

FIRST Impact Award - Team 2080

2023 - Team 2080
Team Number
2080
Team Nickname
Torbotics
Team Location
Hammond, LA - 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 yrs, Torbotics has emphasized anyone can go pro in STEM prompting many in sports to also join 2080. We've seen growth in both the number of students enrolled in our engineering program (from 197 to 304) & the number of active members on our team (from 38 to 79). With 147 alumni, 2080 boasts a 100% HS graduation rate with 98% moving on to major in STEM &/or become involved in STEM related career-fields. Of those, we have seen the growth of female & POC students double in size.
Describe your community along with how your team addresses its unique opportunities and circumstances.
The city of Hammond has a 34.1% poverty rate, with 52.4% of African Americans living below the poverty line. We cater our services to these needs. We host multiple free outreach events which take place w/in low-income neighborhoods to address a lack of transportation. We provide STEM-on-the-Go kits at no cost & collaborate w/ local churches. We believe our members should not pay to participate in FIRST, therefore traveling to competitions is fully sponsored.
Describe the team's methods, with emphasis on the past 3 years, for spreading the FIRST message in ways that are effective, scalable, sustainable, and creative. How does your team measure results?
Our mission: #putSTEMFIRST drives the annual review of our dynamic, sustainable outreach/marketing plan. Based on annual team & community needs, we create 3 more focus pts to actively meet metric trends & feedback. Partnering to eliminate a lack of transportation to access events is one example. We seek ways to share our FIRST journey w/ policy makers on local & state level; serving on 2 state STEM Ed boards. We get verbal & written feedback after each event, & review media analytics
Please provide specific examples of how your team members act as role models within the FIRST community with emphasis on the past 3 years.
We're often asked to serve as volunteers for state FIRST events alongside other teams. With 57% of our membership having joined FIRST prior to FRC, we are often asked to serve as event & trng collaborators across multiple program levels throughout LA. For ex, this yr we were asked to facilitate a large-scale

STEM project for all FLL members in attendance at the State Championship while waiting on judging. In the last 3 yrs, 2080 has had 3 regional Dean's List Finalists; 1 for FTC & 2 for FRC.

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

In 17 szn, we've started/mentored 33 FIRST teams, including 1 in Albania that we cont to support. In the past 3 yrs, we've started 6 teams, assisted to restore 3, facilitated 14 FLL, FTC, & FRC Jumpstart trngs, & hosted/ran 9 FTC, FLL C, & state FLL E comps. We've hosted 8 Chairman's Exs, regularly contributed to FRC brds, & have publ our FRC Chairman's Forecast to aid teams in preparing their submissions. Last yr, we assisted 6 FRC, 11 FTC, & 9 FLL teams to secure collegiate mentorship from SLU

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?

We avg 27 outreach events, impacting over 23,500 annually for the past 17 yrs. We accomplish this through MonsTOR Mash, Starry November Nights, STEM Cafes, ASTRO Camps, SeaPerch, STEM-on-the-Go Kits, SPARK, STEMulate, appearances in multiple parades, social media campaigns, open houses, hosting elementary field trips, UB the Chemist, & multiple demos. 91% of members 1st learned about 2080 thru outreach. The team's reaching global name recognition status in our rural, low-income area.

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

This season we started a partnership with the New Orleans International Airport to develop memory aid devices that prevent runway incursions. From this project our partnership has continued to develop and we are now working with the FAA to instate our solution into further airports. As founding members of the Northshore STEM Coalition we have cont to contribute. This season this resulted in us helping to develop collegiate mentorship for 26 FIRST teams and local participation in SeaPerch Comps.

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

This season in response to recent data that only 1/3 of households in our city own a vehicle, We made it a goal to address a lack of transportation to STEM events. To that end, we ptr with local businesses to relocate our camps to more accessible areas and sought grants (like those w/ Robonation) making our camps free of cost. We ptr with programs that benefit disadvantaged youth to distribute our STEM-on-the-GO kits. We also elim the cost of travel for 2080 members to allow for more participation

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

We've learned that to meaningfully grow our initiatives we must cont to adapt & make them relevant to our prgrm. Our yrly goals are based on feedback & metrics from the community & team. This has resulted in us establishing our biggest team yet & has created a more diverse & welcoming env. We've found that sharing lessons learned across the board & member cross training are crucial in team upkeep. These strategies have allowed us to develop a thriving team & maintain previous knowledge.

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

We've developed an active financial sub-group. We encourage all sponsors to visit our shop & get a sense of our team, FIRST, & the true impact of our mission. Thru constant contact w/ local Chambers of Commerce we work to recruit new sponsors. We actively engage our base using competitive business objectives keeping them up-to-date & highlighting their impact. Each monetary donation is recognized on a tier-system to provide marketing incentive.

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

As our team has grown exponentially in the past 3 yrs, yet the issue of transportation to meetings and availability remains an issue due to the systemic needs of our community. We have been discussing the possibility of a bus or other means of transportation to get students to meetings & how to approach different funding sources to secure this as an option. Until then, we have adjusted the meeting schedule to accommodate different kinds of schedules.

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

#putSTEMFIRST is our motto, our guide to elevating perceptions & interest in STEM through FIRST. Each season, we meet as a team to plan the yr's initiatives to advance our motto based on student interest & changing needs. This yr's initiatives are to #passtheTORch, which means to pass down our STEM legacy to future generations, #resilienceinSTEM recognizing the sustaining force FIRST has provided our students & community, & #incorporaTORs, which includes all who wish to participate in STEM.

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.

This Season our team was approached to develop a medical device for a young woman in our community. In developing this project we have made a medical harness for Mackenzie, a five year-old girl with spinal muscular atrophy. In developing this project we have learned so much, from newly discovered interests among the team & end user product development, to working on modifying our own outreach to be inclusive towards more in the community.

Essay

What does it look like to ignite a desire to pursue STEM in the youth around you? How do you not only relate, but embody the FIRST core values? Once established, how do you pass the torch of STEM, fueling a culture shift within your region?

For 2080 it began with a spark: a group of 9 students, 1 sponsor, & a mission. Throughout our history, we've established a support system for students using FIRST core values & STEM education as the guide. Since its inception, we've observed an undeniable surge inspired by 2080. Now a blaze with 17 seasons of experience, we've grown into a 4 yr IB - LSU certified engineering pathway & 79 active team members who are dedicated to our cause. Collectively, we have used STEM beyond its practical applications to reshape the atmosphere of our school & community. Our projects have helped to meaningfully change the lives of those in our community. We've designed marketable creative solutions to large-scale problems in air traffic, provided STEM education to local schools & uplifted a community.

As #incorporaTORS since its formation, 2080 has endeavored to expand & change the trajectory of youth in every way. In 2012, Torbotics began hosting what was the only STEM-based, youth-centered camp in our area. 5 yrs later, NASA's HEO ASTRO CAMP expressed interest, launching a partnership with us to the present day. In 2022, we launched our Under the Sea Summer Camps, assisting local teens in constructing SeaPearch ROVs @ no cost thru a grant from RoboNation & NASA.

Accessible transportation remains a formidable obstacle. In an area where only 1/3 of households own a vehicle, we noticed a gap in local participation as our school resides well outside city limits. We've shifted to meet young people where they are: in their homes & neighborhoods. We partnered with the local rec center to relocate our ROV camp into the heart of our city's lower socio-economic area & still kept it free. Last October, we started our STEM-On-the-Go Kits, sending out a new, user-friendly STEM concept monthly to organizations for disadvantaged youth like Explore & Learn Early Learning Center & Southeast Advocates for Family Empowerment. To evoke meaningful systemic change, we aim to strategically incorporate greater accessibility, influencing even greater participation.

Within 2080, we've seen a large growth in participation numbers across the board. We went from 38 members in 2019 to 79 members in 2023, with a 94% return rate. We are 15% more diverse than Hammond High itself; attributable to greater exposure & the encouragement of alumni. The emphasis to learn & grow within FIRST is broadening not only 2080's grasp, but our region. Advocacy does not stop @ Hammond, but expands into our whole parish & region. We are often asked by state & national officials to present to those with influence on the benefits of FIRST & the transformation it provides to low-income, underfunded districts. Most recently in Nov, the team presented our shop, robot, & IMPACT goals to local & state legislation & the LA Board of Education. We showed how Torbotics has created & sustains an infrastructure inlaid with FIRST in both our school & region & its resounding impact. We're founding members of the Northshore STEM Coalition & are represented on the newly formed LA Girls Collaborative Champions Board. This year we extended our reach & partnerships to create a Torbotics Scholarship for seniors who exemplify FIRST & plan to pursue higher education.

#ResilienceinFIRST is an initiative that has taken its stride in recent yrs, with FIRST programs becoming a beacon of hope & consistency in the face of recurrent obstacles. During COVID-19, we were faced with a dilemma: stop or pivot. Choosing the latter, we became an LHSA certified sport in order to hold meetings & made 3 remote resource platforms in lieu of our in-person ASTRO Camps. In August that yr, district schools used these platforms as STEM enrichment, reaching over 15,000 students regionally. In 2021, this program's success led to 23 different TPSS summer schools holding their own mini-ASTRO

Camps. In a moment when 2080 was called on to rise to the challenge, we were able role models & set an example for our region. Locked into our mission, Torbotics learned to adapt when we could & innovate when we must. This resilience was tested again during one of our biggest 2021 inhibitors: Hurricane Ida. The long term damage left on our team & shop is something that can't be forgotten but rather persevered. In this perseverance, we hosted a Zoom meeting with Val Eagle Robotics, who lost countless resources during the storm. Despite continued long-term damage to our own build space, we went on to provide them with build materials & support. This season, changes in our school's population are impacting us as well. Our school population has grown to almost 1,700 students, meaning that our shop space has decreased in order to accommodate. Through organization & adherence to planning, we have managed to retain all supplies & pivot in the face of adversity. Over the yrs, participants & alumni in our program have cited it as a source of optimism, cementing FIRST as a source as well.

With an average 27 outreach engagements each yr across a number of schools, community centers, sports complexes, & parks, 2080 aims to #passtheTORch introducing thousands of youth to STEM. One of this season's highlights was a Halloween-themed MonSTOR Mash STEM carnival we hosted at a local park ensuring equitable access. Even in the pouring rain, we were humbled by the number of participants who came out to share in the spooky STEM fun. Perseverance in the face of hardship is the only way to pass the torch. We started 2 new community FLL teams this yr, now mentoring 3 FLL teams weekly in our build space. As for not directly mentored teams, Torbotics still finds a way to light their torch. In 2022, 2080 donated 30 refurbished NXT kits to STEM classes & beginner FLL teams. We also host, plan, & design the awards for LA FLL Explore competitions & festivals. This yr, SELU Laboratory School students organized an entire field trip to tour our shop & become familiar with FIRST.

When Torbotics passes the torch of FIRST to others, we create relationships between youth & alumni. Our alumni program has 17 generations, maintaining over 100 contacts across the world. Of these alumni, 98% "go pro" & pursue STEM in their college &/or careers, with 71% of those going on to mentor teams/volunteer with FIRST in some way. These alumni come back very often to mentor current members & create lasting, meaningful connections with a new 2080. One of the most impactful currently is a 2020 alum. After beginning in FIRST at the age of 10 on an FLL team started by Torbotics, she went on to become the team's lead programmer & captain of 2080. Now a junior majoring in physics @ LSU, she comes back every week to mentor, guide, & lead those who follow in her path. These connections create a succession of STEM, perpetually passing the blazing torch of FIRST ideals.

#PutSTEMFIRST STEM in LA cultivates leaders, innovators, & trailblazers who not only defy the status quo, but redefine it. Since 2017, Torbotics has centered this as our mission statement. 2080 aims to remain a role model for others in FIRST & the rest of the community. Torbotics has started & mentored over 30 FIRST Robotics teams & assisted hundreds of others, including a team in Albania. 2080 is a founding member of the Tangi STEM Coalition; started in 2017 to spark collaboration & leverage focus to build more STEM-centered opportunities across our parish. After its 2019 rebrand to the Northshore STEM Coalition, we utilized this platform to secure 6 FRC, 11 FTC, & 9 FLL teams direct mentorship & support from Southeastern LA University. In order to continue the incorporation of STEM in our area, we aided in the development & construction of the coalition's 1st mobile STEM lab, named the Brain Food Truck in 2019. 2080 was also a key collaborative partner in Tangipahoa's STREAMliner, a bus converted to be a hub of Science, Technology, Reading, Engineering, Art, & Math activities for schools in our parish. In 2022, we were tasked with creating a safety solution for professional ATCs @ the New Orleans International Airport. We designed & programmed a memory aid LED device for Air Traffic Controllers to alert different positions when a runway is clear to signal take off. Following approval from the Federal

Aviation Administration, we were encouraged to work with other airports across the U.S. to create additional customized LED signs to assist with the safe landing & take-off for every plane that passes through. Another way 2080 has implemented our mission is through the Mackenzie Project. This yr, we were approached by a young girl & her family. Suffering from spinal muscle atrophy since birth, she was in need of a custom-made device that would make her more comfortable & provide her with non-invasive, daily support. The Mackenzie Project is nearly done & after over 5 different prototypes, we are closer than ever to providing her with the device she needs. Through innovation in STEM, we have made a young girl's life better in a way that the current affordable biomedical engineering market could not.

Through FIRST, Torbotics is able to create what we want to see in our community. It's easy to complain about a lack of diversity in STEM engagements, accessibility for those who don't go to magnet, STEM-focused schools, or lack of priority given to STEM. It is not easy to take the lead, innovate & spark the flames we would like to see in our future. Through FIRST, Torbotics makes Hammond, LA a better, brighter place.

When we #putSTEMFIRST, we serve as #incorporaTORs of STEM in our community. Through our Purple Print, we exhibit #ResilienceinFIRST & elevate to rise above challenges. Torbotics is ready to #passtheTORch in order to spark a change in our community and beyond, are you? ;

