FIRST Impact Award - Team 6865

2023 - Team 6865

Team Number

6865

Team Nickname

Manitoulin Metal 6865

Team Location

M'Chigeeng, ON - 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.

Manitoulin Metal focuses on individual growth through leadership, communication, and innovation. We have seven alumni currently pursuing careers in STEM: computer science, engineering, construction, electrical, and design. We created an annual scholarship for FRC6865 graduates pursuing studies in STEM. Current team members have connections with FRC6865 alumni who guide us as mentors. All current team members are interested in continuing with FIRST after graduation and working in STEM fields.

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

FRC6865 is located on beautiful Manitoulin Island in a small high school of 400 students from 12 towns and 40% Indigenous students. Although there are challenges for a rural team, there are also benefits: many community sponsors, volunteer mentors with unique skills, intense student dedication, and a tightly-knit team. Being surrounded by nature, members have a deep respect for the earth, an awareness of the climate crisis, and an eagerness to find STEM solutions to protect the environment.

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?

Our roadmap to a sustainable future: Hosting environmental local and provincial conferences; Battery drives, collecting 20,000 batteries as a registered Call to Recycle Centre; Innovative design challenges for youth; Social media promoting ecotips; Petitioning to our school board about saving energy; A dynamic Carbon Calculator for FIRST teams as a tool to achieve net zero; Hosting coding workshops and giving presentations at local elementary schools; Fundraisers to offset our carbon footprint.

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 FRC6865 gives back to the FIRST community: Cheering on all FRC teams at competitions; Promoting sustainability by collecting pit recycling at events; Looking to other teams for guidance while

leading where we have strengths; Practicing safety initiatives (wellness check shared with all FIRST teams); Promoting STEM through social media, competitions, and media articles; Demonstrations promoting FIRST to local elementary schools; Emphasizing stewardship (apiary, battery drive, tree planting).

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

Manitoulin Metal FRC6865 encouraged junior members to start an FTC team 19552 Fireball Robotics amidst the pandemic. FRC6865's action on environmental stewardship supports all FIRST teams in the transition to a more eco-conscious culture. Using tools like our environmental event templates or our carbon calculator strengthens and empowers young and experienced teams. On top of this, our team hosted CanCode events for the community to get kids involved in the future of programming.

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?

FRC6865 has led initiatives to engage a broader community. We ran Environmental Design competitions to remove invasive species from waterways, and tree planting, with engagement from K-12 around the Island. To promote sustainability, we created an "Earth Bingo" for elementary schools to promote green innovation. FRC6865 is active around Manitoulin: visiting local schools, having booths at fairs, and helping out at STEM workshops. As a result, our team numbers have tripled.

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

FRC6865 has many community partners who are appreciated dearly. Manitoulin Transport has been a proud supporter of the team every year. While monetary sponsors are greatly valued, there are many local specialists in STEM. Last year, Katherine Corbiere, founder of OneKwe, mentored 4 female members in the art of welding. In past years, James Lawrence, Corporate Manager of Quality, Manitoulin Transport, led the team through a comprehensive safety audit to align and surpass industry standards.

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

Everyone in FRC6865 is passionate about sustainability. This sense of unity inspires equity and diversity in recruitment, on social media (confronting gender discrimination at a STEM conference), and through allyship with the LGBTQIA2S+ community (training team members in inclusive language and action). Also, FRC6865 connects with neighbouring First Nations and fosters reconciliation with team smudging. We have also developed wellness strategies to break stigmas around mental health.

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

In the past 3 years, Manitoulin Metal has grown from 8 students to 25. Through community action promoting green technology and school engagement, there has been positive recruitment of junior students, leaving lots of potential for team growth. Furthermore, our goal as a carbon-neutral environmental leader will continue to keep its green initiatives and progress flourishing. We continue to reach out around our community to give Manitoulin Island's youth STEM opportunities.

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

Manitoulin Metal connects with businesses to achieve sponsorship and stronger relationships with community members, offering levels of sponsorship and promotion. Every year, Manitoulin Metal offers hands-on presentations to each partner. Many sponsors are friends who drop in to be inspired by our team. FRC6865 has also reached out to many environmental organizations to gain their support and input for the team's mission. We build relationships with sponsors who share our green vision.

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

FRC6865 is improving design creativity. Last year, skill-building was our priority, so we used the EveryBot design as a base. We are now encouraging more innovation. This year, we designed our robot including new systems; we are experimenting with AprilTags, pneumatics, and a claw design. Junior team members have an exciting long-term vision that will revolutionize FRC. Creativity is the building block for great things, and we want to encourage our team to pursue new ideas and take new paths.

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

FRC6865 is inspiring FIRST to prioritize environmental stewardship by driving initiatives for the entire community. We will inspire this generation of innovators to use our leadership, communication, and technical skills to create solutions and reshape our world, all while keeping our sustainability mission in mind. FRC6865 fulfills the mission of FIRST by drawing a map for the future - for endless opportunities, for a sustainable planet, and most importantly for the youth in FIRST LEGO League.

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.

FRC6865 stayed active during all ups and downs demonstrating innovation, leadership, and passion. The team partnered with 1305 and 5672 to build UV sterilization carts for health centres to fight COVID-19. As stewards of a sustainable future, FRC6865 hosted an environmental STEM conference partnering with Manitoulin Streams and other guest speakers. These initiatives, and many others, model FIRST values and nourish the team through challenging times.

Essay

Roadmap to Sustainability

Manitoulin Metal FRC 6865 is located 6 hours north of Toronto, in M'Chigeeng First Nation on Manitoulin Island. The population at Manitoulin Secondary School (MSS) is 440 students, including students from 6 First Nations communities. In 2017, 6865 started with 8 students and 2 teacher mentors. This season we have grown to 22 students (10 female: 12 male) and 4 dynamic mentors, collaborating to pave the way towards a brighter future for ourselves, our school, and our planet. All students need opportunities to explore careers in STEM - especially in rural areas. Our team nurtures equity and success through the strengths of our relationships with community members, mentors, and sponsors. While fostering ethical, responsible, and environmentally sound practices, our team is guided by innovation, problem-solving, and creativity to develop a competitive FRC team. Team 6865 has grown in many ways but always with a focus on environmental stewardship. All team members feel that climate change and carbon neutrality need to be addressed, and the FIRST / STEM community has great potential to be a leader in building a roadmap to sustainability in our communities and around the world. Our roadmap included many contributors: our generous sponsors; our partnership with other FIRST teams; our passionate mentors; and, of course, the dedicated youth. Destination #1: Community Connection We have fostered our relationships with community sponsors, who are more than just financial support. Mentorship, guidance, and pride are shown through their visits, promotion, and excitement about our team. Although Manitoulin Island is a small community, it is a very tight ecosystem, and there are many volunteers eager to get involved in our team. Over the years, various teams, most notably, First Nations STEM (5672), Lo-Ellen Robotics (4069), Gryphtech (6864), and Ice Cubed (1305) have been models of coopertition and have graciously shared their wealth of energy and knowledge. These fellow competitors are steady and reliable supporters. We also work with our alumni, who continue to teach, strengthen, and model FIRST values. Lastly, the team members draw on their passion for learning new skills, promoting green initiatives, and realizing opportunities in STEAM. Destination #2: Fostering a Love for Learning FRC6865 has been on a journey of learning and skill development in recent years, with lead mentor Yana Bauer and committed senior members steering the way. From September to December, all team members embark on a path of diversifying skill sets, covering everything from riveting to public speaking, coding to safety. Regular meetings act as signposts along the way, helping to establish positive habits and keep the team moving forward. This year, junior members were tasked with refurbishing an old robot with guidance from experienced seniors and alumni, creating a clear route for future growth. Each member has unique strengths, and they unite for design and climate action. Being a smaller team, all members need to be curious, supportive, and active in realizing team goals. These past few years have forced the whole FIRST community to reimagine how we go through our lives, and we strive to find clear direction. Destination #3: Protecting the Land Nestled on the north shore of Lake Huron, Manitoulin Island is the world's largest freshwater island and serves as the starting point of a journey. At its heart lies Manitoulin Secondary School, surrounded by the water and forest, and supported by a vibrant community, marking the another milestone on the road ahead. While many acknowledge the climate crisis, few fully appreciate its magnitude. However, every member of 6865 is galvanized by the island's natural beauty and feels a sense of duty to preserve it. Guided by a commitment to environmental stewardship, the team utilizes STEAM and technology to pave the way forward, driving all of our decisions. In the past few years, Manitoulin Metal has grown to be a more environmentally focused team in many ways. This comes through both simple actions as well as big initiatives. At MSS, 4 members of our team are in charge of the school-wide recycling program. At the 2022 FRC competitions, we put the same responsible leadership in place, distributing recycling bins and collecting the recycling after competition. While we love collecting buttons, the manufacturing does require significant energy use, so we held a fundraiser to offset this carbon, fundraising $140 and donating the proceeds to Bullfrog Power. This offset our carbon for both button-making as well as some of our travel footprint. This past summer, we held an Environmental STEM conference inviting community members, partners, and all FIRST Teams in

Ontario. 6865 is not only involved with FIRST and MSS but is a key player in the Manitoulin Climate Action Plan. Every May, 6865 volunteers for Manitoulin Streams and plants trees as a way to reduce carbon emission and restore streams. This December, a junior team member noticed students at MSS were overheating and that reducing the heat was reasonable and conserved energy. She wrote a letter to the school board requesting building temperatures to be reduced by 1 degree, collecting student signatures. Some other initiatives run by 6865 this season are monthly shoreline cleanups, hosting a school-wide water walk, and organizing school-wide “Turn Down the Heat Days.” These are key examples of how little actions can have a tremendous impact. Being a robotics and STEM-based team, there are lots of opportunities to promote leadership from the FIRST community to create climate action. One of our proudest initiatives is our battery drive. In partnership with the organization “Call2Recycle,” Manitoulin Metal is able to keep toxic waste out of landfills and offset carbon. The impact adds up; over the past 3 years, we have collected over 20,000 batteries. With this huge success, Manitoulin Metal now runs a year-round Battery Recycling Centre. The 6865 Carbon Neutral Project is a key initiative that has the potential to impact and inspire each FIRST team, from FLL to FRC. Manitoulin Metal achieved carbon neutrality. Through months of research, connecting with companies, learning about impacts and algorithm creation, 6865 has created a flexible Carbon Calculator for any team to calculate their emission, taking into account carbon footprints and carbon offsets. This tool is now available to all teams and hosts throughout the season. 6865 bonds as a team over our passion for protecting the environment. As we learn, our path towards a sustainable future evolves. At the end of every competition season, Manitoulin Metal sets short and long-term goals for growth. Our team envisions expanding to over 30 members, including 10+ alumni by 2025. Within the next five years, we will enhance our social media presence to promote STEAM and environmental stewardship. Additionally, we aim to develop a robot designed to combat invasive species in the Great Lakes. Last summer, 6865 hosted a conference for FIRST teams to foster collaboration, green technology development, and environmental stewardship. Our ultimate goal is to see the FIRST community to become a model for environmental leadership and a sustainable future. At the heart of our journey, we are compelled by a singular purpose: to transform our communities (school, Manitoulin, and FIRST) by championing environmental action that benefits everyone. Our commitment to this cause fuels our progress, like an electric engine charting a positive course for change. Destination #4: Exploring new territory 6865 is expanding its reach. Over the past three years, 6865 has emailed all FRC competition hosts globally to inspire them to implement sustainability at their events - with notable improvements, paving a path towards a greener future. We have also collaborated with FTC team 19552, mentoring elementary students to design, build, and code robots, providing a vehicle that drives young minds to innovate. In addition, we organized a design competition for Kindergarten to Grade 12 students, with 14,350 participants designing robots to combat invasive species, like a journey that unites communities in a common goal. Our Coding Team took the lead in organizing CANCode workshops in four Manitoulin elementary schools in October 2022. We directly reached 136 students and 5 teachers and contributed to a culture of STEM and problem solving for hundreds of youth, a charging station that helps prepare students for the road ahead. Our team presented at 6 local elementary schools after the competition season ended to promote STEAM in rural areas. We had sessions for kids aged K-8 with activities from button-making, to working with FLL kits, to driving our competition robot. Our captain presents at the Manitoulin Climate Conferences about student leadership for the Community Climate Action plan, promoting shared gardens, e-waste centres, and water walks. She also sits on the Rainbow District School Board’s Environmental Committee planning board-wide initiatives. Rob Maguire, President of TerraStar Building Products, states, “I am inspired by Manitoulin Metal Robotics FRC 6865 in their continued efforts to make all-encompassing advances supporting equality and opportunity for our youth and future leaders.” 6865 is inspiring a shift in the community of Manitoulin, Northern Ontario, and FIRST through our outreach, passion, and dedication for

STEAM that is entwined with environmental stewardship — we’re building a roadmap to a sustainable future for our home and beyond. ;