

FIRST Impact Award - Team 4145

2025 - Team 4145
Team Number
4145
Team Nickname
WorBots
Team Location
Worthington, OH - 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.
In the past 3 years, 100% of WorBots have graduated (84% county average) and gone to college, with 94% pursuing STEM (compared to ~40% district-wide). Students hold a 3.9 unweighted GPA average. 63% have received STEM internships directly out of high school, with 6 students receiving internships with sponsors. 78% of alumni have remained involved in FIRST as mentors or volunteers, and 89% report FIRST impacting their decision to pursue STEM.
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.
Worthington is a landlocked suburban community of 14,500. Worthington City Schools contains 11 elementary, 5 middle, and 2 high schools. 58 languages are spoken in our district and 17 are spoken on our team. 43% of people in our county hold a bachelor's degree or higher. Prior to our team, there was little STEM in our district. We are working as the catalyst for STEM in our district through our 501(c)(3), which funds all district FIRST teams.
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 3 years, we've run 188 outreach events including 78 this season — reaching 300,000 people. We're sparking a lifelong passion for STEM. Student mentors from our team have worked with 4 FLL/FTC teams annually — 3 since 2018 and 1 since 2022. In 2025, we started and mentored 7 new FIRST teams. In 3 seasons, we ran 42 robotics workshops, engaging 2,000+ kids hands-on. We've also attended Columbus Crew and Clippers Games — teaching 40,000 people about STEM and FIRST.
Describe your team's goals and the progress you have made towards them to fulfill <i>FIRST's</i> Vision.
We're focused on providing consistent STEM access for grades K-12. We ran 48 community events in 2023, 62 in 2024, and 78 in 2025, with 100% repeatable event retention. We grew our K-12 FIRST Pathway from 100 kids to 150. We built STEM inclusivity through "Robotics for All" scholarships, which we partnered with a new community sponsor to increase this season — ensuring everyone can attend competitions. We've run events with Girl Scouts and SWENext to build Worthington FIRST inclusivity.
What impact has your team seen from your efforts described in the above question? How does your team measure impact?

We've grown our reach by 300% in 3 years and 2500% in 5. We've gone from 5 to 12 teams in our STEM pathway this season with 90% year-to-year student retention. We've tripled our number of sponsors in 3 years and used funding to build a sustainability fund for each FIRST pathway team. We measure impact not just through reach but through engagement in FIRST. In 3 seasons, our pathway has grown by 150%. Additionally, STEM education spaces have grown as a result of advocacy.

Please provide specific examples of how your team and team members act as role models within the *FIRST* community with emphasis on the past 3 years. How do you share these best practices with other teams?

We student-mentor kids across our Worthington FIRST Pathway — teaching FLL and FTC students technical skills as well as FIRST Core Values. We've published 30 FRC resources on our website in both English and Portuguese. We've worked with 56 FRC teams to aid in community outreach, answer technical questions, and support fundraising efforts. At events, we provide scouting data to teams. In 2023, we gave fully completed detailed scouting binders to rookie team 9597, Luban Robotics to support them.

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

This season, we have started 6 new FLL teams — 33672, 33673, 70229, 70232, 70233, 70234 — and FTC 29013 which we fund and student-mentor. We also mentor 4 FIRST teams we started in 2018. Furthermore, we have worked to support FIRST teams such as FRC teams 7565, 7567, and 9487 from Brazil; FRC team 9545 in Turkey; and FRC team 9597 from China. We've also worked to support FIRST locally by helping revive FRC team 6916, opening up our field to teams, and running a communication group.

What other initiatives have you created, grown, sustained, or participated in (*FIRST* 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?

We introduce kids to robotics at curriculum nights, STEAM nights, open houses, library workshops, science fairs, and community events through hands-on STEM activities. We volunteer for 2 weeks each summer at Gateway to Technology Camp, guiding kids through STEM challenges. We run introductory workshops on coding and building robots for kids as young as 3. We've also prepared “pre-FLL” and “pre-FTC” robotics clubs for schools where we're building FIRST teams – engaging kids with robotics.

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.

With sponsors such as ATS Automation and Lake Shore Cryotronics, WorBots have secured STEM internships directly after high school — forging lifelong STEM access. With FC Bank, we've attended Columbus Crew Games and Worthington Market Day for 3 years, connecting 40,000 people annually with hands-on STEM. With Babin Law, we attended a 2024 Columbus Clippers game and taught thousands about STEM. Through Amazon, we secured \$6,000 in funding in 2024 and 2025, allowing us to start 6 new FLL teams.

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

We connect young girls with STEM role models through Girl Scouts workshops, girls in engineering days, and SWENext events. In the past 3 years, 88 Girl Scouts have earned STEM badges from our team and we have grown from 18% to 52% female. Within FIRST, our bilingual and trilingual students have translated materials for and mentored rookie and veteran FRC teams in Brazil, Turkey, China, and India. We also work to provide scholarships so all students can attend competitions.

Explain how you ensure your team and the initiatives you have created will be sustainable.

We worked with community partners to develop a rainy day fund for each FIRST team within our pathway — guaranteeing even without additional funding, all teams would be able to make it through a season. We work with local libraries annually, developing long-term ways to engage kids in robotics locally. 92% of WorBots attended outreach prior to their joining the team, and 45% came from a feeder program. We document every step to run each outreach event, ensuring we can sustain community impact.

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

We’re striving to make our training program more holistic. We’ve implemented a new training system called “minibots,” where students work in groups of four on designing, building, and programming robots. We’ve also started a whole-team skills development program focused on teaching every student communication skills. We’re further aiming to broaden students’ skill sets through introducing them to all facets of the team. Through these changes, we are striving to make all students feel confident.

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, particularly noteworthy, or had a large impact.

We 3D-print adapted toys for students at a local preschool, ensuring that every kid can play with toys alongside siblings and friends. We run LEGO drives for the Ronald McDonald House of Nationwide Children’s Hospital, turn pens for troops going on Honor Flights, and run food drives for local resource pantries. We use STEM to drive change through writing and advocating for a STEM curriculum for the Ohio Juvenile Justice system — a project focused on building opportunities for youth in Ohio.

Judge Feedback

	Is there anything you wish we would have elaborated on? An area the team has an opportunity to improve. Something that really impressed the judges.
--	---

Essay

Founded in 2012, the WorBots are cultivating a culture of STEM in Worthington, Ohio by engaging, inspiring, and impacting our community. Through the WorBots, both of the rivaling high schools in our district, Thomas Worthington High School and Worthington Kilbourne High School, come together to prepare the next generation of STEM leaders in and beyond Ohio. Thirteen seasons ago, our team comprised fewer than 20 high school students. Today, the WorBots exist within the Worthington FIRST Pathway, connecting over 150 students to hands-on STEM opportunities through 12 FIRST teams.

WE ENGAGE We engage the world around us in STEM. We have run 78 community outreach events this season and 188 in the past 3 years, engaging 300,000+ people and providing engaging STEM education opportunities to all — from preschoolers to politicians. In the past 3 years, we’ve run 42 STEM workshops connecting 2,000 people with STEM and FIRST. We excite kids about STEM in our workspace through engineering and design workshops, programming walkthroughs, and opportunities to drive and learn about robots! We also partner with local libraries to run workshops for Scratch Jr., introductory robotics, and programming logic — engaging kids as young as 3 years old with fun STEM activities! We also partner with local scout troops to create workshops that meet badge requirements, engage kids in STEM, and emphasize the importance of leadership and service.

We engage youth through exciting, hands-on STEM activities. At the elementary level, we partner with science fairs,

after-school programs, and learning nights to teach kids about robotics. At Alum Creek Elementary School's Introduction to STEM and Trades Fair in 2024, we taught kids about opportunities to get involved with STEM early on through FIRST! At Worthington Estates Elementary School's Science Celebration, we taught kids how to drive robots and about the mechanisms that allow the robot to run. At the middle school level, we engage kids through running robotics challenges, teaching kids about coding, and running engineering days in our workshop.

We engage the entire Worthington community in STEM. Since 2022, we've brought robots and STEM activities to Worthington Market Day — the largest single-day event in Worthington, bringing together 100,000 people from all over the state. We teach kids about how robots are built, then give them a chance to drive a robot to complete tasks such as moving blocks — even checking two boxes on their "STEAM Passports"! Through this event, 16 kids and a mentor have joined the Worthington FIRST Pathway, and we've begun a pre-FLL program at another school in our district. We reach our community further at Worthington Science Day, an annual event where various STEM activities are set up. Here, we annually reach 1,500 kids and their families by teaching them about the FIRST program and showing them how to drive and build robots. We also host community open houses, where anyone can learn more about FIRST and drive a robot!

We engage Ohio in STEM. At Columbus Crew Games starting in 2023, we've run a booth on the plaza alongside FC Bank where we demonstrate robotics in action, talk to members of the Central Ohio community about how they can get involved with FIRST, and teach them about the manufacturing and software behind the robot — reaching 20,000 people per game. At one game, we had the opportunity to speak to the President of the State Board of Education for Ohio about the value of hands-on STEM opportunities pre-college. We also attended a Columbus Clipper game in 2024 with our robots and STEM activities, where we got to speak to engineers and kids alike from all over Central Ohio about the impact of FIRST robotics on students.

WE INSPIRE We inspire Worthington to get involved with STEM. Our team is dedicated to developing a Worthington FIRST Pathway to provide access to robotics to kids K-12. We student mentor FLL 33672, 33673, 44451, 44452, 69143, 70229, 70232, 70233, and 70234 as well as FTC 16284 and 29013 — all of which we started and funded. These teams are open to students across our district. We invited FLL and FTC students in Worthington to attend the Ohio State Championship and the CORI Invitational in 2024 at our school and talked about connections across the pathway. We also host the Worthington FIRST Pathway Celebration annually, which brings together every student from each of the pathway teams to talk about what they are doing and learn about the other teams. 90% of all students in the FIRST Pathway stay involved year-to-year, and every student who graduated from FTC joined the WorBots this year. We have expanded the Worthington FIRST Pathway beyond K-12 by partnering with corporate sponsors to connect students with STEM internships directly out of high school. This has resulted in 63% of recent alumni earning internships!

We inspire youth to innovate. At two local schools, we are running robotics clubs to introduce students to STEM while we work with school administrators to start up FIRST teams. We also attend the Olentangy Caverns Geology Camp over the summer to teach kids about robotics and the connections between different STEM fields and demonstrate robotics. This has reached 270 kids over the past three years. Each summer, we volunteer at the Worthington Gateway to Technology Camp — guiding students through interactive activities to learn about STEM. We also bring STEM challenges to community events, such as a local Solar Eclipse Day event in 2024, where we taught kids about STEM through fun challenges and activities!

We inspire young girls to get involved with STEM. We work with Girl Scouts troops to connect kids with STEM activities. At these events, we've helped 88 girls earn one or more STEM-focused merit badges, such as "Showcasing Robots," "Designing Robots," and "Programming Robots." through group activities. These workshops are fully run by underclassmen girls on our team! We've also developed partnerships with SWENext at both high schools and run events together focused on connecting girls with women in STEM. Over the past 5 years, our team has gone from 18% to 52% female!

WE IMPACT We impact STEM within Worthington. In 2022, we began our Worthington STEM Advocacy Project after learning STEM spaces were at risk of shrinking. We spoke at board meetings, invited district officials into our shop to learn about FIRST, and met with K-12 curriculum development directors. Over the course of over a year, we were able to not only secure STEM spaces with the remodel but also expand spaces to optimize collaborative, hands-on STEM learning — improving opportunities for generations to come. This advocacy resulted in more consistent funding for our FIRST Pathway from our school district, further expanding opportunities for STEM students. Within middle and high schools, we've developed a strong relationship with the PLTW program in our district and worked with teachers to tie FRC into classroom learning — connecting more STEM-focused kids to FIRST. For FLL and FTC programs, we secured \$6,000 this season to develop FIRST teams, and we are now getting programs started across the district.

We impact STEM locally. In 2025, after hearing about challenges teams were facing due to Ohio Senate Bill 29's restrictions placed on the use of platforms such as Discord and Remind for school groups, our team created "BotBulletin" — a platform collecting no student data that Ohio teams can use to continue communicating. Since 2023, we've supported a local FRC team — 6916, Iron Thunder. Throughout the 2023 season, we hosted them in our shop, connected them with sponsors, and provided programming and fabrication support. We worked with them throughout the 2023 Buckeye Regional to ensure they had the resources they needed to succeed. We've also worked to strengthen the connection between Ohio FIRST teams by developing an Ohio FIRST Discord, where teams discuss needed parts, ask questions, and share information. We also had the opportunity to host the 2024 Ohio State Championship and every CORI Invitational since 2018.

We impact the global FIRST community. We've supported 4 FRC teams from Brazil (7565, 7567, 9487, and 9617). With teams 7565 and 7567, we discussed the awards submission process and how to effectively document community involvement. With team 9487, we discussed starting off a rookie season, documentation, and how to get involved with kids locally. We also provided 9617 with technical resources and an overview of how we effectively plan out and manage time during the build season. We discussed preparing for and managing time in the build season, preventing damage to the robot, and other aspects of creating a quality design. We've worked with FRC team 9545 (formerly 8856) since 2022, discussing elements of reaching out to the community and guiding them through developing effective battery charging stations. In 2024, supported Luban Robotics from China — donating batteries and a tool cart for them at regionals, providing a spot to 3D print and practice, and helping them repair their robot between matches at a regional.

WE ARE THE WORBOTS In the past 3 years, we've expanded STEM opportunities through a cohesive pathway of over 150 kids on 12 teams, inspiring youth to get involved in STEM regardless of their background. We've impacted over 300,000 people through 188 events, bringing STEM where it once was not. What was once a vision for a K-12 pathway is now lifelong opportunities beginning in kindergarten and expanding into STEM internships and careers. Not only have we cultivated a culture of STEM, we've made a concrete impact through advocacy, work with other teams, and accessible STEM opportunities for every single member of our community. Throughout the past 3 years, we have created an impact felt by thousands — not only cultivating a culture of STEM in Worthington but expanding it far beyond.;

