

In our 10th year, Space Cookies Team 1868 continues to inspire and prepare the next generation of technology leaders. Founded by NASA and the Girl Scouts in 2006, our unique combination of technical expertise and community outreach enables us to change people, create possibilities, and challenge perceptions.

CHANGING PEOPLE

By providing an inclusive environment and extensive training, we prioritize creating technical experts and leaders out of every one of our 100+ members. Our team welcomes all girls and gives them the courage, confidence, and character needed to have an impact on their communities.

Each fall, we hold 30+ workshops comprising 2500 hours of collective training to teach critical skills for build season and beyond, covering topics ranging from prototyping to graphic design to fabrication.

We are committed to teaching girls regardless of their prior experience. For example, girls with no coding background can take a progression of six 3-hour programming workshops to learn FRC-specific code during the offseason. We hold CAD, Cookies, and Cocoa, a series of work sessions where girls can practice CAD in a casual environment, mentored by peers. This year, we introduced the CAD Turtle Challenge, where girls can test their new knowledge by CADing turtles and printing them on one of our 3D printers.

Our Rookie Cookie program helps unify our team, which draws from 32 high schools. Each rookie is paired with an experienced student mentor who helps smooth their transition onto the team. This year, we introduced a defense robot project to be led and completed by rookies, giving new girls additional opportunities to build and code.

We provide all members with numerous leadership opportunities. Our 26-member leadership team plans everything from team discussions to outreach events. At competitions, all members, whether rookie or veteran, rotate through positions in pit and scouting so that everyone has a chance to lead and participate.

With their comprehensive training and experience, Cookies are prepared to apply the invaluable skills they learn on the team to their academic and professional pursuits. 100% of our members attend college and over 95% major in STEM.

CREATING POSSIBILITIES

Since our team's inception, we have not only grown, but expanded our outreach to diverse communities globally. We create possibilities for FIRST teams to succeed in competition and provide tools for students everywhere to pursue their interests in STEM.

In the past 3 years, we've worked with 9 FRC teams (including 3 internationally), 2 FTC teams, 15 FLL teams, and 2 Jr. FLL teams. This year, we helped start 2 new FRC teams, Terrace Tech (6063) and B.R.E.A.D. (5940). We hosted these local rookie teams for individualized, day-long bootcamps in our lab, covering the fundamentals of FRC. Both teams will practice with us at our lab later this build season.

No matter the distance, we are always ready and eager to help other teams. When FRC teams outside the Bay Area contact us, like The Chickadees (5871) in Idaho, experienced Space Cookies mentor them via email and video calls during the build season.

In 2013, we began making an international impact when we founded the Space Stars (5311), the first FRC team in Colombia and the first all-girls FRC team in South America. At the end of 2014, we broadened our reach when we helped start the first FRC team in Beijing, Mars Style (5737). We competed alongside Mars Style at the Silicon Valley Regional (SVR) in 2015, where they won the Rookie All-Star Award and were the Highest Rookie Seed. Through email and Skype we continue to advise them about robot strategy and marketing. We look forward to competing with our mentee teams B.R.E.A.D, Terrace Tech, and Mars Style at SVR this April!

Several Space Cookies have started FIRST teams in new communities with our help. One Cookie moved to Santa Rosa and founded her school's first FRC team, Carrillo Cybernetics (5728). During build season last year, we hosted Team 5728 at our lab, providing access to machines, electronics, raw materials, and expertise. Their mentors remarked that one intense weekend with the Space Cookies moved their design forward several weeks; they won the Rookie Inspiration Award at SVR in 2015.

Another former Cookie expanded our impact to FTC in 2015 by founding the first FTC team in San Francisco, Lick Robotics (8538). Using her FRC experience, she led them to win the Think Award and qualify for NorCal Champs. This past year, we also mentored a rookie Girl Scout FTC Team, the GIRLbots (10707).

7 FLL teams attended our inaugural FLL Clinic this fall, where we invited rookie teams to practice on our lab's full fields and receive feedback on their robots before their first competition. Over the past 5 years, we have run and hosted 7 FLL tournaments at NASA with 16 teams competing at each, and 2 full-day FLL project fairs.

To make FLL accessible to teams everywhere, another Space Cookie created an FLL Quickstart Kit to help rookie teams build their robot and create their project. We piloted the kit with one of our mentee teams, the Golden Surfers, and have made the kit available online to all FLL teams.

Outside of FIRST, we strive to give underrepresented groups experiences in STEM. One of our members created a Programming Summer Camp to give underserved students access to computer science. For the past 2 years, with the help of Space Cookie volunteers, she has run this camp 4 times at 3 different schools at which 99% of the students fall below the poverty line. Each camp gives underrepresented students the confidence that they too can pursue technical careers.

From Jr. FLL to FRC, from Idaho to Beijing, the Space Cookies create possibilities for students to develop a passion for science and technology.

CHALLENGING PERCEPTIONS

Despite significant progress, society still perceives girls and marginalized youth as less capable in STEM fields. Our 30+ outreach events and 2000+ annual service hours challenge this perception by demonstrating what young women can do.

This year, we charted a new course for outreach by writing, illustrating, and publishing a children's book for K-2 students. In "Amy & Jada," two young girls embark on a galactic adventure seeking parts to fix a broken robot, showing young readers that girls are creative, resourceful, and highly capable engineers.

In addition to popular events like Silicon Valley Fall Festival, we take the initiative to create our own outreach platforms. We pioneered a new event at Hiller Aviation Museum, inviting 5 local FIRST teams to demo with us for a Boy Scout Merit Badge Day, and brought our robot to Quantum Camp, a math and science summer program. This year, we are organizing the entire FRC presence at Maker Faire Bay Area.

Our outreach also helps us encourage adults to support young women in STEM. We were invited to speak at Vision 2020's (a coalition dedicated to equality for women) Think Tank about the importance of STEM education and mentorship of young women. We were the only FRC team invited to present at NASA Ames' 75th Anniversary Open House, and 1 of 3 teams invited to attend Intuitive Surgical's company picnic.

Girl Scouts provides us with unprecedented opportunities to engage more girls in STEM. As one of the world's largest and most influential organizations for girls, the Girl Scouts plays a significant role in the lives of many young women. We serve as ambassadors of the GS STEM

initiative at events like Golden Gate Bridging (attended by 6000+ scouts from across the US), Winterfest, and Thinking Day. Many Space Cookies earn STEM-related Gold Awards, the highest award in Girl Scouting, by completing an extensive project to address a community issue with a lasting solution.

When Girl Scouts start FIRST teams, they request our mentorship. We leverage our Girl Scout network, collaborating with GS FIRST teams across the US including the FRC Lady Cans (2881) and Metallic Clouds (4335). To form more GS FLL teams, we held 3 workshops where we introduced girls to building and coding LEGO robots and taught parents how to start teams.

Our success has paved the way for subsequent Girl Scout STEM programs, many of which we lead and assist. This year, many Space Cookies took part in Made with Code, a collaborative initiative between Girl Scouts and Google that introduced 15,000+ girls to coding. Marina Park, CEO of GS NorCal, frequently celebrates our outreach and success at competitions in her national monthly newsletters.

Through Girl Scouts, we engage girls across the nation in STEM at an early age. Last year we developed “Engineering in Action”, a badge for girls in grades 6-8. We held numerous badge workshops, offering hands-on activities covering many engineering disciplines. This year we expanded our badge program with “Tech Trek”, for girls in grades 4-5, piloting the badge in the fall using a series of fun activities to demonstrate the importance of technology. This spring, we will introduce “Number Navigator,” a math badge for Brownies in grades K-2, expanding opportunities for younger Girl Scouts to explore STEM.

To broaden the reach of our badge programs, we created detailed guidebooks, available on our website, so troops across the country can run their own badge days and girls can earn them on their own. Girl Scouts from California to Massachusetts have earned our badges.

Every badge workshop, demo, and clinic we hold challenges perceptions, inspires girls, and encourages underrepresented groups to engage in technology.

In 2006, the Space Cookies began with 12 members and the goal to increase STEM opportunities for girls in the Bay Area. 10 years later and over 100 strong, we are pushing the boundaries of the international landscape of STEM, having grown into a sustainable organization dedicated to inspiring youth by changing people, creating possibilities and challenging perceptions.