

We *empower* the next generation of STEM leaders

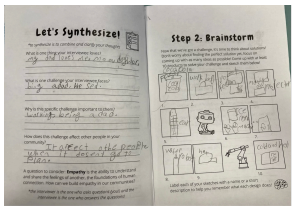


Gatorbotics promotes inclusivity to empower the future leaders of tomorrow, providing accessible engineering and programming curriculum for individuals with diverse STEM backgrounds. Dedicated to establishing accessible STEM pipelines, our FRC team has successfully encouraged community members to join Gatorbotics through outreach initiatives.

All-Female. Community. Leadership.

Let's *Gear Up!*

In 2019, we initiated the Gear Up! movement, aiming to develop an accessible, low-cost robotics curriculum for distribution to other teams, teachers, and organizations. We firmly believe in the importance of instilling a fundamental understanding of computer science and mechanical engineering. Furthermore, our curriculum goes beyond providing engineering tools by guiding students through the entire design process and imparting essential life skills, enabling them to design solutions for challenges within their communities. Learn more on page 8!









Gatorbotics Team 1700

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GATORBOTICS

Team 1700 Values



Mission

"To cultivate passionate learners of STEM and business across all identities, breaking traditional gender, race, and socioeconomic norms."

70	30	100
Members	**% of Upper School**	**% Female**

We are an FRC team based in Palo Alto, CA, this season marking our 20th year. Gatorbotics empowers the next generation of leaders by cultivating an inclusive environment in which engineering and programming curriculum is accessible to individuals with varying backgrounds. Our team, dedicated to establishing accessible STEM pipelines within our community, has successfully encouraged individuals to join Gatorbotics through various outreach initiatives. For example, many members of the middle school Gbots go on to join Gatorbotics. Gatorbotics leads members to cultivate a deep connection with the FIRST program. Furthermore, the vast majority of our alumni currently work in a STEM field, while only around 30% of STEM jobs are occupied by women, 90% of our Gatorbotics alumni attending college are STEM majors or FIRST-related disciplines.

GATORBOTICS

Team Culture + Structure

Gatorbotics, a student-run, student-led team, emphasizes community and leadership development. Team 1700 welcomes upper school students from diverse backgrounds, regardless of their STEM experience. We prioritize understanding and supporting new members, offering opportunities to anyone interested in robotics. Our commitment to inclusivity and empowerment ensures that every member can envision a future leadership role within our team.

1. *We lead and teach with compassion*
2. *We show our members the importance and value of spreading our knowledge and increasing inclusivity*
3. *We promote individuality and authenticity in STEM by giving our members multiple areas of interest they can focus or specialize in*



Our team acknowledges our unique position as being all-female in a field dominated by males. It is our responsibility to not only teach STEM curriculum in an accessible way so girls are confident to engage thoughtfully, but additionally empower girls to think like leaders and lead with compassion.

Specialist Positions

Our team created specialist positions as intermediate leadership roles before becoming official leads. Second-year members can immediately assume leadership roles, gaining experience with mentorship from older members. Team 1700 emphasizes empowerment based on merit, with 60% of our leadership team being non-seniors.

Big Gator, Little Gator

Big Gator, Little Gator is a mentoring program in our robotics team, where experienced members ("Big Gators") mentor newer ones ("Little Gators"). It fosters camaraderie and support, offering invaluable advice and creating a collaborative environment for growth.

Subteams of Gatorbotics

Build

The Build team focuses on the engineering side of the robot. Build members have the opportunity to go more in depth into subjects related to 3D design, pneumatics, machining, and prototyping.

Programming

The Programming team focuses on creating code for the robot. Programming members have the opportunity to go more in depth into subjects related to problem solving, learning java, and diving into robot-design related topics such as vision and autonomous systems.

Strategy

The Strategy team focuses on developing strategic approaches for design and competition play. Additionally, they build skills surrounding scouting in competition spaces.

Entrepreneurship

The Entrepreneurship team focuses on the business side of robotics, teaching core competencies in pitching, building valuable relationships with companies, and creating an image for Team 1700.



History

Gatorbotics was founded in December of 2004 by 12 girls in a 11' x 12' science closet at our school.

Currently, we comprise 70 members, constituting 30% of our Upper School population.

Now 20 years strong, Gatorbotics has taken over our school. Castilleja is a 118 year old all-girls institution with a strong focus on female empowerment. Before the founding of Gatorbotics, Castilleja lacked a STEM curriculum, being a humanities focused institution. Our team raised money to create a maker space at our school, followed by the creation of the Engineering and Computer Science department and a mandatory 9th grade coding class.

Awards



2024

- Impact Award at San Francisco Regional
- Team Spirit Award at World Championships in the Daly Division

2023

- Quality Award at Idaho Regional
- Engineering Inspiration Award at San Francisco Regional
- Judges Award at World Championships in the Archimedes Division

2022

- Engineering Inspiration Award at Aerospace Valley

Leadership Team



Bala Del Buono

TEAM CO-CAPTAIN



Lila Cole

TEAM CO-CAPTAIN



Poppy Lye

OPERATIONS LEAD



Ananya Nukala

MECHANICAL LEAD



Anaika Walia

PROGRAMMING LEAD



Raeva Parikh

ENTREPRENEURSHIP LEAD



Caroline Yuan

OUTREACH LEAD



Mika Cham

STRATEGY LEAD



Elise Wong-McBride

ELECTRONICS LEAD



Phoenix Chaffee

AUTO LEAD



Karys Chang

MECHANISMS LEAD



Reagan Raphael

FABRICATION LEAD



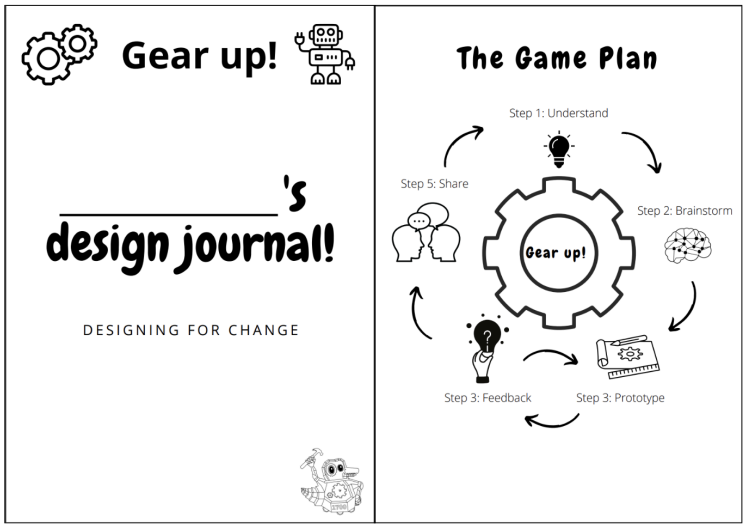
Zoe Lee

CAD LEAD

Gear Up!

In 2019, we launched our Gear Up! movement to create an **accessible**, **low-cost robotics curriculum** for sharing with other teams, teachers, and organizations. We believe that a fundamental understanding of computer science and mechanical engineering is crucial. Beyond providing engineering tools, we guide students through the **entire design process**, imparting foundational life skills such as interviewing, giving feedback, problem-solving, public speaking, and empathy. In essence, our curriculum offers **both basic engineering tools and life skills** in a self-contained, low-cost structure, empowering students to design solutions for challenges they encounter in their own communities.

2000+ students directly mentored



Long Term Partnerships

Castilleja Middle School "Gbots"

Through the Castilleja middle school Gbots program, we've impacted 2/3 of the Castilleja middle school, 120 girls. In mentoring the students, teaching them the basics of joints, motors, and rotational movement, and ultimately culminating in an interactive robot showcase. In the past our showcase has been a robotic petting zoo. We've developed significantly more interest in Gatorbotics and cultivated connections between our middle and upper school.

Peninsula Bridge

Gatorbotics' members teach a robotics elective to low-income girls at the Peninsula Bridge summer camp. Students experienced the engineering design cycle firsthand when they were asked to interview a person in their life, identify a problem they face, solve that problem with an engineered prototype, and present their solution to their peers and a panel of judges. They documented their process in these design journals created by Gatorbotics members, that are also available for other FRC teams to use on our website. We partnered with four other Bridge sites this last summer, adding two age groups, and impacting 250+ Bridge students by August.

Palo Alto Library Pop-up events

This year we have started hosting pop-up events at local libraries for children ages 4 to 9 years old. These events give elementary students an accessible opportunity to design-thinking and STEM learning. Gatorbotics members design and teach the curriculum for these pop-up events. Gatorbotics members work closely with a smaller group of kids, to help them through the prototyping, designing, and presenting stages. To start the process, the students identify a problem in a friend's life and design a robot to help solve that issue. At the end of the event, each student gets to present their robot design to the group, ultimately giving them confidence in presenting their ideas.

Halford Young Women Leaders Program

Starting in the fall of 2021, we incorporated robotics into the curriculum of the Halford Young Women Leaders Program, which provides mentorship to high-achieving, low-income 3rd-5th grade girls, most of whom live in East Palo Alto. We've led Halford lessons on making paper circuit cards for an important adult in their life, mechanization, and motors. We've begun developing a pipeline from Halford to our Castilleja Middle School and the MS GBots robotics program, and ultimately, to Gatorbotics as well.

LEMO Foundation

Gatorbotics collaborated with the LEMO Foundation, engaging with 50 low-income, at-risk middle schoolers to address community issues through engineering. After exploring challenges like gun violence and illiteracy, the students chose to focus on climate change. They created an interactive robotic endangered species petting zoo to raise awareness about extinction, drawing hundreds of community members to the event. Additionally, we joined forces with the LEMO elementary school summer camp, organizing activities such as spaghetti bridge challenges, experiments on Newton's Laws, and car design projects for 100 students. These activities culminated in a modified robotics petting zoo, further enriching the learning experience.



Photo from LEMO partnership event

Past Partnerships

Curieus

Our first Gear Up partner was Curieus, an organization that does science experiments with low-income elementary schoolers enrolled with the Boys and Girls' Clubs of the greater Palo Alto Area. We had about 100 students sign up for our Curieus partnership class, 50 in each semester, where we made coffee filter parachutes for toy soldiers to teach pneumatics, TinkerCAD holiday ornaments and rockets to teach them about design, logos and websites to teach kids about branding, and so much more. All of this was accomplished on Zoom during the pandemic, so while all of the materials we used in our lessons were low-cost, household supplies, we organized a COVID-safe materials pick-up at a local elementary school to ensure families didn't need to spend a dime on our class.

KIPP School FLL Team

KIPP schools are public charter schools founded with a commitment to excellence and a belief that children will be able to build a better tomorrow for us all if we help them develop the academic and character strengths they need for college and choice-filled lives. We partnered with KIPP to help the school start its own FLL team and improve their STEM program.

Street Code Academy FLL Team

Street Code is an organization that offers robotics, computer science, and design classes to underserved students. Our team members have mentored the Street Code FLL team in past years.

Global Partnerships

Working to Advance Science and Technology Education for African Women (WAAW)

We have recently created a partnership with the WAAW, an international 501(c)3 nonprofit in Africa. WAAW focuses on educating African women in STEM to reduce poverty and drive development. Through their foundation, they provide quality STEM opportunities, closing gender gaps in economics, innovation, and achievement. Our curriculum is being distributed to WAAW's network of 58 chapters across 21 African countries, benefiting over 6,000 women. We're also collaborating to digitize our curriculum, making it more engaging and accessible, especially for older learners, with the help of Khan Academy.

Tū Matarau Pango FTC Team

Tū Matarau Pango is an all-girls FTC team in New Zealand We hosted entrepreneurship workshops for their members, helped them begin outreach efforts in their local area, provided technical advice throughout their competition season, and helped them fundraise $3000. These fundamental business and engineering skills helped them start two more all-girls robotics teams in their area.



Outreach Archives





