

***FIRST* Impact Award - Team 2826**

2024 - Team 2826
Team Number
2826
Team Nickname
Wave Robotics
Team Location
Oshkosh, WI - USA
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.
In the last 3 seasons, 100% of our graduates have received their high school diploma and pursued further education. 90% have attended a 4-year in STEM fields. Last season, our seniors received 2.7 million dollars in scholarships and gained leadership skills through our 11 student-led positions. With a support base from 15 mentors, more than 40% are Wave alumni who were inspired by their experiences on the team.
Describe your community along with how your team addresses its unique opportunities and circumstances.
A community-based team, Wave strives to fill the underserved STEM community in three counties. Our team currently welcomes students from five area schools and additional homeschool programs. With a team spanning more than 90 square miles, we meet in our newly constructed Community Robotics Center, a multi-year effort costing \$385,410, made possible by gracious sponsors, grants, and local support. We annually host 750+ community members at our facilities, including 19 FIRST teams.
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?
Wave partners with the FIRST social media team, the only FRC team to regularly post on official digital platforms. From teaching Core Values to battery safety, we have gained 750,000+ views while growing FIRST accounts by more than 6,000 followers. In our community, we host events like FIRST Night with our NBA affiliate team & unique FLL offseason events! Results are measured through new teams, like Oshkosh's eleven FLL Explore teams that have been founded and assisted in the past three years
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.
2826 is a founding member of the Open Alliance, helping to gather more than 170,000 views in six weeks while sharing build-season updates. In addition, we are LGBTQ+ of FIRST gold members and helped to create a safe-space initiative in Milwaukee. Wave hosted the 2021 FLL WI State Championship for 24

teams and created our annual FLL Explore Expo which serves 150+ community members each year. We recently celebrated our 4th RoboRumble FLL off-season event with teams traveling 2+ hours to attend.

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

In 3 seasons, Wave has assisted 50+ area FIRST teams. We have started 10+ FIRST teams in ALL levels, including the first FLL-Explore team in Paraguay and Ripple Robotics for Wave rookies. Our team traveled to China to mentor rookie and pre-rookie FRC teams. Each year, we attend FLL regionals to promote FIRST and host an annual FLL Bootcamp with hands-on learning, open to all students in Oshkosh. We hosted a Coach Round-Up to fill a coaching shortage in our community.

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?

Wave introduced Robotics 1 & 2 courses into Oshkosh high schools, consistently enrolling more than 100 students across 4 sessions. Traveling across two districts, Wave hosts Elementary STEM Day, integrating STEM into the classroom for 130+ students, with 40% having limited access to STEM activities. Through our SavvyScout program, we have helped earn 120+ Girl Scout badges and 40 Scout Merit badges. Our free Reading With Robots videos have reached 6,500+.

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

We are firm believers in STEM for all. This season, we joined CARE Days which unites 300 students together, including 140 students in Special-Ed programs. We brought adaptive toys and a robot petting zoo to create an engaging day! Our team regularly attends the Oshkosh Farmers Market and other local events to provide free STEM activities, including the 1,200 foam rockets and 750 custom buttons that we have donated within the past year!

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

We strive to create a safe space for ALL members of FIRST. With 5+ year gold membership in LGBTQ+ of FIRST, we have met with FIRST VISTAs to push inclusion and hosted panels at Champs. All members pass our Equity, Diversity, and Inclusion Training. For 2022 International Day of Women and Girls in STEM (IDWGIS) we hosted a Hmong Community Night with speaker Mai Lee Chang, NASA Scientist with 100+ attendees, advertised in both English and Hmong. We also hosted a booth at the UW-Oshkosh IDWGIS Expo

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

In 2021, we founded sister team FRC 8518 Ripple Robotics to provide additional support and experience to our newest team members. This program has provided a 100% student retention rate as members transition into 2826. We recently expanded our team with an 8th-grade program, allowing students to experience 5 years of FRC! Through our FLL mentoring efforts, nearly 53% of our students have previous experience in FLL and FTC.

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

Through our Community Robotics Center additions, we have been able to grow our Wave family to include 20+ sponsors while raising more than \$350,000. We regularly host events and tours to engage our partners such as filming content for the Power/mation newsletter, being featured in the Oshkosh Area Community Foundation's annual report, and giving a presentation for the Kiwanis. Our students have the opportunity to hold paid internships with sponsors like Oshkosh Corp gaining industry experience

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

Following two separate instances at our local high school, a school shooting and a gun incident, we noticed a mental health crisis affecting both the students on our team and at our area schools. Actively promoting mental health awareness, we created Sharky's Safe Space, ensuring all students feel safe across our district. We host monthly events at Oshkosh West to promote student well-being with a therapy dog and engaging activities.

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

42.5% of students in our area are economically disadvantaged. Our goal is to prepare ALL students to be college, career, and community-ready, retain STEM talent, and create a community in which it is celebrated. Working in our community to create programs and courses like Tech Adventure, K-8 STEM Nights, HS Robotics Courses, and FLL Bootcamp, we have provided free STEM access to hundreds and impacted hundreds of thousands through our digital content.

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.

Moving into the Fab-Lab at North High was huge for us. We have access to tools we didn't have before (pick a room, there's tons!) giving students more experience with tools used in industry. Being at North improves recruitment among students and teachers/community members as mentors. Our goal is to inspire and prepare students for STEM careers. Being STEM-literate, being able to follow through on design ideas, gives students that "look what I made!" feeling leading to even more creativity.

Judge Feedback

Who/When

Feedback

Mar 16,
2024
03:32:53
PM EST

We are continuously trying to improve our team model. Do you have any suggestions on teams to contact regarding outreach, and recruiting sponsors and mentors to grow our program?

An area the team has an opportunity to improve.

Something that really impressed the judges.

Essay

Since 2008, Wave Robotics has been at the forefront of changing STEM culture, providing resources and opportunities our region needs. As a community based team, we welcome all students from the Fox

Valley. Through more than 2,000 annual outreach hours, our Waves of Change annually connect with 750,000+ people, increasing STEM accessibility and inspiring future generations. We achieve our mission by building strong-leaders in the community, expanding STEM programming, and actively promoting FIRST opportunities. **LEADERS IN OUR COMMUNITY** Built on the foundation of inclusivity, 2826 Wave Robotics is a community team for all, embracing 39 members from six area schools and homeschool programs. We serve grades 8-12 across three counties. With many students identifying as LGBTQ+ and neurodivergent, we strive to create a safe environment where all thrive through annual Equity, Diversity, and Inclusion Training. Our team also participates in widespread efforts through partnerships with the LGBTQ+ of FIRST and FIRST Ladies, like establishing the Milwaukee LGBTQ+ Safe Space Initiative in 2021, hosting a movie night, and advocating on panels at the FIRST Championship. Further celebrating diversity, our team hosted an event with keynote speaker Dr. Mai Lee Chang, an Oshkosh alumni and the first Hmong scientist to work at NASA. Advertising in English and Hmong reached new parts of our community with 100+ attendees. Promoting leadership opportunities, our team features 11 student-led positions across 7 subteams. Through this gained experience, team-lead Ben now serves on the FIRST Wisconsin Student Board of Directors as the FRC Team Growth Project Lead. 2826 traveled to the WI Capitol for 2024 FIRST Advocacy Day to meet with legislators to gain support and increase team grant funding for FRC and FTC teams. We host workshops to allow students to explore interests and gain skills in areas such as screen-printing and CAD. These unique opportunities have contributed to our well-rounded students, including our 2023 senior class, earning 2.7+ million dollars in scholarships. Our local high school faced two major events in four years: a school shooting and a gun threat, causing a plummet in mental health in the community. To support our students, we founded Sharky's Safe Space, a program designed to ensure all feel safe and welcome at school. We host a monthly comforting event, like a movie or bracelet making, accompanied by a therapy dog and mental health resources. We attend CARE Days, an adapted carnival event, to provide STEAM activities for all. Our button-making station gives students a chance to explore their creativity with more than 600 buttons distributed throughout the day. The robot petting zoo features pieces from past FRC games for students to interact with. The event is attended by more than 500 area students, including 160 in special-ed programs. This event focuses on inclusion of our most underrepresented population and receives overwhelming support from our school administration. Opening in 2021, our newly-founded Community Robotics Center is the team's biggest contribution to the Fox Valley. Through multi-year efforts, we raised \$385,410 while partnering with 14 new sponsors to create a space that promotes college, career, and community readiness allowing students to gain greater experience with industry machinery like CNC machines and carbon filament 3D printers! Broadening our community footprint, we open our space to the public, with 750+ community members and 19 FIRST teams visiting annually! In our new facility, we founded sister team FRC 8518 Ripple Robotics to provide additional hands-on experience for our rookie team members. Emphasizing mechanical and business subteams, this program has a 100% retention rate as members transition into Wave. Ripple has found great success, even winning an offseason event as alliance captain. **STEM PROGRAMMING** With 9,000+ enrolled in the Oshkosh Area School District (OASD), 67% fall below proficiency levels in STEM. Wave is dedicated to increasing the STEM proficiency of our students by offering annual workshops, school courses, and camps to increase accessibility across our surrounding area, ensuring all students can learn, grow, and discover! We strive to impact our community by sparking new STEM interests in our schools. Our 8th annual FLL Bootcamp integrates hands-on STEM activities and FLL principles into a week-long adventure. Campers utilize Spike Prime kits to gain hands-on learning with prototyping and programming. Students have the opportunity to meet industry experts and take field trips across the region. Through increased STEM interest, 100% of first-year attendees join a FIRST team! Wave helped create Robotics 1 and 2 courses, improving STEM opportunities in our high schools. Since 2020, interest

has quadrupled with 100+ students currently enrolled. Through multi-year fundraising, Wave raised more than \$150k to add new machinery to Oshkosh North's existing Tech-Ed facilities. Affixed to each machine, students scan QR codes to watch Wave's Safety Videos! Our high impact partnership has created a 200% increase in FRC interest since 2020. Our Elementary STEM Day encourages classroom exploration. With 112 hours in curriculum planning, these courses are educational, hands-on, and teacher approved. Designed entirely by Wave students, this day embraces Core Values as students build robots, interact with code, and create binary code bracelets. Traveling across school districts, we have impacted 135+ students in multiple classrooms while engaging students in STEM, teaching them new concepts & inspiring them to continue their STEM exploration. We created SavvyScouts for local Girl Scouts to meet their robotics badge requirements. With grant-funded \$2,000 in STEM kits, we host regular sessions, expanding the program to include Boy Scout Troops. Through the success and excitement of our lessons, a Girl Scout troop started an FLL Explore team! Offered biannually, our program has helped over Scouts earn 160 badges. Wave's Reading With Robot initiative is a continued effort to increase literacy while promoting all levels of FIRST. Wave's video archive of STEAM-themed books is available online for elementary classrooms, gaining more than 6,500 views! Through community partnerships, Wave hosted K-8 OASD STEM Nights and YMCA Tech Adventure. Most recently, we collaborated with the University of Wisconsin Oshkosh to teach robotics at Grandparents University, a summer camp that unites children and their grandparents for education and exploration. From ages 8 to 80, all participants explored STEM activities while making valuable memories. Wave Robotics hosts and attends 30+ annual outreach events! Exhibiting at local festivals and events, including markets and festivals, we provide a variety of make-and-take activities such as foam rocket building, button making, and LEGO tables, while reaching 10,000+. In the past year, we donated more than 1,200 foam rockets and 750 buttons. FIRST TIDES Wave impacts 55+ local FIRST teams and hundreds more digitally. Partnering with FRC teams like 2194 and 7915, teams are invited to our facilities for help and to attend our kickoff celebration. We founded and mentor FTC 16305 High Tide. In the past year, Wave members have spent over 250 hours mentoring and assisting FLL teams. Wave collaborates weekly with the FIRST social media team to post engaging content on official accounts, connecting with more than 700,000 global innovators. As the only team to regularly partake in this opportunity, we represent all FIRST teams through our informative and engaging content. We have helped grow FIRST social media accounts by more than 6,500 followers while reaching the attention of will.i.am and the FIRST board of directors! Our team hosted the virtual 2021 Wisconsin FLL-C State Championship. Despite the pandemic, Wave was able to guide teams through the online platform, creating a successful championship event experience. Wave supports two FLL regionals, annually contributing 185 hours of assistance. We spark interest in upper FIRST programs with interactive robot demonstrations and info booths. Allowing FLL students to drive our robot is an event highlight! We collaborate with NBA-affiliate team Wisconsin Herd to host FIRST Night. More than 2,500 spectators travel to watch basketball, filled with the excitement of FIRST. From pre-game celebrations to half-time entertainment, local FIRST teams are invited to set up booths and engage with the community! We host RoboRumble, a one-of-a-kind FLL-C offseason event! FLL teams embrace coopertition while competing in alliance style matches. We partner with a FLL team to create unique event trophies! This event has continued to grow and expand, with teams traveling across the state to compete! Our FLL Explore Expo allows younger students to showcase their creations to superintendents, principals, and the community. Presenting their knowledge of Core Values, teams design awards for each other. The 2023 event had 55 FLL-E students and 140 attendees. From 2018-2020, we founded "Los Tiburones," the first FLL Explore team in Paraguay. When mentor Cassidy joined the Peace Corps, we raised funds to purchase a laptop and WeDo kits. We virtually mentored the students and donated supplies for continued learning. In 2020, our team became a founding member of the Open Alliance, an initiative to openly share robot designs, code, and our build

season processes. While documenting our season's progress, we encourage other teams to ask questions and provide help when needed. Within 6 weeks, Open Alliance teams gathered 170,000+ views, inspiring teams throughout the world. ENDLESS WAVES From small splashes in the community to creating international tides, our Waves of Change are at the forefront of a global STEM movement. An everlasting crescendo, 2826 will continue to flow, spreading our vision for a brighter STEM future for all. ;

