

2018-19 Chairmans Essay Final

We are a patchwork of hundreds of different talents, ideas, and personalities woven into a single team. Tied together by our love for STEM, we've grown from cultivating local partnerships to collaboratively establish initiatives at a global level. We are the eyes that see our community's visions and the hands building them opportunities through our advocacy for future possibilities. Team 1241: THEORY6 is a family of change-makers, united in our mission to drive a new generation of innovators.

VISION

Our vision is rooted in our unbounded passion for robotics. It drives us to innovate new ways to create change, establishing a sustainable platform to grow STEM consciousness. By sharing our vision with our community, we foster a culture of giving back, paving the way for more accessible programs in Ontario. To mobilize this goal and encourage student progression through FIRST, we created an evolutionary cycle that strengthens our community, giving students an avenue to accelerated learning.

To enhance an accessible community space, we developed a free Library Program, introducing a STEM dynamic to 12 libraries across Ontario. To encourage more libraries to offer the program, we developed a structured Library curriculum that is available on *FIRST* Canada's website along with grant opportunities for funding. The curriculum optimizes the delivery of workshops to ensure students aged 5-12 learn basic mechanical and programming concepts based off of *FIRST* LEGO League (FLL). This sparks an interest within students to join FLL Jr. and FLL teams in the future and has led to us starting 26 and assisting over 221 teams. We've further supported local teams by hosting 4 FLL Jr. expos and 8 FLL tournaments in our school. Since 2014, we have collectively volunteered over 65,000 hours in our local communities, supporting *FIRST* programs and beyond.

Building on the cycle, we created FRC Team 1285, a junior team for grade 9 and 10 students within our school. By creating more leadership opportunities through experiential learning, students on Team 1285 build fundamental skills in all aspects of the team. Additionally, our partnership with GM Canada funded our school's machine shop, helping us develop the Manufacturing Specialist High Skills Major (SHSM) program. 48 high schools in Ontario now offer our program, facilitating workplace experience where students gain industry-specific skills and receive a specialized certification on their diploma.

OPPORTUNITIES

To progress our mission and facilitate growth beyond ourselves, we leveraged our experiences by connecting underserved communities with opportunities to enable their own goals. Transforming potential into practice on a greater scale, we developed programs to support newcomers, females, and underserved communities by aligning our vision with theirs.

Following the rise in Canadian immigration and refugee rates in 2016, we developed our New to Country (NTC) program to proactively support families joining our community. This was initiated by a \$30,000 fundraiser in collaboration with school clubs to sponsor a Syrian refugee family's migration to Canada. To aid NTC students in completing their 40 hours required to graduate, we implemented a peer-to-peer volunteering program at our annual FLL tournaments. Encouraging NTC families in our community to join robotics, we wrote and translated guides into 5 languages to comfortably introduce them to *FIRST*. Further enhancing this experience for newcomers beyond our school, our sponsor Pratt & Whitney Canada partnered us with United Way to bring 100 families to the District Championship since 2017.

Through United Way, we collaborated with Polycultural Immigration Services to hold free robotics camps connecting recently immigrated youth through STEM challenges. We recruited 5 teams from 4 cities across Ontario to ensure we had the resources to successfully host 70 workshops over the last 2 years, reaching 270 kids. We adjusted our Library Program curriculum to accommodate for language barriers, engaging participants in a hands-on, visual-based learning experience. By using LEGO WeDO for youth aged 5-8 and LEGO EV3 kits for ages 9-12, they developed the skills needed to succeed on a *FIRST* team. To sustain this impact, we are training Polycultural staff to run the workshops independently with 10 government funded Lego EV3 and WeDo kits.

Our advocacy for female representation in STEM is rooted in the understanding that our team is predominantly male. To challenge this, we began an annual tradition of competing as an all-girls team that takes on pit and drive team roles at an offseason event. Since 2013, we have had 66 girls pursue these roles in the regular season after their unique experiences. In 2018, we partnered with Scotiabank to host our annual Girls in STEM Olympics, a free competition focused on empowering girls aged 13-18 through CAD, programming and design challenges. Our conference sponsors, including Quanser, Baylis Medical and the University of Toronto, showcased their work at our Innovation Fair, allowing delegates to explore pathways in STEM. A panel of gender equity advocates, led by a *FIRST* Canada representative, discussed the adversity females face in their workplaces.

POSSIBILITIES

In every way, *FIRST* is about innovating past boundaries. Our robotics experience is nothing short of just that—an opportunity to foster a love for STEM, and a way to find a community of support. Building upon existing systems by celebrating individual achievement, sharing resources, and spreading other *FIRST* programs, we are advancing the *FIRST* experience, driving possibility and paving a path to a better future for *FIRST*, and for the thousands of youth involved.

Teams receive trophies, medals and banners for their success, but for individuals, we pioneered the Badge Program. We proposed this idea to *FIRST* Canada as we sought to provide tangible evidence for the skills participants acquire through *FIRST*. Since adopting the program in 2016, they have brought badges to over 15,000 participants in Ontario, certifying skills attained in all facets of *FIRST*. This growth is an example of how we continue to create and inspire innovative programs that support and progress *FIRST* itself.

Sustaining the *FIRST* ecosystem and encouraging other *FIRST* teams' growth contributes greatly to our own success as a team. As the original *FIRST* Canada Superhub, we facilitate the success of local teams by providing mentor support, access to our machine shop and donating robot parts. Every year during the build season, our facilities are home to not only us, but at least 7 other local FRC teams. Our published business and robot playbooks outline the team's practices for build season, which have been downloaded over 15,000 times online. At competitions, students and mentors on our A-Team troubleshoot for other teams to ensure all robots make it onto the field and perform to the best of their ability. Since 2018, we have assisted 110 FRC teams, advancing the field of play in Ontario.

In 2017, we founded The Compass Alliance (TCA) with 9 other FRC teams from around the world, with a goal to bridge the resource gap and level the playing field amongst FRC teams. We elevated the Canadian Super Hub program to an international platform, as Help Hubs. As of 2019, 43 teams across 7 countries have become Help Hubs. This past year, we partnered with *FIRST* HQ to identify and create integral resources, such as an intro to Sponsor Relations and Scouting, sent to every FRC team and available on the *FIRST* website. We aim to create a platform that all teams can connect with, regardless of experience level or location, creating the ultimate *FIRST* resource pool.

As robotics is a fast-paced experience that may be stressful and anxiety-inducing, we have been working equally as fast to create an accommodating space for all participants. As a branch of TCA, we are working on the Hear For You (HFY) program to break down the stigma surrounding mental health within the *FIRST* community. We are bringing Quiet Rooms, started by FRC Team 125, to Ontario as a de-stress and break area for participants at FRC competitions. In partnership with *FIRST* HQ, we worked on a guide outlining the Quiet Rooms' execution plan, which will be added to all event planning documents for 2019.

We are on the forefront of *FIRST* Tech Challenge (FTC)'s integration into *FIRST* Ontario, beginning in our own community. By revising the robotics and control systems course in our school to incorporate and familiarize our team with the program, we're making it easily understood and teachable in the future. Studica, one of our key sponsors and a distributor of *FIRST* parts, is supporting us in this mission by helping our students build and register an FTC robot and team during their co-op placements in July 2018. Our commitment to one day hosting the inaugural FTC event in our district is fueled by the belief that there should be a *FIRST* program available for everyone in Ontario.

Team 1241: THEORY6 is built on the recognition that our success stems from a network of local support and the value of having a wide sustainable impact. Empowered by our vision for the world, we use robotics as a catalyst to shift the culture around STEM in our society. Broadening our horizons to provide every community with opportunities, we strive to enable others to explore their passions and develop their skills. Building on *FIRST* programs to maximize student success within and beyond *FIRST*, we are creating possibilities for boundless growth. By paving a path to mobilize our vision, we are sharing unique experiences to create an impact as a community of changemakers far greater than any made on our own.