Chairman's Award - Team 5740

2020 - Team 5740

Team Number

5740

Team Name, Corporate/University Sponsors

North Catholic High School

Briefly describe the impact of the FIRST program on team participants within the last five years.

FIRST empowers our members. One student has gained confidence, "now I can speak in front of people." Another student with high-functioning autism was a featured presenter beside the Bishop at the 2019 St. Anthony's Banquet. He credits inclusion in FIRST for his social skills. These personal developments typify our Mission to build students of creativity, leadership, & professionalism. Additionally 94% of alumni pursue STEM majors, they are living our team's Vision to see communities served.

Describe the impact of the FIRST program on your community within the last five years.

5740 utilizes FIRST skills & values to engage people ages 3-101, with varying demographics. We teach preschoolers about coding via play & teach programs like Skype to senior residents through our SeniorsFIRST program. We adapted 27 toys for kids with disabilities & developed an app with Verizon to keep teen drivers safe on the road. We teach STEM concepts through our More Than Robots Camp, Arduino Camp, Christmas on Troy Hill, Women in STEM Camp & STEM Fest, creating exciting life experiences.

Describe the team's methods for spreading the FIRST message in ways that are effective, scalable, sustainable, and creative.

We led 4 teams across PA to advocate for increased K-12 STEM education investment through PACT. PACT makes STEM opportunities available to PA students through $40+ million in grants. The Philadelphia Robotics Coalition used $150k to start 200 FLL teams, proving the bill's benefit toward FIRST. We ran PACT workshops in 2019 to expand these efforts to more teams. We provide mentorship & resources with our FTC & FLL replicable models, evident through implementation of FTC Class in AZ & FLL in CA.

Describe examples of how your team members act as role models and inspire other FIRST team members to emulate

5740 created & moderates the FRC WOW Discord Server for 66 teams & 275+ members to promote collaboration & communication amongst teams; such as our FIRST podcast. At the TRETC conference, we presented how to utilize PASMART grants to create & develop FIRST programs & other STEM opportunities to school educators & administrators. Since 2018 our competition Help Desk ensures every bot can compete. "5740 is a team that collaboratively shares the reach of their program to others" (Ethan, FRC 4467).
Describe the team's initiatives to help start or form other FRC teams

After mentoring 6814 in 2018, we co-founded FullCircle (FC) together to mentor 9 rookie teams in 2019. All FC mentees won awards, including 6 Rookie All-Star awards, affirming success & sustainability. We are still in contact with these original teams today & we actively mentor 10 new FRC teams via FC. FC has also created 10 original articles relating to all facets of FRC. These articles have been translated & distributed to 83+ FRC teams in China through a partnership with F&D Studios.

Describe the team's initiatives to help start or form other FIRST teams (including Jr.FLL, FLL, & FTC)

We started 5 FTC teams & mentored 2 of them since 2017 (4 in PA 1 in AZ). 1 team won an event & the other won The Inspire Award. Our SKPS FLL program involved over 90 students, 33% of 4th-8th graders. In the Butler school district, an underserved area, we started 2 FLL Jr. teams. After demonstrating the value of FIRST & its benefits to the students & Butler's superintendent, we helped him create self-sustaining academic & extracurricular STEM opportunities for all grade levels in the district.

Describe the team's initiatives on assisting other FIRST teams (including Jr.FLL, FLL, FTC, & FRC) with progressing through the FIRST program

In the past 3 years, NC has been a buzzing hive for FIRST activities such as FTC workshops & the only 2018 kickoff in the region. We ran 3 official scrimmages, 1 FTC & 2 FLL, in the past 3 years. At our FTC event, 5740 assisted FTC 14700 become competition-ready. We launched our FRC Bootcamp initiative, where local FLL teams & robot clubs attend build meetings to see what's in store for them as they progress through FIRST programs. They participate in our design process & see the end result.

Describe how your team works with other FIRST teams to serve as mentors to younger or less experienced FIRST teams (includes Jr.FLL, FLL, FTC, & FRC teams)

Our FTC class structure delivers a FIRST experience without an extracurricular commitment. Many students joined 5740 because of their FTC participation. This class structure has been emulated & implemented into Desert Mountain HS in AZ after collaborating with FRC 6314 to co-mentor FTC 15430. After seeing how effective our SKPS FLL model was locally, we worked closely with FRC 599 to start 10 teams in CA. We provided resources & direction so 599 could successfully & sustainably mentor the teams.

Describe your Corporate/University Sponsors

In the team's first 3 years we had 9 corporate sponsors, in the following 3 years we have added 40 corporate sponsors. Through our community presence, FIRST at NC attracts local & personal sponsorships. 49 local corporations now have FIRST awareness! Industry & university partnerships provide more than monetary donations; organizations like MSA, UPMC, & Point Park University expose our students to industry tools, career development opportunities, outreach support, & academic professionals.

Describe the strength of your partnership with your sponsors within the last five years.

5740 ensures our sponsors' investments pay dividends. Our sponsors have hired 3 members for intern positions. At NC, sponsor representatives talk to the students about their jobs in industry & we coordinated 4 school-wide field trips to their facilities. We host sponsor events at regionals so they can see the team & FIRST in action, a pit tour, & receive 5740 merchandise. We say thank you via letters & an end-of-year picnic! Connecting with sponsors has led to mentorship & student opportunities.

Describe how your team would explain what FIRST is to someone who has never heard of it

FIRST is the foundation of what the world needs to make it a better place. Building robots in FIRST allows growth & learning as students collaborate & compete in a creative manner. However, it is so much more than a robot! FIRST delivers an opportunity to form long lasting relationships & instills principles that shape participants into exemplary people & professionals. FIRST helps students discover career paths they would not have imagined & connects them to students & alumni worldwide.

Briefly describe other matters of interest to the FIRST judges, if any

Our Vision is to serve our communities with gracious mindsets & professional skill sets. We are on a never-ending quest to improve STEM accessibility & culture in all demographics, ages 3-101. Because of their FIRST experiences, 5740 members leave lasting impressions on their communities & their people are forever changed. Likewise, every 5740 member has been impacted by these community interactions. We take pride in building students of creativity, leadership, & professionalism!

For FRC teams older than 5 years, briefly describe your team's broader impact from its inception.

In 2014 our school was void of STEM electives & opportunities. We transformed school curriculum & culture by inspiring 7 STEM electives & 33 career development opportunities. We engage our community with Service through STEM, adapting toys for medically fragile kids, teaching seniors how to use technology, Inclusion Games, & more. In 2017 PA was ranked #48 in state STEM education funding. Our PACT efforts expanded FIRST statewide, helped pass $40 mil to state budget, & elevated PA to #2 in 2018.
Team Captain/Student Representative that has double-checked this submission.

Nicholas Crum
Essay

THOMAS

WE ARE 5740!

5740 is defined by our Vision to see our communities served by our team equipped with gracious mindsets & professional skill sets. As a senior, I have seen our Mission to build students of creativity, leadership, & professionalism transform my teammates into compassionate young adults prepared to excel after high school. The expansion of STEM appreciation as a result of our Vision & Mission didn’t happen overnight. Every member & alum of 5740's 6 year history has been instrumental in the growth & creation of STEM recognition & opportunities in our members' communities. 5740 students exemplify FIRST's Mission, Vision, & Values through every event, initiative, & interaction, furthering these goals through FIRST expansion, STEM advocacy, student involvement, & Service through STEM.

Our success in developing students in light of our Mission is evident through 2 members becoming Dean's List Finalists, including myself being an Award Winner. Our members carry the same traits expected from Dean's List nominees. 5740 forms well-rounded individuals, preparing them for college & technical careers by using industry tools & mentorship. Our students & alumni consistently find summer internships & co-ops with our sponsors. I was hired this past summer to work at Oberg Industries, a 3-year team sponsor, to fabricate medical devices used in knee surgery. I used my technical skills to machine parts & my professional skills to work effectively on a team. Leaving work each day, I saw that I was using the expertise I learned through FIRST to improve lives & I owe it to my time on 5740.

LUKE

In 2017, I saw an opportunity in the FRC community. New teams were being started but lacked the resources & guidance needed to be sustainable. I, along with other members of my team were committed to improve this. We co-founded FullCircle (FC) with Team 6814, a team we mentored during their rookie year. FC's mission is to mentor rookie teams in both the technical & non-technical aspects of FRC to develop sustainable programs. In its inaugural season (2018-19) we started 2 teams & mentored 9 from the US, Canada, & Ukraine. Additionally, we developed 10 original articles with over 10 teams including 1902 to outline the fundamentals of FRC. These articles received over 1500 downloads, were featured on the NASA Robotics Coalition's website, were translated to Mandarin, & distributed to 83+ Chinese FRC teams by F&D Studio, a FIRST partner organization. The mentored teams' success proved that this program is both scalable & sustainable. Every team mentored won a competition Award. Collectively, they won 6 Rookie All-Star awards, 5 other culture awards, & 4 robot performance awards. For me, seeing these teams succeed after many months of skype calls, text messages, & even in person visits, was the most rewarding part of working within this program.

In my sophomore year (2017), Pennsylvania was ranked 48th out of 50 for state STEM education funding. This hindered STEM education development & the sustainability of FIRST programs. My team founded PACT, the Pennsylvania Advocacy Conference of Technology, to make STEM opportunities available to all Pennsylvanians. This initiative started back in 2017 when we created self-sustaining classes & clubs in the Butler School District before state grant funding opportunities existed. To expand these efforts, we met with several local & state representatives, asking them for their support & to vote "YES" to pass the PASMART funding bill. Through our efforts, the bill passed, allocating $40 million to PA K-12 STEM education annually, bringing our state from 48th to 2nd for STEM education funding.

A question that we are often asked about PACT is why we founded it in the first place when we are ineligible for receiving these funds as a private school. Our answer is always the same: we want others to be able to experience FIRST. Ask any member of our team & they will attest how FIRST has changed their lives. We know FIRST is a force for change. This is why we work, so that every student in the galaxy can experience it.

KATIE

As a sophomore involved in STEM advocacy, I wanted to make schools aware of the PASMART bill to expand FIRST opportunities statewide & encourage schools to apply for these grants. We presented at the TRETC education conference in a student showcase to discuss PASMART, sharing how sustainable FIRST programs can be implemented into schools with state funding. We met with the Deer Lakes School District (DL) to learn how they used their PASMART grant money. DL said there were many funding restrictions within the bill that limited FIRST implementation, so we worked with our regional director & the bill's author, Judd Pittman, to draft & pass revisions.
Every year I look forward to teaching at our team’s "More Than Robots" STEM camp. We have taught 55 campers since 2017, with over half enrolling in North Catholic (NC) to join 5740. During the camp the students learn the basics of design, engineering, software, & even business skills while fostering teamwork & Gracious Professionalism. This year we diversified our STEM camps & offered a new Arduino camp where middle school students learned the basics of C++ & electronics. At our sponsor Berner Int., we ran a Women in STEM camp for 25 campers with help from the former CEO. The girls used sponsor products to learn how structures can be built to withstand hurricanes.

At Westinghouse's Women in STEM Day, our team organized an opportunity to bring girls from our school to learn from female role models in the technology & energy industries. We received in-depth information about the different STEM disciplines, attended a Women in Engineering Q&A panel, & toured their training facility. Because of the Women in STEM day, I have an expanded understanding of the engineering fields & it now guides my career outlook.

NICK C

When NC first opened in 2014, it was void of any engineering or technology focused opportunities. By working closely with administration since 2015, we have been instrumental in the creation of 7 new STEM electives. The introduction of engineering, computer science, & FIRST-focused courses into our school has created a more well-rounded curriculum, giving students more opportunities to explore STEM. To introduce students to FIRST, we created FIRST Class Robotics 1 & 2, which allows students to pursue membership on a FTC team without an extracurricular commitment. One of my favorite memories was watching my classmates who have never experienced FIRST get to participate in a competition while earning an A in the class! This replicable course structure has been so successful that it has been emulated & implemented into Desert Mountain High School in AZ by FTC 15430.

In an effort to deliver even greater STEM opportunities to students outside of our team, we've collaborated with NC's Career Development department to create 25 field trips & 8 Career Action Plan (CAP) talks since 2016. These are great opportunities for all students as they introduce them to a whole new STEM experience they can't have in a classroom. Our field trips have ventured to universities, local companies, & our sponsors' facilities. Our CAP talks are given by industry professionals who give insight into what their career is about. NC noticed our success in organizing these events & became more invested in expanding STEM opportunities by creating the 'STEMM Coordinator' position to further promote these initiatives, as well as a 2nd faculty robotics mentor. These career development opportunities have helped me & my classmates pave a path to our futures.

NICK B edited by DALHART

FIRST has had an immeasurable impact on my life as an individual with high functioning autism & ADHD in the St. Anthony's assisted learning program. I joined the team thinking I would just learn to code, but 5740 allowed me to hone my communicative & technical abilities, giving me an invaluable experience which I will carry into my future as an undergrad in software engineering.

Participating in Service through STEM with my team has made me realize what an impact a single robotics program can make. Volunteering at our FTC scrimmage, helping fix teams' technical problems, brought my FIRST experience full circle. My favorite sustaining event is the toy adaptation for medically fragile children because it celebrates people's differences while bringing joy to families in need, endeavors which are very important to me & my team. The 27 toys we adapted were donated to The Children's Home & Lemieux Family Center where they are available to over 40 children on a daily basis. As students on 5740, we are encouraged to creatively express our interests & kickstart unique outreach events that have tangible impacts in diverse areas of our communities. Some of these events include STEM-focused activities at the Pgh Children's Museum with over 1000 participants, partnering with UPMC to introduce FIRST to senior citizens, & developing a safe driving app, with help from Verizon, to protect more than 2 million teen drivers!

While on the team, our students are focused on serving their communities, which in turn, builds students of creativity, leadership, & professionalism. Through our FIRST expansion, communities near & far enjoy the experiences of FIRST; our STEM advocacy makes this goal attainable with state grants. Student involvement prepares them for life after FIRST, & Service through STEM makes our community a better place for all the people who 5740 inspires. 5740 is a far reaching & all-accepting program that creates individuals with gracious mindsets & professional skill sets, no matter an individual's age, abilities, or disabilities. If I had to pick from the hundreds of reasons why I love 5740 & FIRST, it's that we are not just peers, we are one big robotics family on a continuing quest to serve our communities through STEM. WE ARE 5740!