

## Chairman's Award - Team 1718

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2021 - Team 1718

**Team Number**

1718

**Team Nickname**

The Fighting Pi

**Team Location**

Armada, Michigan - USA

**Describe the impact of the *FIRST* 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 *FIRST* programs as mentors/sponsors.**

Team 1718 allows our students to flourish within and beyond robotics, maintaining a 100% graduation rate, 99% pursuing higher education, and 93% following a STEM-related career path. We host 39 off-season workshops on 8 topics: CAD, controls, media, and outreach; these workshops allow our students to gain valuable skills for their future workplace. Team 1718 has allowed alumni the opportunity to receive over 5 million dollars in scholarships, all accredited to the team's efforts.

**Describe your community along with how your team addresses its unique opportunities and circumstances.**

Being from a small agricultural community, we produced and donated 1,100+ pieces of PPE: 687 face masks, 350 face shields, and 150 mask savers for front-line workers. With 7 other teams, we attended a Virtual Chairman's Exchange and FIRST Virtual Chairman's Award Chat to maintain skills during the off-season. We raised over \$2900 collecting cans/bottles to fund our annual Infinite Possibilities Grants. Since 2017, we have awarded \$5,500 in 11 grants to 2nd and 3rd year FRC and FTC teams.

**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 week-long demonstrations at the Armada Fair (60k att/yr) connect young students with FIRST teams in their community, 25% of our members joined from this event. We hosted an FLL Jr. Expo, resulting in 42% of St. Peter's students joining 4 new teams. Our demonstrations at Camp Skyline (140 att/yr), The Henry Ford Maker Faire (200k att/yr), Michigan Defense Expo (2,500 att/yr), Muscular Dystrophy Camp (130 att/yr), and the Selfridge Air Show (100k att/yr) raise awareness of STEM programs.

**Please provide specific examples of how your team members act as role models within the *FIRST* community with emphasis on the past 3 years.**

Annually, we host and run the Michigan Advocacy Conference, where over 120 attendees from 18 FIRST teams spoke to elected officials on the importance of STEM program funding. At the FIRST World Championship Advocacy Seminar, we collaborated with 4 other teams to teach others how to form state-level advocacy conferences. For 9 years, we hosted Michigan State Championship Seminars, inviting 15 teams to present in 31 seminars on over 22 STEM and business topics to over 400 attendees.

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

We assisted 10 FRC teams, including two from Shoham, Israel, and Mumbai, India, offering them insights on finances, publications, newsletters, and outreach. We mentored 3 FRC, 2 FTC, 6 FLL, and 2 FLL Jr. teams. Our team started 3 FRC, 2 FTC, 2 FLL teams, and has demonstrated to the school administration of prospective teams, showcasing the advantages that *FIRST* programs offer. Over the past 3 years, teams we have assisted received over 35 awards; ranging from Chairman's to rookie-year awards.

**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?**

Each year, we host and run our FLL and FLL Jr. tournament, Armada Automation. 24 FLL and 5 FLL Jr. teams showcase their acquired skills from the season. Nearly 100 percent of our students and mentors volunteer at this event. We introduce later elementary students to *FIRST* programs at the Starbase aeronautical camp, school STEAM nights, libraries, and four parades. For two years, two Team 1718 students interned for a Wayne State University professor helping him code a drone swarm initiative.

**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 presented to our school board, resulting in the creation of a Maker's Space and larger build space, allowing students to utilize modern manufacturing equipment. Last year, we supported the formation of the Macomb Local Advocacy Conference and participated in the Texas *FIRST* State Advocacy Summit on the *FIRST* Updates Now Twitch Channel. We advised the goals of the new Macomb County Robotics Alliance, participated on a Macomb Robotics Showcase panel and had officials attend our district event.

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

Two of our students were invited to speak on equality of women in STEM at the United Nations for the International Day Of Women & Girls in Science Event, encouraging young women to overcome implicit bias in the workplace & was broadcast on national news stations. 40% of our team leadership positions are held by young women. Our students are completing the *FIRST* Diversity, Equity and Inclusion Training, from this, our business team is creating an Equity Plan, ensuring our team's accessibility.

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

Our students run FLL Camps and attend annual FLL formation meetings; demonstrate to local scout troops, Team 6120, local 8th graders, and at the Royal Family Foster Kid Camp; making students aware of *FIRST* programs is an effective feeder system to our team. We volunteer at 9 community events, including Camp Invention, the FLL State Championship, and FTC competitions. We are creative in our fundraising efforts, with our students running over 10 events to become more sustainable financially.

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

We build relationships with our 60 sponsors by giving 12 in-person presentations, veteran home visits for the Special Forces Association, weekly newsletters, annual open houses, and volunteering 300 hours at food booths. At the Michigan Defense Expo, we gave a two-day demonstration to industry professionals, engaging them as potential sponsors. At the 2019 *FIRST* Championship, we coordinated with the Department of Defense to express our gratitude by organizing a photo for their sponsored teams.

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

We improved full-team engagement by enhancing communication, and shifting our team structure to have more inclusive subsections. This resulted in new student-leadership, utilizing virtual formats for MAC, workshops and regular-season meetings. We promote the yearly development of our student leadership by maintaining updated timelines within our business plans, risk analysis, and Gantt charts. Through these efforts, our team has efficiently addressed the new game challenges presented by *FIRST*.

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

Students attended the National Advocacy Conference for 4 years, meeting legislators and cabinet members, to promote the ESSA Title 4 Part A and Perkins Act, building confidence and communication skills. We became a member of the NAC Coordinating Committee due to our continued support. Hosting 5 Chairman's and 2 Leadership Bootcamps progressed our 7 Dean's List finalists to compete at every level (local, state, worlds), and 25% of our alumni mentor teams or volunteer at *FIRST* events.

**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 year, we were invited to the Student Association of STEM Advocacy (SASA) as a part of a Charter Membership, held by only 4 FRC teams in the nation. We are working towards raising \$5,000 to support this new organization, while connecting our students to a national network of resources. We have provided our publications: business plans, and school board/sponsor presentations for a state advocacy conference toolkit, growing the influence of FIRST and STEM advocacy on a national scale.

## Essay

Team 1718, The Fighting Pi, defies the odds of our small-farm town and extends FIRST's impact beyond our team while continuing to embody a positive influence on the growing culture of STEM in our community, state, nation and world. Comprised of 23 members and 14 mentors, 40% of our team leadership is female, preparing them to overcome potential adversity in their future endeavors. Our 114 alumni are involved in STEM beyond their time on the team, with 94% entering STEM-related fields, and 100% crediting their successes to our team.

We encourage FIRST students to become leaders in their careers at our annual Michigan State Championship Seminars. For nine consecutive years, our team ran and hosted 31 seminars on over 22 STEM and business topics: including CAD, Outreach, LabVIEW, Business Plan & Strategy. The inclusion of 15 teams from across the state in our seminars allows us to diversify our set of topics, bettering the education of over 400 FIRST students. Our seminars enable the development of 21st century skill sets, valuable in the modern workplace.

At the 2019 FIRST World Championship Advocacy Seminar, we presented alongside teams from Virginia, Minnesota, New York & New Jersey, teaching additional teams how to start advocacy conferences in their respective states to make FIRST and STEM programs more sustainable. Our collaboration with teams allows us to promote funding and youth accessibility of STEM, continuing to enhance communication and self-confidence within the FIRST community.

Our team strengthens the public-speaking & critical-thinking skills of FIRST students at our five Leadership and two Chairman's Bootcamps. We spoke at Team 4810's charity event on leadership, before the season, to encourage local FIRST students to improve skills. For two years, two of our students interned for a Wayne State University professor helping him code and CAD a drone swarm initiative. We attend the Lapeer RoboCon, Michigan Robotics Invitational, Michigan Advanced Robotics & Mighty Maker Mayhem offseason Competitions. These events engage our current and prospective students, enabling them to explore new areas of the team and gain experience in FIRST prior to the start of the season.

Our students mentor four levels of FIRST, promoting Gracious Professionalism & acting as role models for younger students to emulate. We taught the skills of programming, CAD, teamwork, robot design, creativity & 3D printing to three FRC teams, 2 FTC teams, 6 FLL Challenge teams & two FLL Explore teams, inspiring students to gain interest in STEM topics. In our local district, we hold presentations for elementary students & attend annual FLL formation meetings, confirming our dedication to mentoring FLL teams.

Annually, we run and host our state-qualifying FLL tournament & FLL Jr. Expo, Armada Automation. Over the past three years, 48 FLL & 10 FLL Jr. teams were able to showcase their innovative problem-solving skills & achievements from the season. Our students, mentors & alumni volunteer at this event as judges, tabulators, referees & student ambassadors, acting as role model examples for younger students.

We presented to parents at St. Peter's Lutheran School in Richmond and held a FLL Jr. Expo, resulting in the formation of an FLL team and three FLL Jr. teams, involving 42% of their school's student body. We started an FTC club at our local middle school that grew into an FTC team in 2018. Our encouragement of youth involvement in STEM led us to start two FTC teams, five FLL teams & four FLL Jr. teams. Our students host FLL summer camps to provide these young students with FIRST experience.

We started three FRC teams, giving them resources needed for sustainability. We demonstrated to administration at Warren Woods Tower High School, teachers at Merritt Academy & a teacher at Lutheran High North High School at our open house, showcasing the advantages FIRST programs offer. We assisted ten teams, including teams from Shoham, Israel and Mumbai, India, offering them insight on finances, publications, newsletters & outreach, strengthening our relation with international FIRST teams and their communities.

To support second and third year FRC and FTC teams in Michigan, we annually award our Infinite Possibilities Grants. These grants are entirely student-funded and judged, in 2020, we raised \$2,900 collecting bottles and cans from our community. Over the past four years we have awarded over 11 grants, totaling \$5,500, allowing financially-struggling teams to become more sustainable.

We maintain a valuable relationship with our 60 sponsors, by volunteering 300 hours in their food booths at the Armada Fair, giving 12 in-person presentations, completing veteran home visits for the Special Forces Association, sending them our weekly newsletters, hosting annual open houses, inviting them to our awards banquet & participating in their event field-cleanups. Our team's dedication to assisting our sponsors resulted in the Special Forces Association awarding our team a grant for build supplies. To exhibit our appreciation, we organized a group photo for the Department of Defense at the 2019 FIRST World Championship, including all of their sponsored teams.

We constantly develop creative methods for fundraising, establishing a strong basis for our team to grow. We initiated over 10 fundraisers at MOD Pizza, Wendy's, Village Cafe, Noodles & Company, a Graduation Flower Sale, a Tennis Concession Stand & a Candy Bar sale, ensuring our financial stability. Our students engaged industry professionals at a two-day demonstration during the Michigan Defense Expo, soliciting them as potential sponsors.

Meeting the unprecedented challenges of the pandemic, we produced and donated over 1,100 pieces of Personal Protective Equipment: 687 face masks, 350 face shields & 150 mask savers for front-line workers. This donation was facilitated by both current and former students, to assist under-resourced hospitals in the surrounding area. Our team rearranged leadership roles, and modified meetings, to effectively address new FIRST At-Home Challenges. Our students attended a Virtual Chairman's Exchange, alongside seven teams, and a FIRST Virtual Chairman's Award Chat to maintain their skills during the extended off-season.

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We extend outreach beyond our community with demonstrations at Starbase, The Henry Ford Maker Faire (200k att./year), Special Forces Association, to scout groups, local 8th graders & the Selfridge ANGB Air Show (100k att./year). To stimulate youth interest we volunteer at the Muscular Dystrophy Association (MDA) Camp (130 att./year), Royal Family Foster Camp & Camp Skyline (140 att./year). A student with Muscular Dystrophy, was joined by team members at the MDA Camp to provide participants with physical challenges the opportunity to drive the robot and give them an interactive demonstration, educating them on the possibilities FIRST & STEM programs can offer.

We run and host demonstrations at the Armada Fair, reaching 60 thousand annual attendees. Our students accumulated 1200 work hours over the past three years, interacting with fair-goers and volunteering for our sponsors. We connect students with FIRST teams in their community and invite five teams to present alongside us, encouraging STEM involvement in our rural area. Solidifying their interest in Team 1718, 25% of our students assert they joined the team due to the fair demonstrations.

We connect with and support local teams at the Macomb County Robotics Alliance, where our students and mentors work to advise and shape the goals of the alliance. One of our students participated in a panel at the Macomb Robotics Showcase and Macomb Local Advocacy Conference to encourage youth participation in FIRST programs. This event resulted in our state representative attending the Macomb District event. We participated in the STEM Advocacy Conference of Texas, on the FIRST Updates Now Twitch Channel to speak about the process of creating the Michigan Advocacy Conference (MAC), and participated in a live chat to answer questions from teams across the nation. Last year, two of our team members were invited to speak at the United Nations on behalf of women in STEM, at the International Day for Women and Girls in Science Event. This event was broadcasted on several national news stations, spreading the message of equity in FIRST and STEM.

For four years, our students attended the National Advocacy Conference (NAC) in Washington, DC, speaking to Education Secretary Betsy DeVos and Senators Debbie Stabenow and Gary Peters, to support the ESSA Title 4 Part A and Perkins Act. Gaining advocacy experience and promoting STEM program funding allows our students to obtain valuable communication and public-speaking skills. From our continuous support of this event, this year we became a member of the NAC Coordinating Committee.

In 2020, we were invited to join the Student Association for STEM Advocacy as a Charter Member, only held by four other teams in the nation. To make this membership official, we are working on raising \$5,000 to help pilot this organization. We provided our business plans and school board presentations for a state advocacy conference toolkit, working to educate, engage and mobilize students to prompt the expansion and access to STEM programs.

For the fourth consecutive year, we hosted and ran our annual Michigan Advocacy Conference, the first student-led and organized advocacy conference in the nation. 120 students from 18 different FIRST teams have spoken to their state-elected officials on the importance of FIRST and STEM program funding. MAC heightens the awareness of students, mentors, and officials on the value of after-school STEM education.

Team 1718 prepares our students for their endeavors beyond robotics. We sustain our broad influence to progress our network of future leaders in STEM, improving social development & citizenship in our community, state, nation & world.