

Chairman's Award - Team 4930

[Print](#)[Close](#)

2022 - Team 4930

Team Number

4930

Team Nickname

Electric Mayhem

Team Location

Buffalo, New York - USA

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.

100% of FRC4930 alumni have matriculated, 77% are pursuing STEM, 7 have mentored FIRST teams, and many support FIRST events by volunteering. Our founding Team Captain was featured in The Huffington Post's "20 Under 20" after starting an online STEM education program, inspired by his experiences in FIRST. One alumna used skills she learned on FRC4930 to start a STEM marketing company, and another returned to Nichols to speak about Imaging Science.

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

Buffalo is a historic city with lots of #BuffaLove and opportunity to spread FIRST. Major Drive is our annual inter-FIRST charity drive where we work with both our local and FIRST communities to overcome an obstacle our city faces. We've collected clothing for 73 refugees, 721 hygiene supplies for homeless families, and 1043 school supplies for students in need. We made 1089 pieces of PPE for frontliners. This year we are partnering with GoBike Buffalo to empower pollution free transportation.

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?

We annually run a 2 week long demo at the Erie County Fair, the largest fair in New York State, and share this opportunity by hosting demos from our Buffalo FIRST Family members. We showcase every FIRST program reaching 351K people through our demos and 6 local news appearances. We also demo student-made STEAM projects like our gravity-driven spirograph, fish-controlled robot, and RaspberryPi Mini Arcade. They invite us back every year to run larger demos and host more local teams.

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

In 2015 a founding mentor formed the Buffalo FIRST Family (BFF). Our family has 5 FRC, 10 FTC and 18 FLL teams that share resources and opportunities. We continue to lead this family by founding the BFF Leadership Board, where our mentors serve as the regional FLL, FTC and FRC Coordinators. We've started 65% of FIRST teams and run every official FIRST event in Buffalo. We lead our BFFs by hosting them at demos like the Erie County Fair, Thunder Over Niagara Airshow and Mayhem in May.

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

We've assisted 183 FIRST teams (81 FRC, 34 FTC and 68 FLL) from 4 continents by helping them at competition and hosting them at demos, as well as mentoring 14 teams. At FRC competitions we form "Shock Squads", where we've provided assistance 47 times. At Mock Kickoff, we show a past game animation, read the rules, run a game simulation and analyze strategies. Every year we invite veteran and prospective teams to share this experience. Through this event we've started teams FRC5590 and FRC6870.

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 run EXPO at FIRST competitions, demoing non-FIRST STEAM projects with other STEM groups, reaching STEM enthusiasts across 18 competitions. EXPO embraces STEAM enthusiasm by showing participants how FIRST skills are used creatively in artistic projects. EXPO also promotes FIRST, like when our goldfish-controlled robot was featured on Detroit news at Championships 2019. Our RaspberryPi Mini Arcade and Spirograph are always popular with kids and inspire a passion for STEAM early.

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 main sponsor, Nichols School, funds our 6 FIRST teams with \$40K annually and offers FTC as a class and sports credit to FRC students. Nichols donates lab space, mentors, tools, and a venue to host our FLL Qualifier, Mock Kickoff, and UnKickoff. Our Industry Sponsors, Unifrax, A-Titan, and Autodesk, provide equipment tutorials and specialized services like anodizing our robots, while our Mentorship Partners, like EdCo WNY, KeyBank, and Roswell Park, bring us mentors and demo opportunities.

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

This season we formed Voices In The Lab (VITL), our advocacy group that bolsters diversity, equity, and inclusion of underrepresented voices in STEM on our team. We started FRC6870 with Buffalo Engineering Awareness for Minorities, a program focused on engaging underrepresented students with STEM, hosting them in our lab and sharing mentors, sponsors and experience. We reach diverse communities with STEM at West Hertel Academy, Global Concepts Charter School and Journey's End Refugee Services.

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

This season Nichols created 3 credit-earning internships in which FRC/FTC students mentor our 3 FLL teams, one of which is new this year. Due to the continued growth and success of our FIRST program, we are adding 8 new positions next year to bolster student leadership across our FIRST programs. These roles encompass outreach, leadership, and growing FIRST locally with our BFFs. This enables our students to invest further into their FIRST experience while earning credits towards graduating.

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

This year we demoed to Nichols Class of 1961, resulting in a \$6M donation to build a FIRST facility on campus, housing full sized fields for all FIRST programs. Mayhem in May is Buffalo's annual FTC offseason competition, which we run at Infotech Niagara's Buffalo Emerging Technology Awards Showcase after our nomination as the Best Tech Team in Education. We've hosted 15 FTC teams, using this opportunity to demo FIRST to 1.3K+ STEM entrepreneurs looking to sponsor education programs like FIRST.

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

The major obstacle that new and potential teams in Buffalo face is a lack of space and resources. This year we acquired a \$6M donation to build a facility on our campus to house full sized fields for every FIRST program and workspaces for every team in Western New York. This is a priority for Nichols due to the growth of our FIRST program. Through our leadership in the BFF and the opportunities brought by this space, we are flipping the switch to make Buffalo the next powerhouse FIRST city.

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

We are led by our Student Leadership team. 6 Subteam Leaders and a Communications Leader work with students on their subteams. The Outreach and Engineering Coordinators network with Subteam Leaders to ensure efficient communication and integration. The Team Captain guides our team's culture and direction. Together we plan weekly team meetings, sustain partnerships with sponsors and expand our outreach. Our student leaders pass the torch to younger members by teaching them leadership skills.

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.

The most personal of our 108 service events is EDGE, our annual charity video game tournament which supports the Juvenile Diabetes Research Foundation. This cause is close to our team because multiple students, mentors and alumni are Type 1 Diabetics. We network with our school's video game club to make each EDGE better than the last. Starting as a button sale, EDGE evolves with each class, growing into 4 tournaments and 3 electronics raffles, expanding our impact and raising \$2.5K in 6 years.

Essay

A Spark Felt Across the World

FRC4930 Electric Mayhem is a power grid, channeling electricity to empower FIRST in Western New York. We are committed to building the next powerhouse FIRST region, charging forward with our FIRST family, generating community interest in STEM, and changing the world one person at a time. We've electrified Buffalo with STEM inspiration by reaching 727K+ people through 186 events. We are FRC4930 Electric Mayhem and our mission is to spark FIRST growth across Western New York.

FRC4930 was founded in 2014 by 14 members working out of a closet, inspired to power FIRST in Western New York (WNY). We've grown into a family of 36 students, 33% female and 33% minority students, collaborating in a shared space, mentored by 2 teachers, 4 STEM professionals, and 2 FIRST alumni.

Nichols School (NS) is our motherboard, housing FRC4930, 2 FTC teams, and 3 FLL teams who all share our "Electric Mayhem" branding. This year, we started another FLL team due to popular demand. Fused together, we are the Nichols FIRST Alliance. NS provides a shared lab space and \$40K for our Alliance. We earn sports credit for being on FRC4930, and our 2 FTC teams are offered as classes, attracting new students to FIRST. 81 students participate in FIRST, which is 12.7% of our student body. We annually demo at NS Open House and have recruited students to NS for our FIRST programs.

Coming Full Circuit

We take charge through our Student Leadership Team. 10 student leaders with defined roles develop skills by guiding our team with weekly planning meetings. Together, we overcome obstacles, pass on expertise, and empower ourselves and our team to change the world. This year we formed Voices In The Lab (VITL), our advocacy group that bolsters diversity, equity, and inclusion of underrepresented voices in STEM, as these tenets are vital to our culture. VITL has brought female STEM professionals to speak about inclusion in the workplace.

Our alumni shine brighter than ever after they graduate. 100% of our alumni have matriculated, 77% are pursuing STEM, and 7 have mentored FIRST teams. Our founding Team Captain was featured in The Huffington Post's "20 Under 20," where he shared how his electrifying experience on FRC4930 inspired him to start an online STEM education program. Alumna Tyler Kuhns returned to NS to talk about Imaging Science, and alumna Kayla Ricks used skills she learned to start a STEM marketing company.

Our Joule of a City

We closed the FIRST circuit in WNY when a founding mentor formed the Buffalo FIRST Family (BFF) with the goal of creating and sustaining new FIRST teams and events in WNY. Our family consists of 5 FRC, 10 FTC, and 18 FLL teams who share resources, mentors, and opportunities. We've charged up this family by forming the BFF Leadership Board, where our mentors serve as the regional FLL, FTC, and FRC Coordinators. We are WNY's battery, running every official FIRST event and starting 65% of teams in Buffalo. We galvanize FIRST in WNY by hosting our BFFs at our Erie County Fair and Mayhem in May demos.

We run Buffalo's only official FIRST competition, our FLL Qualifier at NS. We've transformed this event with a scavenger hunt, costumed characters, and a mini Maker Faire where FLL students showcase LEGO projects. We invited our BFFs to host a Quiet Room and FRC demo, and ran an FLL graduation to jumpstart further enrollment in FIRST. Graduates are recognized and provided resources to join or start local FRC/FTC teams. Since 2017, we've run 4 qualifiers and a regional championship. This season, NS created credit-earning internships for 3 FIRST students to mentor FLL teams. Due to the surging success of our FLL program this year, NS will offer 11 of these positions next season.

On our way to green-lighting a Buffalo FRC Kickoff, we run and host an unofficial Kickoff, called UnKickoff. We annually connect with our BFFs at UnKickoff, where we host breakfast and run conferences, game prediction activities, and a scavenger hunt. After the broadcast, we run a Rookie Build and host a live game simulation. We also offer a surrogate Kit-of-Parts pickup to save our BFFs the hour-long trip.

Jumpstarting FIRST

Our team has started 50% of FLL, 80% of FTC, and 100% of FRC teams in Buffalo, inducting them into FIRST and the BFF. In our second season, we started FRC5590 Alumiboti. After starting FRC6870 BEAM Lightning in 2018, we hosted them in our lab for their rookie season, connecting them with our mentors, sponsors, and experience. Last year, we assisted them through a conference we hosted on long-term sustainability, aiding their transformation into FTC19565.

Essay - page 2

Started in 2015, Mock Kickoff is an annual event where we simulate the FRC Kickoff experience with veteran and prospective teams. We begin with a past game animation, rule analysis, then end with game strategy, robot design, and a live game simulation. We've started FRC5590 and FRC6870 through this event.

We have assisted 183 FIRST teams (81 FRC, 34 FTC, and 68 FLL) from 4 continents. At every competition we deploy "Shock Squads" to help dozens of teams in parallel by offering resources, tools, and assistance. We shocked FRC7672 from Turkey by helping them rebuild their frame after a unit conversion error. At our last competition, we shocked 1 in 4 teams!

Spreading the Electric Feeling

Building a conduit to spread FIRST in our community, we run demos at places like the Walden Galleria Mall and the Thunder Over Niagara Airshow. We share these opportunities with our BFFs by hosting them at demos. We've run 78 demos and hosted our BFFs 33 times. We've demoed twice to sponsors at STEM Hub's Student Showcase, energizing local STEM programs like FIRST. We demoed at the Buffalo Museum of Science, and were invited back to demo at their Engineering Week.

This year, we demoed to NS Class of 1961, resulting in a \$6M donation allocated to build a facility on NS campus that will house full sized fields for every FIRST program and workspace for every BFF team in WNY. Our Alumni Magazine featured this demo, reaching readers internationally. NS is adding a full time FIRST Program Director role this year, enabling our teacher to oversee FIRST at NS and across WNY.

We annually demo at the Erie County Fair, New York State's largest fair, for 14 days, hosting demos from our BFFs. Together, we showcase every FIRST program using full field demos, reaching 351K people including 6 features on local news.

Mayhem in May is Buffalo's FTC offseason competition, hosted annually at Infotech Niagara's Buffalo Emerging Technology Awards Showcase. We've hosted 15 FTC teams, displaying FIRST's amplitude to 1.3K+ STEM entrepreneurs looking to support STEM education. We were nominated as the 2018 Best Tech Team in Education and used this opportunity to demo FIRST to potential sponsors, upping the voltage each year with more teams.

At EXPO, we spark inspiration for STEAM in our peers by showcasing non-FIRST engineering projects. We've hosted other teams at our 18 EXPOs, embracing STEAM by showing how skills from FIRST can be used artistically for unique projects. Howard, our fish-controlled robot, is our most famous EXPO project and was featured on FIRST's Twitter and Detroit news at Championships 2019. Our RaspberryPi Mini Arcade and Spirograph are always popular with young kids and inspire a passion for STEAM.

Conducting Positive Impact

We ground ourselves in our community with 108 service events. We've done everything, from donating 575 surgical caps to Oishei Children's Hospital, to sorting clothes for families in need, to volunteering at a charity hockey tournament. We work extensively with refugees, running STEM activities at West Hertel Academy and tutoring sessions at West Side Community Center, transforming STEM enthusiasm into opportunity. This summer, we ran a drive for Feedmore WNY, collecting 802lbs of food. We also ran a Klondike Bar fundraiser for Polar Bear Day, supporting preservation of their habitat.

We annually run EDGE, our charity video game tournament for the Juvenile Diabetes Research Foundation, a cause close to our team as multiple students, mentors, and alumni have Type 1. Each class reinvents EDGE. With the help of the NS Gaming club, EDGE has evolved from a simple button sale to a video game tournament and technology raffle and has raised \$2.5K over 6 years.

Major Drive is our annual inter-FIRST charity drive where we work with our school, local, and FIRST communities to overcome an obstacle our Buffalo community faces. We come together to support a cause we are passionate about. Our inaugural Major Drive supported Buffalo's refugee population. Since then, we've collected 721 hygiene products for homeless families and 1043 school supplies for teachers and students in need. We amped up Major Drive by adding volunteerism when we supported Ten Lives Club cat shelter. We met COVID-19's resistance by creating 1089 masks and face shields for frontliners, making care baskets for nurses, and assembling at-home Science Kits for kids engaged in remote learning. This year, we're supporting green transportation with GoBike Buffalo by repairing and donating bikes and helmets. Major Drive empowers us to change the world, starting in our own backyard.

The E.N.D. (Energy Never Dies)

FRC4930 Electric Mayhem's mission has been realized, and our power grid of STEM enthusiasm and FIRST growth is surging. From our FTC offseason competition, to supporting STEM inclusion through VITL, to hosting annual FIRST summer camps, to our goldfish-driven robot making waves online, our current is strong and growing year after year. Sparks fly with all of our annual events like Major Drive. Our story isn't over, and we continue to electrify our community,

our family, and ourselves in Western New York, spreading FIRST and STEM wherever we go. FRC4930 Electric Mayhem is charging up an #ElectricalSpectacle, and we can't wait to see what our peak voltage will be!