

## **FIRST Impact Award - Team 1678**

<b>2024 - Team 1678</b>
<b>Team Number</b>
<b>1678</b>
<b>Team Nickname</b>
Citrus Circuits
<b>Team Location</b>
Davis, CA - USA
<b>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.</b>
1678 has prepared team members for their careers through: -Peer to Peer (P2P): teaching over 100 members yearly -Internships: 40 members at 4 sponsor/local companies -Leadership skills: 90% of members organize and volunteer for outreach programs that support our community -Future: 95% of alumni go to university, 90% pursue STEAM programs. Alumni apply skills from 1678 in their careers at Apple, Tesla, Citadel, SpaceX, Uber, Google, Facebook, etc
<b>Describe your community along with how your team addresses its unique opportunities and circumstances.</b>
1678 operates in Davis CA, a college town within a large agricultural region: -Strong UC Davis & GoWell Education (international educational company) partnership enabled us to host robotics camps for 26 international students -Partner with local agricultural engineering companies (e.g. Advanced Farms, Terrabase) to provide interns -Expand Women in STEAM Empowerment (WISE) events reaching 28 event attendees to surrounding rural communities with limited access to STEAM opportunities
<b>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?</b>
1678 increases STEAM opportunities for future innovators through: -Davis Youth Robotics (DYR): 750 participants/year; 57% of current team members are DYR alumni; Robocamps staffed by 1678 members & fund themselves -Expanded to 2 cities in 2022 with double camp size (8 to 16 sessions); League teams doubled 20 to 40 -WISE: partnered with Ventricular Foundation (UCD non-profit empowering students with scientific outreach) -1678 members run end-of-year competition for highschool robotics classes
<b>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.</b>
Our initiatives embody Gracious Professionalism & are committed to offering support throughout <i>FIRST</i> : -Citrus for Change: sparked a trend by creating shirts & sponsor panels in 2023 to support social justice &

human rights issues -Citrus Service: provides technical support at competitions; inspires teams (eg 254, 3132) to emulate our program -Fall Workshops: 24 presentations aiding FIRST members in-person & online -The Compass Alliance: website contains 45 of our resources accessible to all

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

Throughout FIRST, we provide global assistance: -Full practice field for local teams (eg 5458) & working space for international teams (eg 7527, 8020 from Taipei) -Assisted local FLL program to run demonstrations at 2022 Sacramento Regional -Annual release of code, CAD & 60 training presentations from robot design to team branding -Published scouting resources collaborating with FIRST HQ -Loaned pre-rookie team 9143 robot to compete with at Cal Games

**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?**

1678 creates future innovators: -2 seminars inspiring our 90+ team members each year, hosting panelists in STEAM professions from diverse backgrounds -21 WISE events reaching 140 students ages 7-14 in 2020 to 289 students in 2022 -Expanded to mentor 70 youth robotics teams & hosted 11 tournaments for 418 teams -FIRST-inspired high school robotics class curriculum expanded to 4 levels - Led 36 Girl Scout troops in earning their robotics badge at Sacramento Regional in 2023

**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**

1678 partners with the following to expand our reach: -DJUSD (school district): 200+ students in robotics curriculum -City of Davis: distribute 50+ scholarships yearly for our Robocamps -With both institutions: gain \$6 million to construct new robotics facility for NorCal teams -UC Davis: Diversity in STEAM seminars in partnership with the faculty; supported Sacramento Regional to provide 100+ volunteers since 2022 -2073 & 3859: host official offseason event Capital City Classic for 77 teams

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

1678 promotes diversity and inclusion within STEAM by: -Citrus for Change: support human rights through merchandise, donations, robot sponsor panels, social media -Partnership with the following FIRST organizations: LGBTQ+ of FIRST, FIRST Ladies, FIRST Menstrual Equity (provide menstrual products at Sacramento Regional with team 4159) -Female Leadership: female team captain past 3 years -High School Classes: 25% identified as special needs students

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

1678 implements sustainability through our team structure and programs: -P2P: veteran students teach new members, fostering a sustainable cycle of knowledge -Individual student leaders run 15 outreach programs -Student-run robocamps: funds 50% of team's annual budget -DYR & WISE: creates pipeline of future members (introduces 900 kids aged 5-14 to STEAM/robotics every year) -Career Technical Education Robotics Classes: recruits students grades 7-12 generating a sustainable pipeline to our team

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

1678 celebrates long lasting partnerships with various companies: -TechnipFMC (15yrs) -DJUSD (9yrs) -UCD Chancellor's Office (12yrs) -Lockheed Martin (5yrs). Our Business and Media subteam retains & engages them through: -Mentoring a networking event with sponsor Advanced Farms -Open house & robot demonstrations dedicated to sponsors -Personalized thank-you cards & letters -Cooperative social media posts -Sponsor logos on robot & team merchandise

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

As a growing team of 100+ members, we find communication difficult to maintain. We continue to address this through: -Project management board: subteams use sticky notes to mark events, goals, deadlines for the whole team to see -Subteam meetings dedicated to reflection: every member shares feedback and suggestions -Surveys: receive anonymous feedback on & resolve issues on the team - Intermediary appointment: provide members confidential avenue to address issues

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

1678 aligns with the FIRST mission through implementing our motto: -Educate: We provide every student ages 5-18 in our community with access to robotics education -Empower: We break down barriers to foster an inclusive FIRST community through our outreach programs -Excel: We serve as a FIRST resource-hub lifting up teams from our neighboring cities to across the world

**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.**

1678 holds inclusivity at the core of our values. We promote this through: -Female & nonbinary bonding nights: 50%+ eligible members have attended since 2022 -Citrus for Change: show our solidarity to causes our members support through selling special-edition shirts and donating profit (\$1,725) to 5 charities -Citrus Service: technically assisted 670 teams, ensuring any team, from rookies to world champions, can participate to their full potential

**Judge Feedback**

**Who/When**

**Feedback**

Mar 03,  
2024  
04:16:48  
PM EST

**What was your favorite part of our submission? If you have any specific stories you enjoyed we would love to hear it.**

**An area the team has an opportunity to improve.**

**Something that really impressed the judges.**

**Essay**

Intro: Educate. Empower. Excel. These three embers have ignited explosions of impact throughout our team, our local area, the FIRST community, and beyond. 1678 members light flames of innovation, and our goal to serve others fosters an inclusive environment for all.

Team: Our team is located in the Sacramento Valley, in the heart of the California Agricultural industry. Davis is a university town drawing people from all over the world into a blazing fire of innovative research and product development. This has given us the opportunity to reach out to a large variety of people, regardless of age, gender, or ethnicity.

1678 has a burning passion that goes beyond robots. FIRST provides us with the opportunity to impact others and excite those in and around Yolo County, California with new STEAM learning possibilities. Whether providing 50+ hardware students every year with hands-on experience or giving our Business & Media team familiarity in engaging with sponsors, we ensure that every member of 1678 knows that they belong.

Student Leadership is an ember that starts some of the biggest flames in 1678, giving our members the tools to ignite their own spark. Since 2021, over 65 members have gone through our leadership program. 1678 has 2 team captains, 8 subteam leads, and 15 outreach coordinator positions that any veteran member can apply for; making up over 25% of our team. However, the leads on 1678 aren't the only members who get valuable experience guiding others. Our Peer-to-Peer model ensures that everyone is ready for the build season. This year, 60 of our veterans trained 41 newcomers, keeping the endless cycle of knowledge and stoking the team's fire.

We host many distinctive events to ensure that all team members are given a sense of belonging. These include recruitment night, new member orientation, mock kickoff, and female/nonbinary bonding nights. One of our freshmen, Anna, noted, "Bonding night was the first time that I realized I had a group of supportive girls who liked the same things as me." We also ensure that every member of 1678 feels safe in our environment with Citrus for Change shirts, pins, and stickers. 1678 members ignited the first flame and wore these shirts at 2023 World Championships, sparking inspiration for everyone who saw them. From supporting Ukraine to transgender rights, these are designs that we have made as a variation of our iconic lime, created to give a sense of inclusion to every member.

Local: Our team has a powerful range of influential outreach programs that spread our flame, the largest of which are Davis Youth Robotics (DYR)- which every 1678 student participates in- and Women In STEAM Empowerment (WISE). We inspire the future innovators of tomorrow with these programs by providing STEAM opportunities and exposing them to new interests and ideas.

WISE ignites new STEAM possibilities for young girls in our area. We host monthly free local events where over 600 girls can participate in various STEAM-learning activities, such as creating acid-base reactions or erupting lemon volcanoes. WISE is run by an all-female or nonbinary staff who serve as role models that kids can look up to. 2/3 of our female/nonbinary members have volunteered at these events, which empower girls in our community to explore the world of STEAM. We also reach out to neighboring underserved communities, including Dixon and Fairfield, so that we can ignite more sparks, even among students who didn't have access to a STEAM program like WISE before.

DYR is a bonfire, consisting of many logs: Schools, League, and Robocamps. These fuel the flames, inciting a passion for robotics among 700+ youth every year. In the past three years, over 20% of kids in the Davis school district have participated in DYR. By immersing these kids with STEAM concepts, we generate enthusiasm to participate in FIRST—57% of 1678's current students are DYR alumni. In 2023 we created a partnership with Davis Kids Klub, a local after school program. 100+ students with learning

disabilities learned about basic STEAM concepts through scientific experiments, successfully providing them with new opportunities to discover the world of STEAM.

Schools is a free after-school program kindling an interest in STEAM through hands-on robotics for elementary students. 1678 members volunteer at 13 elementary schools in our district to provide a free FIRST-inspired education for all students. One lead teacher remarked, "I love seeing students gain confidence as they work through challenges with support from the high school mentors [that 1678] provides for us... I also greatly enjoy that we build a team and work together towards the final competition, which is also hosted for us." League ignites new sparks as 1678 creates small robotics teams for students grades 3-8 during the Fall semester. We also train the parent coaches to guide students through learning to design, build, code, and drive their robots to compete in competitions. To assist these 200+ students yearly through their journey of discovery and innovation, we train our members to mentor them throughout the season. 1678 students have spent over 500 hours volunteering with younger teams, providing both our student mentors and DYR participants with valuable experience. After going through League, a total of over 200 students have gone on to join FIRST.

Both Schools and League culminate their seasons in competitions that we host at Davis High School. 1678 members have spent a total of 1,890 hours volunteering at these events this year alone—about 17 hours per student. They provide a platform for elementary and middle school students to work with other teams, communicate their needs, and test their designs. Our tournaments are student-run and we provide volunteers for all necessary roles. A DYR coach even said, "The Citrus kids are amazing. We are so spoiled to have top-level tournaments in Davis where some kids drive 2 hours to compete here. My friends who travel all over Northern California to compete in robotics competitions say the Davis tournaments are the most well-organized."

Our efforts don't stop blazing there. Through 16 weeks of summer, 1678 volunteers provide week-long Robocamps to engage kids in STEAM and FIRST, where they can keep their passions burning outside of school. We break down financial obstacles by working with our school district to provide 60+ scholarships every year. 1678 guarantees that underserved communities have access to our resources by expanding this program to our neighboring city, Dixon. Through all this work, we strive to bring equal education opportunities and empower youth who face financial, social, or locational constraints. We even expanded this program to add a week for students ages 5-9 in 2023, and this summer we are creating two additional weeks for this age range.

Through outreach programs like DYR and WISE, we pass the torch to future generations. We share our passion for robotics and STEAM and give young children new opportunities and ideas that lead to a future in FIRST. This pipeline ensures that both 1678 and our community can thrive and expand, and we can continue to positively impact everyone around us.

FRC: Our flames of potential spread to other areas as well, and our goal is to serve the FRC community on a wide scale while still honoring FIRST's core values. We witnessed some teams facing technical difficulties at competitions, so in response, we created Citrus Service (CS) in 2017. This ensured that every team had access to the technical support they needed to compete at their highest level. Our 8 CS members are at every competition we attend, ready and happy to help. From lending materials and tools to resolving wiring, design, or even software problems; we denote this effort with the acronym BIZ: helping with Bumpers, Inspection, and ensuring every robot can Zoom onto the field! In the past 3 years, CS has assisted over 400 teams (enough to make up 9 event rosters!) on over 1,000 instances. As CS

continues to grow and assist more teams, we remain persistent in our mission of lifting everyone to excellence.

1678 is often asked what we do to keep our team burning throughout the years. To help show others how we do things, we created our Fall Workshops in 2014, which are a series of presentations given at Capital City Classic (an offseason event that we co-host). This year, we highlighted 24 topics, ranging from CAD principles to diversity in STEAM to team structure and management. When posting them online, we have consistently received positive feedback about their value, as well as garnering a total of over 65,000 views over the past three years. “Very informative! This will definitely give me some pointers to use in the upcoming season,” a comment on one of our Strategic Design workshops said.

Beyond: Beyond our team, we prepare our students for success in the real world. Over the past 20 years, our alumni have worked at leading international companies such as Meta, Google, Facebook, Toyota, Amazon, and NVIDIA thanks to the opportunities that our team provides. Apurva, a past Fall Workshops coordinator, said, “As students, when else or where else would you have the chance to organize a national conference that people are going to from all over the country?” 1678 not only has a huge impact on the communities that we’re a part of, but our students are helped tremendously by our programs—83% of our graduates have gone into STEAM-related careers. Our alumni change the world with the skills they’ve learned on our team, in software and engineering alike.

Throughout all of these programs, we uphold our values and continue to ignite everyone’s sparks. Whether it be through educating our new members, empowering young women, inspiring future generations to pursue STEAM, or lifting others to excellence at competitions; we turn the sparks of today into the heat of tomorrow. ;

