA

**Describe the impact of the *FIRST* 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 *FIRST* programs as mentors/sponsors.**

Through FIRST, our team has built a strong culture that prioritizes diversity, inclusion, and a commitment to learning with an emphasis on teamwork. With common goals to enrich knowledge and help others, we provide our students with skills like programming, manufacturing, and design to thrive as future leaders in STEM. This 2468 Philosophy has led 98% of our alumni to pursue STEM majors across 47 universities and continue their FIRST journey by judging, mentoring, volunteering, and sponsoring.

**Describe your community along with how your team addresses its unique opportunities and circumstances.**

Our school district provides 10% of our program's annual funding; the other 90% is self-funded through sponsorships from pitching to local tech corporations and STEMConnect. Our funding enabled us to run 9 sessions using RoBox Kits at Club Z (an after-school program for underserved kids), help WESTA (our nonprofit) donate 2 chassis and \$2400 to 4 teams, pay registration for 5 teams (FRC and FTC), and raise \$100K for a second full-time robotics teacher and team (FRC 2687 Team Apprentice) in 2019.

**Describe the team's methods, with emphasis on the past 3 years, for spreading the *FIRST* message in ways that are effective, scalable, sustainable, and creative. How does your team measure results?**

Spread FIRST's message by creatively using STEM innovation to manufacture and donate 104 Lily pads in 16 states to unexpected audiences, increasing mobility of hospitalized children. Initiated legislative change through annual SACOT (STEM Advocacy Conference of Texas) conferences, developing a scalable model for others. Organized 3 conferences with 630+ in-person and virtual attendees. Advocated for House Bill 341, passed in 2019, to effectively expand STEM education funding in middle schools.

**Please provide specific examples of how your team members act as role models within the *FIRST* community with emphasis on the past 3 years.**

Created FIRST Signing Day (FSD) which became an official FIRST initiative in 2021. Gave FIRST teams a political voice through 5 SACOT events, including our first nationwide gathering of state STEM advocacy groups in February 2020. STEMConnect model was emulated by 3 FRC teams. Shared knowledge via 42 informational Youtube videos and 11 presentations at World Champs and season Kickoffs. FIRST In Focus (FiF) speaker series allowed 10 FRC teams to highlight and share their successful models.

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

Started and mentored 49 FRC, FTC, FLL & FLL Jr teams. Spent 192 hours training FTC last fall. Guided FTC 17161 from FLL to FTC. Was "the inspiration to develop and find funding for the TARP grant," aiding TX veteran teams to start/mentor FRC rookie teams (P. Felty, FiT Board). Started FRC 2687 to reach 40 new students. Developed Appreciators program, a database of resources, assisting 44+ teams at competitions. Mentored 31 and directly started 15 FLL teams through WESTA from STEMConnect profits.

**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?**

Hosted annual STEMGirls workshops to inspire 133 girls in our district. Taught 27 STEMConnect sessions to 552 children throughout Austin. Hosted annual Science Days for 2900+ students at our district's 6 elementary schools, strengthening our *FIRST* pipeline and growing our FLL, FTC, and FRC teams. Hosted 9 ClubZ sessions for 30+ underserved students in Austin. Collaborated with the Costa Rican nonprofit, Funda Vida, and FLL 14938 to host a camp, starting 4 international FLL teams (1 all-girls).

**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**

STEMConnect partnerships with 9 corporations, 1 non-profit, and 3 teams (reaching 522 students worldwide), including a partnership with FTC 5449 in Beijing. EISD adopted our STEMConnect model to fund community education. Painted 38 Lilypads with Mythic, Charles Schwab, Austin Kannada Sangha, and Relay for Life. Partnered with TEDxYouth@Austin X-Labs 3 times to teach Spheros and EV3 LEGO robots to 500 participants. Engaged 204 teams and partnered with *FIRST* HQ for virtual 2020 FSD event.

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

Collaborated with our student council and local teams to promote diversity in our program and initiate open conversations about DEI. STEMGirls led to 35% female leadership on 2468 and increased female involvement in our district w/ 133 attendees at annual Ice Cream Socials and MLK Day Workshops. Held STEMGirls Summit w/ 30 professionals, students, and alumni. Established Assistive Technology initiative to create and donate modified toys to help kids in special education programs in our district.

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

Created a pipeline from STEMGirls, STEMConnect, and Science Days to engage and guide students through *FIRST* programs. Used past experience of hosting virtual SACOT events to adapt other initiatives (STEMGirls, FiF, SACOT Ask Me Anything, STEMConnect, pitching) to virtual formats, sustaining their impact. Expanded our school's capacity to support a second FRC team with WESTA. Ensured continuity of our student-led team culture via annual goal-setting, training, and reaffirming our teams' visions.

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

In the last 3 years, we have built and retained partnerships with companies through pitching, resulting in 27 dedicated sponsors. Each summer, we organize and run STEMConnect events at corporate campuses to engage employees' kids in STEM activities. We host Lunch & Learns for our sponsors and presented and demoed at NI Week (a week-long STEM conference hosted by National Instruments). We also directly involve our sponsors' employees in our outreach by hosting Lilypad painting sessions with them.

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

The foundation of our robotics program is built on the communication throughout Team Appreciate and Team Apprenticeship. Due to communication challenges from virtual restrictions, we have seen a change in the way students inspire each other and work with their mentors. To maintain our team's legacy through natural student leaders, we have found new ways to continue engaging all members within our program: small in-person work sessions, full-team culture meetings, and team history trivia games.

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

Our goal is to be a role model team: hosted virtual FLL scrimmages to adapt and sustain our *FIRST* pipeline; funded a new robotics building and second robotics teacher to progress our goal of expanding robotics in all EISD schools; created a speaker series and webpage to promote DEI within our team, school, and community; established *FIRST* in Focus speaker series to share STEM knowledge and resources across *FIRST* (2400+ views); partnered with *FIRST* HQ to reach 2000+ online through FSD in 2020.

**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.**

Team Appreciate has grown to support 400+ students across 54 teams: 5 high school, 3 middle school, and 46 elementary. Through this growth and 2K+ outreach hours, we have made a collective impact on 90K+ people in the past 3 years. Through our deep-rooted team culture and rich history of local and global initiatives, we have developed shareable models from STEM advocacy, to affordable RoBox kits, to DEI. In pursuit of excellence both on and off the field, FRC 2468 strives to be Game Changers.

## Essay

As I proudly sign my FIRST Signing Day Letter of Intent, committing to UT Austin for CompSci, I reflect on my time with Team Appreciate, the team I aspired to join since age 6. When I first saw the blue & white jerseys at my school's Science Day, I didn't understand how text on a screen could move an object. In my final days on 2468, I realize the team's impact on me, our hundreds of alumni & the 90K+ we have reached in local, national & global communities in the past 3 years alone. 2468 changes, evolutionarily & disruptively, to sustain its program, develop leaders, transform STEM culture & enable others to excel. This is the story of 2468 and how we change the game.

**EVOLUTIONARY CHANGE (n.)** Gradual change that happens continually over time

In 14 years, 2468 grew from physics students working in a closet to a continuum of 54 FIRST teams districtwide. Our team embodies evolutionary change by supporting & expanding a pipeline of students into our FRC team & by developing future leaders, partnerships & initiatives.

### Sustainability

To sustain our growth, we created a pipeline to engage K-12 students and beyond.

In partnership with Eanes ISD's 6 elementary schools, we reached 2900+ K-5th graders over the past 3 years at annual Science Days. To actively recruit & empower girls, in 2016 we started our STEMGirls initiative, igniting enthusiasm for girls' future in FIRST through our female-led MLK Day workshop & Ice Cream Social. These events helped 133 girls identify a place in our program in the past 3 years, contributing to our current 35% female leadership. We established a philanthropic fund to fulfill our late mentor Linda McMahon's goal of expanding our female FIRST pipeline & used it to sponsor all-girls FTC 17161, '19 Motivate Award winners at Austin Metro League Champs.

2468 actively shares experience & knowledge by mentoring FIRST teams. In Eanes alone, we mentor our JV FRC team, 6 FLL & 3 FTC teams. This year, 2468 attended 17 FTC meetings, contributing 192 hours of mentorship to progress our FTC program. As the head WESTA (our nonprofit) FLL Coordinator said, 2468 is "an integral part of the FLL community throughout Central Texas", hosting 8 scrimmages in the past 4 years for Eanes' 46 FLL & FLL Jr. teams. 2468 helped FRC 8580 "begin a new robotics program [through] online sessions in robot game & strategy...No rookie team could ask for a better mentor." Through the TARP grant, we mentored FRC 8088, 7424, 7511, 6800 & 6377; 60% were Rookie All-Stars.

By progressing through our pipeline, students are equipped to delve further into STEM. In the past 3 years, 38 students on 2468 earned their Solidworks Associate; 14 achieved advanced certifications. Our students interned at NASA, Dell & more during their time on 2468 & 98% pursue STEM majors. Many return to FIRST after high school: volunteering at competitions, mentoring other teams & starting FIRST Alumni groups at Duke & Rice.

### Development

We continue to progress our existing initiatives to increase effectiveness & reach.

The STEM Advocacy Conference of Texas (SACOT) trains high schoolers to become advocates for STEM education. Started in '16 by 2468, we've become a 1090+ member organization with 140+ teams, creating 3 policy platforms & hosting conferences every legislative year. This year, we're hosting a 2-part Legislative Advocacy Workshop: Training (2/27) and Debrief (3/27), in which we'll prepare for and then discuss the success of our lobbying to 30+ legislators for HB 244.

SACOT reached wider audiences this year, speaking at the global 24 Hours of STEM event. We also started an Ask Me Anything series, inviting Patrick Felty (FIRST in Texas Board member) & Jake Cooper (NASA spacesuit engineer, 2468 alumni) to share their inspiring STEM journeys & occupations to 400+ online.

To replicate the networking & cooperation experienced at World Champs, 2468 created FIRST in Focus (FiF) virtual speaker series in April '20. Youtube recordings of our 10 sessions provide a resource bank of professional & student speakers presenting on various topics, reaching 2422 viewers.

2468 expanded STEMGirls during COVID by hosting an outdoor Ice Cream Social with 2 speakers - FiT Board member Ms. Ashmore & social legislation advocate Ms. Sheffield - reaching 27 students. We hosted the STEMGirls Summit: An Open Conversation, featuring 4 industry professionals, 6 FIRST students & alumni, & networking time for 30 attendees. We shared female leadership experience with 300+ at the '19 & '20 TXGCP Women & Girls in STEM Summit.

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We continue evolving our Lilypad initiative, manufacturing seats that attach to IV poles to give hospitalized kids mobility. We developed and shared the LilyTool to transfer the pattern to plywood. 9 painting sessions connected us with cultural groups, charities, sponsors & dozens of families. We accept custom Lilypad requests, completing 5 during the pandemic alone. In total, 188 Lilypads floated to 16 states.

To enhance sponsor partnerships, 2468 created STEMConnect, a weeklong summer curriculum hosted at corporate sponsors' sites for employees' kids. To adapt to COVID, we hosted virtual sessions, engaging 45 kids in programming. Through STEMConnect International, we've hosted sessions in India, Costa Rica, Mexico & China. Since '18, STEMConnect has allowed us to share our passion with 9 companies & 522 children.

**DISRUPTIVE CHANGE** (n.) Sudden & drastic change that occurs due to intentional action

As a team, we strive to drastically change the game in our local, national & global communities. Through our initiatives, we positively transform the culture regarding STEM & FIRST, while enabling others to follow our lead & pursue their own passions.

### Culture Transformation

Team Appreciate started FIRST Signing Day in '16. In a culture that highly values athletes' dedication, we wanted equal recognition for FIRST students. As Dir. of FIRST Alumni Relations Michelle Long said: "2468 created & grew FIRST Signing Day from an idea into a live show partnering with FIRST Headquarters to celebrate [324 students of] the class of '20. I am honored that 2468 trusts FIRST with the legacy that [they've] created with FSD & I am excited to see how it grows". By going virtual & being adopted by FIRST in '21, FSD has permanently changed the culture of celebrating FIRST students' accomplishments.

To amp up the culture of gracious professionalism, we created the Appreciator program, where we help other teams at competitions by identifying struggling robots with our self-developed app, Cybertron. In 3 years, we've helped 44 teams enjoy the full experience of coopertition.

We bring FIRST & STEM to communities beyond Eanes, changing culture by heightening awareness. To share the FIRST mission, we pitch to potential corporate sponsors and partner for STEMConnect & Lilypad painting. In the past 3 years, our impact has been covered in 9 articles in the Statesman, Teen Vogue & Solid Professor. We brought public attention to FIRST through local & national media features on KXAN & GMA, reaching 62K.

To foster an accepting environment & facilitate discussion on difficult topics, we started a Diversity, Equity & Inclusion (DEI) initiative. At our Stories in STEM event, Eanes leaders Dr. Mark Gooden & Linda Rawlings presented to 81 members, mentors & alumni on the importance & intersectionality of diversity & STEM. We're creating an inter-school council of FRC teams & Student Councils to further promote DEI.

### Enablement

SACOT enables hundreds from across TX to advocate for necessary changes in STEM education. We played a key role in passing bills that require broadband WiFi in all TX public schools & increase Career & Technology Education funding. We enable FIRST students to pursue their advocacy interests & teach lifelong skills like networking & communication.

To enable teams from more states to start advocacy initiatives, SACOT held the FIRST State Advocacy Summit in '20. Partnering with F.U.N., we hosted a live virtual presentation & discussion with 6 teams on various advocacy approaches, reaching 450+ viewers. FRC 3481 & 6800 joined 2468 at the event to highlight SACOT's impact on their teams.

Starting in '19, SACOT partnered with after-school program ClubZ to encourage curiosity about STEM through a student-developed curriculum consisting of Spheros, EV3 programming & RoBox, our student developed & manufactured low-cost robotics kit. Through 9 sessions (3 virtual during COVID), we enabled 30+ underserved students to see themselves, perhaps for the first time, as future engineers.

As our main source of funding since 2016, STEMConnect has raised \$170,675 across 27 sessions in just the past 3 years to strengthen the Eanes robotics program. In 2017, we helped FRC 4159 organize STEMConnect with their new sponsor, Uber. "Due to the success of this session, Uber is now our largest corporate sponsor, granting us \$12K each year" (Naomi C., FRC 4159 student). In 2018, we facilitated a STEMConnect partnership between FRC 842 & NXP; our model earned them \$22K+. In total, 6 other teams have hosted 11 sessions for 290 students.

Growing interest in high school robotics taxed our space & teaching resources, so 2468 successfully promoted a bond which will quadruple our workspace, grant all Eanes FIRST teams access to full game fields & create 4 additional classrooms for engineering courses. Through pitching & STEMConnect sessions, we funded a \$100K endowment for a 2nd JV FRC team & teacher.

Through sustainment, development, transformation & enablement, Team Appreciate is a Force for Change. Dean Kamen

says, "FIRST is a sport of the mind"; the only way a team can improve their sport is by challenging conventional mindsets and actively pushing the game forward. 2468 has done just that not only in the past 3 years, but throughout its rich 14-year history. When the game changes, 2468 changes the game. When 2468 changes the game, thousands feel the impact.