

## Chairman's Award - Team 4476

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2020 - Team 4476

### Team Number

4476

### Team Name, Corporate/University Sponsors

Kingston Community Health Centres/Novelis/Larry Gibson Estate Fund/Enbridge Gas/Ontario Power Generation/The Russo Clan/Queen's University - Faculty of Engineering and Applied Science/Queen's Geomechanics Group/City of Kingston/Argosy Foundation/Canadian Tire - Kingston Centre/HAI Precision Waterjets/Levac Supply/Pure Ingenuity/Our Families&W.A.F.F.L.E.S. Community Robotics

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

We use FIRST as a catalyst to inspire students ages 4-18 in our community. Students can grow up as W.A.F.F.L.E.S. members throughout their childhood, allowing for development strong life skills. Skills gained go beyond the team, stretching into school, work and personal life. Students and mentors have secured jobs as a result, including four internships at Queen's University. FIRST helps our students find a home away from home, and 80% of 4476 alumni remain involved as a volunteer or mentor.

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

Between the annual FIRST Robotics Day in Kingston and LEGO exhibits in local museums, W.A.F.F.L.E.S. have made FIRST loud in our community over the last five years. Every year, we host summer camps that are run by our students and mentors, to give employment experience to our team members. Being a tourist attraction, Kingston hosts many fun summer festivities. We demo during many of these events, with more than 10,000 visitors at our demos annually.

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

At W.A.F.F.L.E.S., we are focused on expanding our outreach and spreading the message of FIRST at a local and global level. Within our community we even made a LEGO exhibit at the PumpHouse museum! We also field our own summer camp programs over the course of four weeks, allowing new students to experience FIRST. Finally, we express the messages of FIRST on a global scale, with our tutorial YouTube channel, which has amassed a total of over a million views.

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

We were the first community-based team in Canada and use our experience to be a role model for other independent teams. We embrace FIRST values by volunteering at events worldwide; in 2019 we had an average of 48 hours of volunteering at a FIRST competition per student. Since 2013, we have run an FLL and FLL Jr event to inspire other teams in our community. We have also had a Dean's List Winner and three Finalists, indicative our students truly understand FIRST's Core Values.

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

We are currently mentoring two FRC teams across Canada, team 8082 from Surrey, BC, and 8384 from Brockville, ON. To make long-distance mentoring work, we have weekly skype calls and daily email support for our rookie teams. We run a QuickBuild for our rookie teams, to help them get started during their first build season. We have previously mentored 7480, 6390, and 5015. All the teams W.A.F.F.L.E.S. have mentored have won the Rookie All-Star Award!

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

In 2019, we ran four FIRST LEGO League teams, two of which we started this year, and mentored a fifth. We also have five FLL Jr teams, incorporating the program into our summer camps. Most importantly, we have YouTube videos on the EV3 programming with over a million views. This provides resources to new teams around the world. After mentoring a FIRST LEGO League Jr. Discovery pilot program team last year, we are starting teams of our own this season for kids aged 4-6.

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

Progression is a main ingredient in the W.A.F.F.L.E.S. program. Last year we mentored a rookie FRC team that started as an FLL group, 7480, and making sure they understood the differences between the programs. We are also helping a school in Newfoundland expand their FLL program to include FRC for the 2021 season. At our FLL and FLL Jr. events we ensure everyone knows about the next steps in FIRST, so each student can progress through the FIRST program as well.

**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 FRC and FLL teams work alongside each other at our weekly drop-in FLL hub to provide assistance to other FLL teams in the area. To assist FRC teams, 4476 members have done 7 online lectures alongside representatives of other teams on topics from manufacturing bumpers to strategy through the Ask the Experts and FIRST Updates Now web-series. Students and mentors on W.A.F.F.L.E.S. also help to mentor our FLL, FLL Jr., and FLL Jr. Discovery teams.

**Describe your Corporate/University Sponsors**

W.A.F.F.L.E.S. are powered by monetary (\$) and in-kind (IK) sponsorships from Novelis (\$), Enbridge Gas (\$), Pure Ingenuity (IK), and more. Queen's University provides a space for our FLL tournament and kickoff, pays for our student mentors' travel expenses, sponsors our team, and provides IK support through Queen's Geomechanics Group. Our sponsor pool continues to grow through new relationships with Canadian Tire (\$), NDI (\$), Larry Gibson Community Fund (\$), and H.A.I Precision Waterjets (IK).

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

When the PumpHouse Museum had structural issues during 2018's build season, the City of Kingston helped us find a new location in a hockey arena, and then helped us relocate the day before bag-and-tag to the Domino Theatre, before we could return to the PumpHouse. Our partnership with the Kingston Community Health Centres continues to strengthen, as they provided space for the team to have a practice field. In return, we demo at their programs and support them through W.A.F.F.L.E.S. 4 Wellness.

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

FIRST Robotics is a program with a vision to change the world. Being hands-on and building a robot is only one part of FIRST; you will also gain valuable expertise in many areas of life that you may not expect. You may be building robots, but really they are a tool to help you build confidence and perseverance while having some of the hardest fun ever. FIRST will show you that the actions of just one person can make the world a better place.

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

Accessible to all, the only requirement for being on our team is enthusiasm and a willingness to learn. W.A.F.F.L.E.S. recognizes the strength in diversity, so we have a \$0 entry fee for our FRC students. Instead, we have a fundraising and recruitment initiative, allowing students from a lower-income household to join without financial strain. Our W.A.F.F.L.E.S. 4 Wellness campaign aims at improving the lives of others through initiatives like personal hygiene drives and blood donations.

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

Since our FRC team was founded in 2013, we have had a great impact in our community and beyond. We are most proud of our impact with our FLL and FLL Jr. teams. Many students continue with the W.A.F.F.L.E.S. family of programs into our FRC team, including one student this year who will graduate from high school with 12 years of FIRST experience. We have had 100% of our alumni study STEM in post-secondary and 80% remain involved in FIRST.

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

Gavin Stevenson

## Essay

### Our Vision

Is it possible to create a better future through the efforts of 19 students? It may seem difficult, but at W.A.F.F.L.E.S. Community Robotics (Wild About Family & Friends Learning Engineering & Science) we use our passion for FIRST as a catalyst to improve our community. We started our FIRST journey in 2006 as a FIRST LEGO League (FLL) team of homeschooled kids from Kingston, Ontario. Then, in 2013, we expanded into FIRST Robotics Competition (FRC) Team 4476. We were the first independent community team in Canada, focused on providing everyone a chance to be involved in FRC. Now seven years strong, we are a determined force powered by deeply impactful outreach integrated into our FIRST programs. Our mission is to ignite a flame of passion in youth for Science, Technology, Engineering, and Math (STEM).

### W.A.F.F.L.E.S. Online

Our team is known worldwide for our YouTube channel, with viewership from over 185 countries. With over a million views and 5000 subscribers, we have the largest YouTube following of any FRC team in the world. Our videos include a series of EV3 programming tutorials aimed at helping FLL teams and introducing other LEGO Mindstorms users to FIRST. We are regularly recognized by other teams through our channel, including in 2019 when we were told by an FLL team at Detroit Championships that our tutorials are required viewing for their students! We released a strategy overview video this summer, accompanying our other tutorials in WeDo programming for FIRST LEGO League Jr. (FLL Jr.) and VS Code. This year W.A.F.F.L.E.S. members presented seven online lectures about strategy and manufacturing on the Ask the Experts and FIRST Updates Now webinars. Our online reach does not stop there; our other social media accounts have 4200 additional follows.

### #SummerOfWAFFLES

W.A.F.F.L.E.S. help youth build the tools for success and learn about STEM all summer long! We run a series of LEGO robotics summer camps for children aged 6-12, reaching 115 campers since 2015. The summer camps inspire youth and introduce them to FIRST through Mindstorms and WeDo technology. In 2019 we hosted 38 campers in 4 weeks, doubling our reach from 2018. These camps provide paid STEM-focused job experience to our FRC students, helping them develop employable attributes. In 2019 we increased our accessibility by offering full funding to 18 in-need kids through CanCode bursaries.

### Our Team

We are a diverse group of dedicated individuals connected by a love of FIRST. Our FRC students are from nine schools in grades 7-12, and for the first time since our rookie year we have grown to have more new students than veterans. Of our team members, 30% identify as a visible minority, versus 10% of the local population. This includes one of our new members from Eabametoong First Nation, a fly-in community in Northern Ontario. Staying in Kingston to get a high school education, he joined W.A.F.F.L.E.S. to find a home away from home. A full family of FIRST programs helps us reach a wide demographic and allows for long-term relationships and mentorships to develop. Of our current students 45% have participated in FLL, and three of our new FLL and FLL Jr. students came from camp this year. Making team history, one of our 2020 FRC graduates will be the first to have participated in all our programs, having joined the W.A.F.F.L.E.S. FLL Jr. team in 2008. We share a lifelong commitment to STEM; 100% of our alumni have pursued STEM majors, 80% remain involved in FIRST as volunteers or mentors, and we are mentored by alumni from eight FRC teams who have a combined total of 103 years of FIRST experience!

### Local Relationships

We form mutually beneficial partnerships to help us sustainably increase our local impact. We are partnered with the City of Kingston, who is an advocate for our needs in our community. For example, in 2018 our build space was closed over the winter for renovations. The City ensured we did not lose precious build time, finding us temporary space in a hockey rink. We are partnered with the Kingston PumpHouse and Kingston Community Health Centres (KCHC) to house our programs and store materials. As a means of giving back, we sparked a new initiative called W.A.F.F.L.E.S. 4 Wellness where we collect personal hygiene items at FIRST events, our workplaces, and our schools, and donate them to KCHC's Street Health Centre who provides these materials to locals in need. Continuing our local growth, we increased our sponsor support by 15% this year thanks to Canadian Tire, NDI, and Queen's Geomechanics Group.

### FIRST Robotics Competition

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One of our priorities is ensuring every team feels like part of a community when they start their FRC endeavours. We focus our efforts on mentoring new teams across Canada, with the teams we have previously mentored (7480, 6390 and 5015) hailing from three different provinces. We mentor in multiple ways including weekly video calls, daily email support, workshops, and travelling to events for in-person support. We even had team members help 6390 form their picklist while volunteering at the 2018 Canadian Pacific Regional. Our mentorship helps teams prepare for the future, and all our rookies have been recognized for their efforts with the Rookie All-Star award. This year we are mentoring 8082 from Surrey, BC and 8384 from Brockville, ON. We ran a QuickBuild this year, helping 8384 with game analysis and drivetrain assembly. We also saw an unmet need in Eastern Ontario for a nearby FRC kickoff, so for the last two years we have run an Official Kickoff so teams can save hours of driving to get their Kit of Parts.

### Our Younger Teams

We are committed to providing learning opportunities for students, and use LEGO as a tool to do so. This season we doubled the number of W.A.F.F.L.E.S. FLL teams and had 17 new students, with a total of 40 kids reached through FLL in the last five years. This year we made our programs more accessible with a \$1000 grant from Qualcomm, assisting seven kids from low-income families. We have ran a drop-in FLL Hub to help others for the last two years, staffed by FLL veterans to provide support in all aspects of the program. We also expanded our FLL Jr. program this year, running five teams. The excitement culminates at the FLL Tournament and FLL Jr. Expo we have hosted and ran for 9 years, even before we were an FRC team. To increase local discourse about FIRST, we worked with the City so tournament day is declared as Kingston FIRST Robotics Day! This year we prioritized event expansion and saw significant growth, with 17 FLL and 10 FLL Jr. teams compared to 10 and 8 in 2018. Our efforts towards these programs have been recognized with three Coach awards since 2015, including a Young Coach Award this year. In 2017 we helped create the "FLL Jr. Expo in a Box", a resource for a low-budget expo downloadable from FIRST Canada's website. As a new initiative for 2020, we started our first FLL Jr. Discovery team, allowing kids to join FIRST Robotics at as young as four years old.

### Putting Volunteering FIRST

Well known for our extensive volunteerism, you can regularly find W.A.F.F.L.E.S. at FIRST events in North America. With 500+ hours spent volunteering at FIRST events in the 2018-2019 season, we could be found at all levels of competition giving back to the community and improving competition experience for everyone. Over 90% of our returning members have volunteered at an event, including taking on key roles like FLL head referee or FRC game announcer.

### Making FIRST Loud

We use our community ties to share our passion for FIRST. Through biannual demonstrations at Princess St. Promenade and an annual demonstration at Science Rendezvous, we have reached over 25,000 people since 2015. With a full field set up, our robots are a main attraction at the largest Science Rendezvous in Canada. Our outreach does not stop there. For Canada's Sesquicentennial we made an interactive LEGO exhibit to highlight Kingston's history, displayed at the PumpHouse for six months. We volunteer and demonstrate at Museum Cultural Days like LEGOnardo da Vinci, or Doors Open, and have a display case located at the PumpHouse about FIRST and our teams. To reach those in need we demonstrate at KCHC's Pathways2Education program, introducing at-risk youth to FIRST. We have worked with the Girls SySTEM Mentorship Program, presented at TechFest, and appeared on local TV shows. As a new recruitment initiative to directly engage potential students, we ran a Skills Carousel in November to teach introductory mechanical, electrical, and programming concepts.

### OneMatch

OneMatch is an organization that matches people in need of bone marrow transplants with suitable donors. We formed a partnership with them in 2014 when our friend, Mackenzie, was in need of a transplant. We then started a tradition to name our robot after someone in need, raising awareness at our outreach events and competitions. Our 6th OneMatch partnered robot is named Tanner, after a five year old boy from Pimicikamak Cree Nation diagnosed with sideroblastic anemia. We share his story at events and online, encouraging people to join the donor registry. We also support Make-A-Wish Eastern Ontario. At the 2020 HairRaiser event, we surpassed 100" of hair donated by our team towards wigs for cancer patients since 2015, alongside over \$1500 for cancer research.

### Building the Future

We build more than robots, we build a community. Demonstrations, camps, our YouTube channel, and mentoring others are just some of the building blocks we use to make FIRST accessible to all. Through programs for ages 4-18, a child can grow up as a W.A.F.F.L.E.S. student and develop tools to succeed early on. We also serve a greater purpose, reaching those in need and raising awareness about the need for bone marrow donors through our partnerships. We are Wild About Family and Friends Learning Engineering and Science, and everything we do, we do to build a better future.