Chairman's Award - Team 1403

Print Close

2019 - Team 1403

Team Number

1403

Team Name, Corporate/University Sponsors

Montgomery Township School District/nrg energy/Bristol-Myers Squibb/National Defense Education Program & Montgomery High

Briefly describe the impact of the *FIRST* program on team participants with special emphasis on the 2018/2019 year and the preceding two to five years

Our mentors hold Cougar Classes to help students develop leadership and communication skills as well as engineering experience. Education is passed from member to member through our leadership model. Students are motivated to pursue their passions in this collaborative environment. Members can earn Varsity letters for their hard work and dedication. Team 1403 has a 100% high school graduation rate, and many members pursue a career in STEM. Alumni return to mentor Team 1403 and other FIRST Teams.

Describe the impact of the *FIRST* program on your community with special emphasis on the 2018/2019 year and the preceding two to five years

Montgomery Rotary Club organized Wreaths Across America to stop in our town this year. This event was to honor our country's veterans and current military; 78 of our members attended to pay respects. At the Run for Rotary and the Fall Festival, we showcased our robot and spread the message of FIRST. For the last 4 years, 1403 has collected and donated hundreds of food/hygiene products to the Trenton Soup Kitchen. We have also been consistently featured in the local newspaper.

Team's innovative or creative method to spread the *FIRST* message

Yearly at the S.O.A.R. summer enrichment program and at local libraries we teach students how to program LEGO NXT robots. The past two years, we helped evaluate projects at the Science and Invention Convention and showcased our robot. We hosted for the second year a Women in STEM event to give women an opportunity to learn from professionals working in STEM fields. Our team regularly volunteers at The Rock Brook School and MHS Skybox to introduce robotics to special education students.

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

Team 1403 sets the standard for both professional documentation and conduct. We record our events and progress through our team timeline, handbook, robot user manual, and Chairman's Binder, which we share at competitions. Kickoff presentations are shared on our website. We create slides and videos for The Compass Alliance. From safety to our team uniforms, we always present ourselves in a professional manner. We continually offer assistance to other teams during build season and at competitions.

Describe the team's initiatives to help start or form other FRC teams

Groups looking to start a team are often in need of assistance that may be difficult to find. For this reason, we formed The Compass Alliance (TCA) with 7 other teams. TCA provides detailed guides, mentor support for new teams, and a 24-hour hotline to help teams across time zones and languages.

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

Five years ago, Team 1403 created 2 FLL Teams 26361 & 26362 in the Montgomery Upper Middle School. We have been very involved with sponsoring and mentoring these teams since inception. This year we also inspired a Girl Scout Troop to start their own FLL Team 42298.

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

Team 1403, along with 7 FRC teams across the globe, formed The Compass Alliance (TCA) in 2017. We are one of 4 core teams that provide professional resources. Through Call Tickets on TCA, we have helped several local teams such as Team S.P.I.K.E. FRC 293. We video chat about game strategy, robot design, and general FRC topics with our sister Teams FRC 4481 and FRC 3132. Over the last 3 years, we have mentored and sponsored 3 FLL Teams 26361, 26362 & 42298 with 62 student mentors and 2,215 hours.

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)

Team 1403's Outreach sub-team plans volunteering and mentoring opportunities for the entire team, including working with 2 FLL teams at our Upper Middle School since 2015 and one rookie Girl Scout Team this year. Volunteers from our team help students with their programming and project challenges, but also hope to instill the core values of FIRST and our team in students to prepare them for their futures both inside the engineering community and outside of it.

Describe your Corporate/University Sponsors

Montgomery Township Board of Education provides us with school facilities. Picatinny Arsenal hosts a Women in STEM event to motivate women on our team to pursue STEM fields. Other sponsors include Bristol-Myers Squibb, NRG Energy, Department of Defense STEM, A&K Equipment, Integra LifeSciences, and Slalom. All of our sponsors provide us with financial support.

Describe the strength of your partnership with your sponsors with special emphasis on the 2018/2019 year and the preceding two to five years

Our strongest sponsor is the Montgomery Township Board of Education. We have a symbiotic relationship with them; they provide us with meeting spaces while we donate our team purchased machinery to the school. Our efforts have even influenced our schools' curriculum through the implementation of engineering classes. Another supportive sponsor is Picatinny Arsenal. They have held a Women in STEM event for the past 4 years, inviting girls on our team to speak to female professionals in STEM.

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

FIRST aims to reach students around the world with the message that they can become a part of the future by getting involved with STEM. It is an opportunity for students to strengthen, through competition and collaboration, their interest and knowledge in science and engineering. Students work as a team to learn skills like communication, teamwork, and leadership while working with those who share a common interest and are encouraged to reach out to the community and make a difference.

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

Team 1403 is the model of sustainability. From our robot to our team's appearance, we live, eat, and breathe sustainability. We focus our efforts on events that can be continued year after year and have the largest impact. This is apparent through the amount of hours dedicated to each of our outreach activities. Not only is Team 1403's sustainability important, but all FIRST Teams. Through TCA, Kickoff presentations and the robot user manual, we can help make all FIRST Teams be sustainable.

Team Captain/Student Representative that has double-checked this submission.

Pranav Saboo

Essay

FIRST THINGS FIRST

Sixteen years ago, a team was created in hopes of building a robot and winning a FIRST Robotics Competition. But in those 16 years, FRC Team 1403, Cougar Robotics has become so much more. We are a green beacon of hope. We are iconic, not only in our local community of Montgomery but in the greater FMA community. We are caring. We are helpful. We are gracious. We are sustainable. We are diverse. We are messengers of STEM. We are a team who does what we do because that's who we are. Who are we? Fourteen-O-Three!

COUGARS FIRST

Our team consists of around 100 students, sorted into 2 major groups: robot and logistics. The robot side consists of electrical, mechanical, design, and programming, while the logistics side includes A/V, business/communications, strategy, and outreach. Twenty juniors and seniors provide leadership to these teams and this year 7 of them are women. Our team prides itself on granting varsity letters, which started in the 2014 season. Members can earn this by fulfilling requirements addressed in the team contract they sign. This distinction boosts team morale and encourages more students to commit to FRC. Since its inception, 109 team members have achieved varsity letters for robotics.

LEARNING FIRST

To build a solid team, it is imperative to focus on teaching and mentoring. One way we achieve this is through 5 preseason Cougar Classes. A typical class begins with a mentor presenting a lesson on topics ranging from drivetrains to public speaking. This is followed by hands-on challenges relating to the presentation that utilize technical and collaborative skills. These activities bring members from all sub-teams together to work on one goal. Each class, the students are shuffled into groups to allow members to develop relationships with someone they might not know.

Peer mentoring provides students with experience in leading and teaching others. Sub-team captains are veteran members who pass their knowledge on to new members and train them to engage in their sub-team's process. In our preseason, new members are encouraged to attend meetings of different sub-teams so they can discover other fields they may have interest in.

A DIVERSE FIRST

Team 1403 promotes the idea of culture being a celebration of differences. In one of our presentations, 6 team members shared their heritage with others, expressing traditions that are part of their own unique identities. Through these presentations, we become kinder and more appreciative of not just our surrounding teammates but also the people in our lives. Although we come from different cultures and backgrounds, we are united by our FIRST culture.

During our 2018 district event, we held our 2nd annual Women in STEM panel. Here we hosted 10 passionate women in professional STEM fields including information technologists, optometrists and biological engineers. This event was held to encourage young women to pursue careers in STEM. The event included one-on-one conversations with the women talking about their career paths and a panel discussion regarding challenges they faced and what they gained from their job. Currently 29 members of our team are female, 15 of which work on the robot side.

OUR TOWN FIRST

Team 1403 believes that "STEM is for everyone," and that is why we have always made it our focus to reach out to local special education programs in our area. For the past 2 years we have held Raspberry Pi seminars for the Skybox Transitional Program for special education students at our high school. Here students learn to program basic face detection using a Pi camera. At the Rock Brook School for children with communication impairment and multiple disabilities, we help students build, program and play with LEGO NXT robots - introducing the students to STEM.

To ignite a passion in STEM for the youth of Montgomery, we supported the Science & Invention Convention for the past 5 years. This year, 22 of our team members were invited to be evaluators, rather than teachers or adults as in prior years. These members judged projects created by 262 elementary and middle school students and held an interactive demonstration where attendees of the event could operate small robots. At local libraries, members held workshops teaching Python to middle school students. Additionally, we demonstrated robots at the Run for Rotary event hosted by the Montgomery Rocky-Hill chapter of the Rotary club. These workshops and seminars all contribute to our initiative of giving every student a STEM opportunity.

Our focus is not just on spreading robotics. For the last 4 years, 1403 has collected hundreds of food and hygiene products to donate to the Trenton Area Soup Kitchen. Montgomery Rotary Club organized for Wreaths Across America to stop in our town this year. This event was to honor our country's veterans and current military; 78 of our members attended to pay respects.

GROWING FIRST

Developing students' passions toward FIRST is one of our team's primary missions. Over the last 3 years, 62 of our members dedicated a total of 2,215 hours to mentoring our middle-school and Girl Scout FLL Teams 26361, 26362 and 42298. We also sponsored both of our middle-school FLL Teams by purchasing two EV3 kits. Of the students on this year's team, 17 of them were involved with FIRST programs prior to high school.

1403 has built a deep connection with many of the students on the FLL Teams through our consistent presence at their meetings. Several of the FLL students have even shown an interest in FRC and decided to visit our local Kickoff in January!

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At the 2018 S.O.A.R. summer enrichment program, our members volunteered 500 hours teaching students from grades 2-8 how to build and program LEGO NXT robots. This experience promotes exposure to STEM and robotics for students in our community.

FOSTERING FIRST

In 2006, we began hosting Kickoff and Monty Madness, our off-season event. In 2016, Monty Madness transitioned into a FMA Montgomery District Event. This year marked our 14th annual FIRST Skillman Kickoff event, which hosted 40 teams and about 900 attendees in total.

At Kickoff we debuted the 2019 game field virtual reality experience, offering teams a way to engage with the field and envision their robot competing in the new environment. In addition, our members and mentors presented workshops, including Autodesk Inventor, pneumatics, bumpers, sensors, and gearboxes. The materials from each presentation were shared with attendees and posted on our website.

Last year, our district event welcomed 39 teams and was supported by over 100 volunteers, including team members, alumni, and parents. The food concessions at the event function as our team's largest fundraiser.

OUR FIRST COMMUNITY

In 2017, with 7 other FRC teams across the globe, we formed The Compass Alliance (TCA). Currently, we are one of the 4 core teams that provide professional resources. These published resources include guides on everything from starting a team to programming a robot. This year FIRST has officially recognized and partnered with TCA, and they have published 7 TCA resources on their website, 4 of which were created entirely by 1403. TCA has potential to be an asset that helps 2nd and 3rd year teams who statistically have a lower sustainability than established teams.

We document requests for help with other teams using a call ticket system, which can be found in our Chairman's Binder. An example of a team that we were able to assist was Team S.P.I.K.E. FRC 293, who reached out to us because of our position on TCA. A few members of their team visited our school during build season and we advised them on fundraising and team management.

FAMILY FIRST

We consider our team to be a part of a larger FIRST family. Communication is the key to keeping relationships strong so we make it a priority to connect with our family throughout the season. One team we have a strong relationship with is our sister team, FRC 3132 Thunder Down Under, who visited and bonded with us through a Cougar Class activity in 2017. This year, we also strategized with FRC 4481 The Rembrandts through a video call. With them and the other core TCA teams, we video conference about game strategy, robot design, and general FRC topics.

We encourage our alumni not only to come back and help 1403 but to mentor other local teams in their area. Of our 19 mentors, 5 are FIRST alumni, and 3 are 1403 alumni. Out of all our 1403 alumni, 12 are currently mentoring FRC Teams. One 1403 alumnus even started a team in Chicago, FRC 5125 Hawks on the Horizon.

Finally, our parents are crucial as they provide much-needed support by mentoring our team and managing the food concessions at our local events. We send them weekly newsletters, keeping them updated about our progress throughout the build season.

We proudly credit our sponsors for our team's sustainability. For the last 4 years, Picatinny Arsenal, a long-term supporter of 1403, has invited girls on our team for an annual event where they speak with women working in STEM. The speakers talk about what has motivated them to enter the field, as well as the risks and rewards that came with it.

Another long-term sponsor is our Board of Education, with whom we have formed a symbiotic relationship. During build season, they allow us to use multiple classrooms as well as gyms and common areas for our meetings. In return, the equipment that we buy through our sponsorships is donated back to the school. Each year, we present our team's successes to them and discuss what progress we made. Other long-term sponsors are Bristol-Myers Squibb, the Department of Defense STEM, A&K Equipment, and NRG Energy. Our newest are Integra LifeSciences and Slalom.

FIRST INSPIRES

Sixteen years in the future, you can expect Team 1403 to have the same attitude and passion for what we do. We do what we do because that's who we are. We are the compass to your FIRST ship. Let Team 1403 lead the way. Who are we? Fourteen-O-Three!