

Chairman's Award - Team 6390

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2022 - Team 6390

Team Number

6390

Team Nickname

Hephaestus

Team Location

Surrey, British Columbia - Canada

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.

The Hephaestus 6390 experience goes way past robotics. We engage in tasks that explore all aspects of STEM to ingrain core values into our members. Values of innovation, inclusion and teamwork have encouraged our members to push themselves in everything they do. This led to 83% percent of our alumni from the past three years pursuing STEM fields in post secondary. Hephaestus generates university and career opportunities for members to seamlessly transition from high school to beyond.

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

In our community, there is a lack of extra-curricular opportunities for youth with disabilities, such as autism. Because our community is so innovative, we decided to start the BASES Robotics program to dissolve inequities. The BASES program enables participants to explore all aspects of robotics and STEM. Furthermore, we provide many other events to connect with one another. From these events, over 12,500 people learned about the core values of STEM research.

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?

Hephaestus recently had the opportunity to present at multiple events to spread the message of *FIRST*. We use social media platforms to inspire others to become technology innovators while building their leadership skills, with one Instagram post receiving 84,000 views. Other examples were a local coding presentation and a youth night where we shared how youth can contribute to society by engaging in STEM. Despite COVID, we have influenced over 3,500 new people in the last three years.

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

Team Hephaestus believes through teamwork, fun and inclusion, we can support kids' dreams of becoming leaders within STEM. In the past 3 years, we have mentored 2 FRC teams, 2 FLL teams and 5 FLL Jr. teams. We ran and hosted FLL Jr. Expos and an FLL Tournament to provide local teams with a place to display their learning. We also have two programming guides on our website for new programmers. The guides cover the basics of programming and gives teams a solid base to build off of.

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

A member of our team identified the lack of help for rookie teams, and as a result, Hephaestus Helps was created. Hephaestus Helps is a resource accessible for all teams and its emphasis on guiding rookies, while sparking ideas for veteran teams. We publish weekly blogs to help other teams follow along and learn from our success. This includes sponsorship packages and "lessons learned" to help rookie teams produce business documents. We also offer two programming guides in both C++ and Java.

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?

Hephaestus created a Summer Robotics Program at North Surrey for students in elementary school. The program introduces the next generation to STEM before they reach high school. We encouraged staff of elementary schools to start FLL Jr. teams of their own with presentations we held at their schools. In addition, we have also started 5 FLL Jr. teams that we mentor at North Surrey Secondary. Students from these programs have smoothly transitioned into integral parts of our FRC team.

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

Our current partnership with the Surrey School District has created new potential for us and the community. These include sharing STEM with educators from across the district. We also described the impact FRC made on our lives to the district's Superintendent. Another partnership we made was with Surrey Libraries. They help us reach the community through programs where we spread the word of FIRST. Thanks to the support of our partners, we've reached more people than we ever could alone.

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

Two years ago, Hephaestus offered a robotics workshop for international students at our school. A student who had joy for STEM wanted to develop his English skills. We invited him to our team and offered to let him write our awards essay. When he finished, his English improved considerably. His original view of our team helped compose a thoughtful essay and build an innovative robot. He was a vital part of both our build and admin teams. His impact is still felt two years after he left.

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

Hephaestus encourages younger members to shadow and learn from more experienced members to promote sustainability for the future. We have connections with people in the technology department of the Surrey School District to ensure we always have mentors at North Surrey who are passionate about STEM and FRC. Our connections with librarians at different branches ensures we can always sustain our partnership. This way, we can continue to educate the youth in our community well into the future.

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

Our goal is to build successful relationships with partners for many years to come. Therefore, we prefer to do face-to-face meetings to help personalize the experience for the sponsor. We do frequent shout-out's on social media and advertise all sponsors on our team t-shirts, banners, and website. In 2021, we supported an event hosted by our sponsor by volunteering. This not only strengthened our partnership but our connection with the community.

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

One area our team struggles with is overextending ourselves. We often take on more tasks than we can handle. When some members leave early, the remaining ones are shorthanded. We then have to decide which projects to finish and which to leave incomplete. To combat this, we are limiting the different projects we start and focusing on a few. We found that knowing what time our members leave will help us decide which projects to begin with. This way, we will not be short on members later.

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

Hephaestus interprets the mission of FIRST as creating a welcoming world that embraces STEM. We created workshops allowing youth to explore the embodiment of potential to actions, while guiding them to become future STEM innovators. An admin member started a fundraising event of donut sales and donated all proceeds to the David Suzuki Foundation to help the protection of our environment. This strengthens the bond of our community with the environment.

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.

One of our initiatives is to educate others about mental health through our social media platforms. We share helpful posts on Instagram in a weekly initiative called "Mental Health Mondays". Our efforts to inform others about mental health have

been recognized by the Canadian Mental Health Association. Our goal is to remove the stigma around mental health. We believe that by educating our community, we will help combat misinformation about mental health.

Essay

The late Dr. Woodie Flowers – a mentor of the entire FIRST community – once described "competition for the sake not of destroying one another, but for the sake of bettering and improving both competitors," something we feel accurately describes our team's dynamic. At Hephaestus 6390, we elevate the expectation of FIRST teams with the ever-recognizable phrase, 'Gracious Professionalism'. Starting from two mentors with a passion for STEM and dedication to their students, our team has grown to over 35 members who flourished and earned varied accolades. Our bright red apparel and unique name emulate the red fires of determination which empowers our team through diversity and teamwork. Our founders, sponsors, mentors and our team members work in harmony to raise awareness about FIRST's core values and educate others about the potential of STEM.

Impact of FIRST on Team:

Our inclusive environment offers a variety of roles that develop countless skills from editing videos, project management, programming, and building a robot from scratch. Their hard work and perseverance resulted in the acquisition of soft skills, including organizational, interpersonal, critical thinking, and time management skills. Realizing the significance of inclusion in FIRST, our team focuses on empowering female members. Thirty-two percent of our team consists of female students who are passionate about the field of STEM. An alumni from our team stated, "FIRST Robotics has taken me out of my comfort zone and given me many opportunities, experiences, and new skills that have helped me succeed in post-secondary". We strongly encourage our female members to participate in workshops such as Women In Electric Trade and Go Code Girl. As a recent example of success, a student in our team received the Dean's List Finalist Award for her exceptional dedication and leadership.

As a result of FIRST, many of our alumni have pursued various career opportunities. These include STEM programs such as "Young Entrepreneur Leadership Launchpad", SHAD, and Encounters with Canada in Science & Technology. In addition, our team members have organized and facilitated STEM activities for primary students like Science Alive at the University of British Columbia and a summer robotics course at North Surrey Secondary. Our outreach programs provide a positive impact on young minds within the community which resulted in multiple alumni receiving scholarships to enroll in STEM-related university programs. Adi Poluri, a past member of our team who received the Dean's List Finalist Award, mentioned that "FIRST helped boost [his] work ethic, build [his] leadership and mentoring skills as Drive Captain. [He is] still passionate about FIRST and [tries] to keep it in [his] daily life."

Lastly, FIRST has provided the opportunity for students to cultivate various abilities outside of the school curriculum. Students learn a unique set of skills within each sub-team. Members of the build team learn how to fabricate, problem solve and experiment with prototypes. Our programmers learn to use multiple programming languages, implement programming strategies and to collaborate with each other. In addition, our administrative members have learned to communicate professionally, organize fundraisers and produce business documents. Overall, through our collective experiences, members have constructed relationships and skills that will last them a lifetime.

Hephaestus Impact on Communities:

As a team, our main focus is to support youth in our community to change our world for the better. Hephaestus 6390 has had a positive impact on the community in many different ways, including the facilitation of library workshops and community leadership groups. Moreover, the team has donated profits from fundraisers to local charities and visited elementary schools to spread the word of FIRST in our community. Our team also recognizes the lack of extracurricular opportunities available for the Building Academic, Social and Employment Skills (BASES) students at our school. BASES is a program that provides services to students with exceptionalities within the Surrey School District. In order to promote inclusivity and dissolve inequities within the community, the team developed a BASES Robotics Program. In addition, our team offers an FLL Jr. Program to students in elementary school. However, due to safety concerns surrounding the pandemic, the FLL Jr. program has not operated for the past two years, but we continue to run the BASES workshops to promote inclusivity within the community.

One of the most important aspects of influencing our community is participating in local STEM events. We have joined Surrey Steps Up – an annual event showcasing all the positive activism of Surrey youth. Other events we participate in are YouthFest and the SD36 Robotics Showcase. Additionally, some of our members are involved with Professional Development Focus Days, where we find creative ways of implementing STEM principles into the curriculum for students to learn. Furthermore, we participate in events with our sponsors to improve our relationships and to display the positive effects of engagement with youth. These events include barbecues, presentations and robot exhibits.

Through creativity and innovation, we incorporate STEM and the FIRST values into the school community. We support our school initiatives including the Terry Fox Run and Club Day event, where we introduce the robot and FIRST to students. Annually, our school has a community carnival, called Spartival. To increase the awareness of FIRST, our students coordinate with the school to display our robot and provide visitors with the opportunity to learn about robotics. Additionally, we create opportunities for the next generation to explore the basics of robotics through our offerings of VEX IQ and LEGO programs. From these efforts, we have received massive support and expanded our outreach programs.

Ever since our team joined the FIRST community, we have run social media initiatives, reaching over 12,500 individuals. Moreover, we are able to reach international teams through our online accounts, such as a new app created by one of our programmers called FIRST Journey. This app was created for FRC teams around the world to be able to share their valuable memories and experiences with one another. Through the app, we helped introduce FIRST to new people in a simple yet effective way. At the same time, teams around the world can share ideas and goals without the fear of language barriers.

Hephaestus Impact on FIRST:

When we think of FIRST, Hephaestus puts an emphasis on collaborating and assisting our competitors in their robotics campaign. From our dedication to aiding others, we have supported 6 FRC Teams since 2018. This includes teams within the interior and the lower mainland of BC, teams from the United States of America and a team from Australia. Most recently, we mentored team 8082 Tech-Mates, and guided them through their rookie season in 2020. This year, our partnership with Tech-Mates has grown even closer. We have spent numerous hours aiding them and even invited them to our workplace. Since our team knows how challenging running an FRC team can be, we have provided business documents on our website for others to follow. Examples of our sponsorship package, business plan and "Lessons Learned" are available. We also upload weekly blogs describing what our team has done each week, as a way to remind other teams to stay on track. Two years ago, a student created a coding manual for new programmers to learn the programming language C++. This year, we have continued his strides to make FIRST a more accessible community by adding another programming manual in Java and a presentation for Visual Code to our website for new programmers to follow.

As part of our FLL Jr. initiative, our team also started 5 FLL Jr. teams each year. Our mission for this initiative is to provide a launchpad for young innovative thinkers. We inspire participants to think critically about real-life scientific issues. Valuing their interest, we give these bright students opportunities to share their experiences and to promote FIRST values. Unfortunately due to COVID, we decided to suspend our FLL Jr. Program for this year. We hope to restart this vital program as soon as possible to introduce the next generation to the fascinating field of STEM. Additionally, we have started 6 FLL teams who have shown an immense passion for STEM. Last season, one of our rookie teams competed in the BC championship, where they had opportunities to problem-solve and learn the values of teamwork.

Spreading the awareness of FIRST is one of the essential goals of our team. As a result, we have been featured on multiple media outlets including Global News, CBC News & Radio, Radio Canada, and the Surrey Now-Leader. These outlets and many more have featured our team and the FIRST community reaching many people in our society. Our members have also been interviewed by media outlets in both English and French, further supporting our goal of spreading FIRST to many individuals.

Conclusion:

FIRST is an integral part of our team's world. We have created an environment where students explore real-world challenges and then problem-solve to find innovative solutions. Our team spreads the awareness of FIRST and their core values to the greater community. We also recognize the difficulty of building a sustainable FRC team, which is why we release helpful resources for others to follow. We aim to become a model for rookies teams and other teams. Every day, we are one step closer to achieving our ultimate goal of spreading awareness about FIRST and educating others about STEM.