

## **FIRST Impact Award - Team 3990**

<b>2024 - Team 3990</b>
<b>Team Number</b>
<b>3990</b>
<b>Team Nickname</b>
Tech for Kids
<b>Team Location</b>
Montreal, QC - Canada
<b>Describe the impact of the <i>FIRST</i> 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 <i>FIRST</i> programs as mentors/sponsors.</b>
We are proud to help cultivate the next generation of STEM workers, engineers, and creators by offering more than 1500 students the opportunity to participate in FIRST programs. 95% of our students attend college in a STEM program and have received more than 75,000 \$CAD in combined scholarships. This experience has led them to work in companies such as Bombardier, Amazon, and ABB. 90% of our mentors are team alumni, choosing to give back to the team that helped spark their passion for STEM.
<b>Describe your community along with how your team addresses its unique opportunities and circumstances.</b>
Our team is located in Montreal, a global hub for aerospace development and innovation. This offers us access to many unique opportunities such as partnerships with industry professionals. Furthermore, our francophone environment allows us to help grow the bilingual FIRST community through our curriculum-integrated program, as well as to exchange with and assist other francophone teams in Quebec and France such as team 5553, Robo'Lyon.
<b>Describe the team's methods, with emphasis on the past 3 years, for spreading the <i>FIRST</i> message in ways that are effective, scalable, sustainable, and creative. How does your team measure results?</b>
We have built one of the largest school robotics programs worldwide, with more than 500 students enrolled this year alone. Seamlessly integrated into our program, FIRST provides an inclusive, innovative, and sustainable environment for our students. Over the past three years, more than 250 students have participated in a FIRST program. This season, in order to allow more students to discover their place in STEM, we started a second FRC team within our school, 9406, TechJunior.
<b>Please provide specific examples of how your team members act as role models within the <i>FIRST</i> community with emphasis on the past 3 years.</b>
Our students have taken the initiative to host robotics workshops in primary schools across the region to help youth discover STEM and to introduce FIRST programs. We are trying to improve access to FIRST for Quebec teams by partnering up with the RSEQ (Réseau du sport étudiant du québec), the provincial

sports network, for possible government funding, new scholarships, an extended volunteer network, new infrastructure, and two off-season competitions.

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

Our high school, Collège Regina Assumpta, has started 9 FIRST teams across FTC and FRC. Within the past 3 years, 3 FTC teams have been created, which has allowed over 150 students to compete in local events. We have also assisted 13 other FIRST teams, including 2626, 2986 and 3550, by providing technical, financial, and logistical help. This year, we decided to assist other teams by providing them with valuable resources, notably our Rev Robotics kits.

**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?**

We are among the few teams worldwide providing a curriculum-integrated robotics program for high school. Starting from 7th grade, all students have the option to choose classes that are integrated into the school's schedule. This unique approach immerses students in a 5-year STEM program, covering programming, design, mechanics, electricity, and so much more. In June, 17 students will graduate from the Tech for Kids program, with the first full cohort of 36 bidding farewell next year!

**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 partner with the CRA Foundation annually to grant over 15,000 \$CAD to financially challenged robotics students, ensuring greater accessibility by reducing program costs per student from \$2000 to \$350 and allowing hundreds to join our program and participate in competitions. This year, we began an initiative with primary schools such as Jardin Bleu and Externat Mont-Jesus-Marie to host free STEM workshops for children. Since last December, we have helped more than 210 students discover STEM.

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

We work continuously to break down the prevalence of stereotypes in STEM: - To combat the perception that robotics is for boys, we have taken the initiative of creating a gender-balanced team. From this season onward, both our team and 9406, TechJunior will welcome an equal number of boys and girls. - In our community, we strive to expand access to STEM for underprivileged youth through hosting free workshops in primary school classrooms.

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

Our team is growing, and we are committed to sustaining this growth. To ensure this, we have established team 9406, TechJunior, the main goal being to initiate younger students into the exciting world of FIRST competitions. After gaining the necessary experience, they will join 3990. Furthermore, our team alumni play a crucial role in inspiring the younger generation by becoming mentors for our team. This ongoing cycle of inspiration and learning ensures that over time our team will flourish.

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

**past 3 years**

In the past 3 years, our students have been featured in a Bank of Montreal (BMO) commercial and on diverse TV shows, such as 100 Génies and Salut Bonjour, which have over 2 million viewers. This media exposure has helped gain us sponsorships from companies like NJM Packaging and DXC Technology. We work to maintain an open and trusting relationship with our sponsors by organizing robot demos, team presentations and workshop visits.

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

We recognize that we need to improve the sustainability of projects. Frequently, student initiatives are abandoned post-graduation due to a lack of maintenance. To fix this, we are including younger students in our projects. This helps them learn about STEM, and helps them understand their interests and goals for the future. Additionally, we strive to develop reusable projects and activities such as the workplaces and our open houses, providing a foundation for future generations to build upon.

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

We advocate for increasing accessibility to robotics for teams across Quebec. To do this, our students recently started an initiative with the RSEQ, the Quebec provincial sports network. This ongoing project allows FIRST teams to tap into massive resources available only to sport teams, such as funding, material, off-season events, etc. We are currently holding meetings with our school, the RSEQ, and FIRST Quebec officials to see this project through.

**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.**

Due to incidents out of their control, finding a venue for the Quebec regional event has been a problem for FIRST this year. Facing the possibility of having to cancel the event, FIRST reached out to our school. In keeping with our core values of mutual aid and commitment, we stepped in and took the opportunity to host the competition. Our school is always prepared not only to produce missing pieces for other teams, but also to provide essential resources to those in need.

**Judge Feedback****Who/When****Feedback**

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**This team did not submit the optional question for the judges when entering their submission.**

**An area the team has an opportunity to improve.**

**Something that really impressed the judges.**

**Essay**

In the heartbeat of our workshop, from gears emerge not just robots but a force that reshapes communities. Our mission extends far beyond building a robot; our team aims to inspire the future of STEM. We are 3990, Tech for Kids.

-Evolving Forward- The evolution of Tech for Kids over the years demonstrates our commitment to sustainability and educational innovation, and to fostering a thriving robotics community within our school. At the core of our impact is a unique, curriculum-integrated, and inclusive robotics program which is not only the largest program in our home city of Montreal, but also in Canada, with more than 500 students. Because STEM skills come to life when applied through hands-on learning across our 5-year program, we have committed to innovation by strategically upgrading our workspace to improve the learning experience of our students. In the past 3 years, we've acquired a laser cutter, carbon fiber 3D printers, and two new CNC machines with educational software installed, helping students transform their ideas into concrete realities. But It's not just about having the right tools; it's also about empowering team members to leave a lasting mark in the STEM field. Many of our team alumni have chased their dreams and become science and technology leaders, contributing to society in local companies such as ABB and Bombardier.

We recognize the importance of continuity and we have implemented measures to ensure the sustainability of our program. Since evolution is fueled by shared passion as well as technology, we value a cycle of engagement where our team alumni get involved by becoming mentors and donating their time, skill, and passion to actively engaging younger students in projects. Tech for Kids has always been a team that has embraced change, constantly evolving with FIRST, adapting to new challenges, and fearlessly taking risks. When we first began, we explored many of the smaller-scale competitions FIRST offers, such as FLL and FTC. As we grew, we began to shift our focus to FRC, which better matches our skill set. Each year, we outperformed the previous one, driven by continuous program enhancement and the expansion of our mentor network. Looking back, we realize that FIRST is more than just a competition. It's also about friendly sportsmanship and respect for the contributions of others. We understand how our team has benefited from the commitment of teams and mentors that have helped us get where we are today, so we have paid that benefit forward in past tournaments and offered our help to numerous teams around the world. This is our way of embodying and exemplifying the FIRST core values of coopertition and gracious professionalism.

It's not because we are a veteran team that we can rest on our laurels, so we have pushed our boundaries and written a new chapter in our team's story. Students from the 9th grade are now part of a newly formed team: 9406, Tech Junior. Rather than being a branch of 3990, 9406 is an independent team with its own distinct identity. It is an introductory team to FRC where members will get to explore all the aspects of FRC. We understand that this commitment to pushing beyond our comfort zone will not be without its share of challenges, that by starting a second team within the same school we are splitting in half our financial resources, our human resources, our time, and our energy. On the other hand, with two teams, we will get to enjoy twice as much of all that FIRST has to offer. Long story short, Tech for Kids isn't just a robotics team, it's evolution in action!

-Evolving with our Community- Tech for Kids has recently implemented measures to increase our impact within our local community by exploring areas that we had not imagined were related to robotics. All of our recent projects have allowed us to make robotics more accessible to everyone, empowering untapped communities, fostering arts, culture, and creativity as well as strengthening STEM in the classroom. For instance, our students had the opportunity to participate in several television programs. Xuan Nam Nguyen and Saiven Michel proudly represented our team in 100 Génies, a trivia game show for high schoolers. The Bank of Montreal (BMO) partnered with our team this year to create an advertisement with our 2023 robot, promoting the STEM field. Salut Bonjour, the most popular TV

morning show in Quebec with more than 3,000,000 weekly viewers, also invited multiple team members to discuss our experience as the largest robotics team in Canada.

Tech for Kids also helps youth discover their passion and interest in STEM by leading workshops in elementary schools such as Jardin Bleu and Externat Mont-Jesus-Marie. This allows younger students from second to sixth grade to be introduced early on to FLL. New this year is that a group of students from our team have launched a long-term initiative in collaboration with the provincial high school sports network, Réseau du sport étudiant du Québec. We are working towards recognizing robotics as an official sport at the provincial level. Partnering with government organizations will increase the accessibility of FIRST robotics programs across the province, grant students access to numerous scholarships, and organize two additional off-season competitions.

With the help of our student council we participated in the fundraising for the Sainte-Justine Hospital's Tree of Lights campaign, by selling bags of candy with laser-cut keyrings attached. We successfully raised more than 11 000 \$CAD. As well as delivering an incredible message of hope during the Christmas season, we helped support the hospital and its Social Services Department, whose mandate is to help families who are struggling financially.

-Evolving with Everyone- Embracing diversity, inclusion, and equity, our team actively challenges traditional stereotypes associated with STEM through numerous partnerships and projects. Highlighting our dedication to gender inclusivity, we proudly note a substantial increase in female participation, achieving a noteworthy 50% female enrollment in our robotics classes for 7th and 8th graders. Our female team members actively participated in the annual challenge of the Code des filles, a Quebec-based charity that promotes girls in the STEM field. They were honored for working the most hours in robotics in the entire province.

We have also taken the initiative to bridge economic gaps. Thanks to our strategic partners, we are able to provide financial assistance to those who wouldn't have otherwise had the opportunity to participate in robotics. This year alone, we've provided over 15,000 \$CAD in financial aid to students in need, which dramatically reduces the program cost per student from \$2000 to \$350, and speaks volumes about our dedication to ensuring that robotics truly is for everyone.

Inspired by the theme of this year's game, we decided to venture into the world of STEAM and blend arts and robotics, an idea we had never before considered. This season, we are privileged to collaborate with two contemporary abstract artists, Benz and Sendy-Loo. Their work, we discovered, exhibits their fascination for technology. These artists painted our pit furniture, creating a meaningful visual representation of lines symbolizing the passage of time. They even redesigned our team logo that aligns with our beliefs. Moreover, Benz has been following us with a camera throughout the season, planning to make a short documentary of our journey with a focus on the artistic and creative elements of our design process.

We are also partnering with our school's techno music students. They are in charge of creating a mix for our team, with sounds gathered from motors, machines, and other mechanisms of the robot. All these elements, along with our 2024 robot and other artistic student works will be presented at an end-of-year exposition in collaboration with the school's music and visual art departments. We now firmly believe that art and robotics are not separate elements, but are complementary to each other.

-Evolving with FIRST- This year, FIRST Quebec was faced with a situation out of its control. With fewer than 2 months before the event, the FIRST competition suddenly needed a new venue. In mid-January, wanting to ensure that the competition would not be canceled and not wanting the work and resources of 40 teams to be wasted, Martin Regimbald, director of FIRST Quebec, asked our school if we would host the competition. Within a short time frame, we worked out a plausible plan to host for the first time ever the FIRST Quebec Regional at our school, College Regina Assumpta. Tackling the logistical challenges of hosting an FRC competition while maintaining a normal school life for our students will be hard, but we are incredibly proud to welcome teams from across Quebec and beyond. We thank our principal Julie Duchesne, whose commitment to our robotics program has made this opportunity possible. Our school is prepared not only to produce missing pieces for other teams during the competition, but also to provide essential resources to those in need.

Our journey is a testament to the transformative power of STEM, to collaboration, community engagement, and a commitment to inclusivity. Our team has worked through struggles and fought through challenges. But from the past to the future, from prototypes to robots, we create, change, adjust, adapt, and evolve: that's who we are, 3990, Tech for Kids.;

