

Team Number: 2869

Team Name/Nickname: Regal Eagles

Briefly describe the impact of the FIRST program on team participants within the last five years. (500 characters)

Since 2009, *FIRST* has provided our team with the skills we need to become successful leaders through STEM and business fields, and as a result we have relied less on our mentors. Of our 120 alumni 100% pursue higher education, with 9/10 specializing in STEM at universities such as Cornell, Duke, MIT, Purdue, and Stevens. Alumni stay involved in *FIRST*, being so passionate that members have traveled over 4,000 miles to volunteer as referees or announcers at any *FIRST* event that they can attend.

Describe the impact of the FIRST program on your community within the last five years (500 characters)

Our school district was inspired by our success in the past few years, allotting funds in the district budget for STEM labs to be built at all three of our elementary schools. Within our district, we've started 40 non-competitive FLL teams and two competitive FLL teams at our middle school. In the last two summers, we have hosted LEGO Robotics summer camps for students in grades K-8, which helped prepare students for the middle school and elementary school's classroom FLL teams.

Describe the team's methods for spreading the FIRST message in ways that are effective, scalable, sustainable, and creative (500 Characters)

Through social media and networking with other teams, we started two viral hashtags. From #FIRSTLikeAGirl to #STEMPals, we've helped to spread the ideas of *FIRST* across the world. We've even reached out to the Girl Scouts of America and helped a troop in our district earn their Innovation patches, which encourage problem-solving through engineering and business. These girls learned how to build Snap Circuits projects, and towards the end of our session, could explain how the circuits worked.

Describe examples of how your team members act as role models and inspire other FIRST team members to emulate (500 characters)

Through Skype calls, social media, and our own events, we've collaborated with teams across the globe. We held our second annual Regal Eagle Round Tables in 2019, which was a workshop for Long Island teams to share their knowledge on different aspects of *FIRST*. To help teams prepare their robots for competitions, we hosted our second annual Regal Eagle Rampage Week 0 event in collaboration with SBPLI. Our team members and alumni have even traveled over 4,000 miles to volunteer at *FIRST* events.

Team's initiatives to help start or form other FIRST Robotics Competition teams

Last year we helped start FRC Team 7153 by helping them obtain sponsors for half of their registration fees, and we provided them with on-scene mentorship during the pre-season. To form and sustain rookie teams, we assist them by providing 24/7 mentorship via Google Hangouts and Slack. These teams include FRC 6746, 6806, and 6911. In addition, our team is a member of the Compass Alliance, which was started by FRC Team 3132, as a go-to answer for running, enhancing and sustaining FRC teams.

Describe the team's initiatives to help start or form other FIRST teams (including FIRST LEGO League Jr., FIRST LEGO League, & FIRST Tech Challenge)

We created the first five pre-rookie FLL teams in Tanzania and India, which has impacted hundreds of youth in Dar-Es-Salaam and the village of Panar. Our 2017 Bristlebots outreach has inspired kids in Morocco and Hungary to start their own Jr. FLL teams. Locally, we started and mentor two FLL teams in our community, which qualified for Long Island Championships for the first two years of their existence. In our district, we implemented FLL curriculum to create 40 noncompetitive classroom teams.

Describe the team's initiatives on assisting other FIRST teams (including FIRST LEGO League Jr., FIRST LEGO League, & FIRST Tech Challenge) with progressing through the FIRST program

Our team hosted the annual Regal Eagle Round Tables, an FRC workshop with 30 hours of content for FRC teams. We've mentored FTC Team 3744 through a 24/7 Facebook group over the course of 16 months. In our own community FLL teams, we have provided over 50 hours of mentorship, and helped our newest FLL team organize their judged presentation and earn the Inspire Award. We also hosted SBPLI's 2019 FLL Training Day. Furthermore, we've mentored Tanzania's *FIRST* Global team for four years.

Describe how your team works with other FIRST teams to serve as mentors to younger or less experienced FIRST teams (including FIRST LEGO League Jr., FIRST LEGO League, & FIRST Tech Challenge)

We joined the Rookie Network and the Compass Alliance with Hall of Famers FRC 16, 254 and 3132 to provide assistance to rookies through a 24/7 hotline. On ChiefDelphi, we've posted 6,000 times; many of the posts are aimed to help rookie teams in need. Our *FIRST* help platform on Slack, F4, has over 1.5 million messages, 100 teams, 9 Dean's List Winners, and 1 Hall of Fame Team to aid rookies in FTC and FRC that need help. Members include a CTRE engineer and Founder of Ozzyboards, *FIRST* suppliers.

Describe your Corporate/University Sponsors

Team 2869 is materially sponsored by 80/20 Inc., Atlantic Plywood Corporation, Brighton-Best International, Industrial Rivet & Fastener Co., Kerr Lakeside Inc., Microsoft, MSC, S&B Machine Works and Solidworks. We are monetarily sponsored by Altice, Bethpage Union Free School District, CDW, Cord Meyer Development Company, IBM and United Technologies. We are very grateful for our corporate sponsors. Our team would not be able to be as successful as we are without help from our sponsors.

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

Our mission with sponsors is to spread the message of our team and *FIRST* as a whole to the corporate world. Sponsors are categorized on a graduated fiscal scale through their level of contribution. We provide sponsor dinners, present certificates, gift them 2869 shirts; pens; and bracelets, invite them to our lab, offer robot demos, grant them access to our pit, and send

them update emails throughout the season. We retain 90% of our sponsors, with a 40% increase in sponsors per year.

For FIRST Robotics Competition teams older than 5 years, briefly describe your team's broader impact from its inception

In 10 years, we have spread *FIRST's* message in our school, community, and internationally. We inspired our school district to increase STEM education by constructing STEM labs and founding 40 classroom, and 2 competition, FLL teams. In our community, we hosted the Regal Eagle Round Tables and Regal Eagle Rampage to assist local FRC teams and expose our community to *FIRST*. Internationally, we created STEM curriculum for schools in Tanzania and Morocco and mentor FRC teams in Greece and Israel.

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

FIRST is a program dedicated to initiating a culture shift in the world of science and technology by promoting mentor-based programs for students in grades K-12. *FIRST* students of all ages compete annually with their engineering creations not solely to win, but also to improve communication, diligence, and leadership. *FIRST* is creating tomorrow's innovators and problem solvers, today.

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

Our motto, "Sic ad astra (This way way to the stars)" is the core of our team. Our mission is to inspire the next generation of STEM leaders to foster the next great age of technological achievements. Our core values are greatly influenced by our local history. Our workshop in Bethpage is less than a mile from where one of America's greatest technology achievements, the Lunar Module, was built fifty years ago. Just as NASA did in the 1960s, we are too shooting for the stars, one robot at a time.

Essay: Judges encourage creativity of expression but the essay must clearly deliver information and facts describing what the team is all about. The essay should draw attention to the strengths of the team. This essay, along with the other information, will serve as the basis for the judges to make the decision on which team earns the Chairman's Award. (max 10,000 characters)

Fifty years ago, less than a mile away from where we currently build our robots, is where some of the most brilliant engineering minds in the country built the Apollo Lunar Module. Ten years ago, this inspired our school superintendent to create the first FRC Team in our district, "One Small Step." Much like NASA, we struggled to gain support while working with limited financial resources during the team's early years. However, after a name change, continuous member dedication, and countless hours of hard work, we were finally able to find success.

We soon realized that there are people and teams who do not have access to the same STEM education, funding, and support that we now have, which we valued but took for granted. Realizing this, we were inspired to establish our global outreach initiatives. We made it part of our team's mission to do as much as we can to level the playing field around the world and work to give everyone the same access to STEM education. Over a year ago, we undertook one of the greatest initiatives of our team, acquiring a donation from Bristlebots. With the help of Bristlebots, we sent out 40 Brushbot Kits to students in communities in Hungary, Morocco, Scotland, and Tanzania. As a result, we held remote STEM outreach camps for children ages 6 to 11. Many of the students in the selected regions were disabled or impoverished, and had little to no access to STEM before this. The response from these programs has been overwhelmingly positive. In the last few years, we were able to make STEM a part of the children's curriculum, and we added Guatemala and India to the list of countries involved in our Bristlebots program. As of now, we have reached over 600 kids internationally through our camps. Our 2017

outreach program, through Bristlebots, has inspired kids in Hungary and Morocco to start their own FLL Jr. teams. We also helped create the first five pre-rookie FLL teams in Tanzania and India, which have impacted hundreds of youths in Dar-Es-Salaam and the village of Panar. In summer 2018, two members of our team even traveled to Mumbai, India to mentor FRC Team 6024. Additionally, one of our most notable international accomplishments of the past few years was our involvement in the *FIRST* Global Challenge. Even before the public release of the program, we worked to support the Tanzanian team through the many processes involved in building a *FIRST* robot. We continued to maintain a relationship with them throughout their season through video chats and instant messaging to answer questions and provide any support that we could.

Another recent accomplishment of the team was the creation of #STEMPals, which connects international students passionate about STEM. It began as a pen-pal program through which our team members emailed international students interested in various STEM fields, from nanotechnology to medical sciences. Through our social media hashtag we reached out to STEM students worldwide and urged them to share a little bit about their fields online. Furthermore, we created F4: a Slack chat formed around the goals of connecting international FRC members in a student-run manner. Over the years it has blossomed into an unbelievably fruitful platform. Nearly 150 students from over 80 FRC teams have consolidated to provide 22 information-rich, student-produced web shows, and 6 large-scale CAD-athons with esteemed *FIRST* judges. Moreover, F4 developed an innovative, anonymous platform to ask our qualified student body *FIRST*-related questions, titled "F4 Connect". Through this platform, we have assisted *FIRST*ers in the areas of programming, mechanical engineering, team structure, and leadership. Internally, the F4 platform has administered priceless aid, as witnessed by the

almost 1.5 million messages sent in our various illuminative channels. But, this is just the beginning.

After success internationally in spreading *FIRST* and STEM education we realized that there are people without access to STEM education and teams that struggle, like we did, across the Long Island robotics community. In order to further the narrative to incite STEM interest in our youth, members traveled to two underprivileged schools with 100 percent minority student populations and organized assemblies to speak with students about *FIRST*. Children, ages 4-11, were exposed to the engineering process and encouraged to design their own robot, while older students learned which high schools offer FRC teams and were taught about the mechanisms that went into our robot. Our school visits kindled such enthusiasm that we started four VEX IQ teams, and continue to actively mentor them.

More locally, in December, we hosted our second annual Regal Eagle Round Tables. Teams traveled from across Long Island to discuss different aspects of *FIRST*, including: Hosting a *FIRST* event, Marketing, Mechanical Engineering, Media, Outreach, Scouting, and Women's History in STEM. Our round table event inspired teams from across Long Island to host their own similar events. Continuing in our quest to bring together Long Island *FIRST* teams we also organized our own Relay For Life team, along with other local teams, which raised over \$750 for cancer research. There we demoed our robots and even had children join in on the fun, by placing power up cubes all across the field and letting the older children drive the robots. In February, we hosted our second annual Week 0 event, the Regal Eagle Rampage, in partnership with our team sponsors and SBPLI. This event was the only Week 0 in New York State. Teams were able to meet other teams, get constructive criticism, test out their robots, and practice their strategies on a full field and competition environment. Teams from around the world watched the livestream of our event on *FIRST* Updates Now.

To further expand upon the knowledge of *FIRST*, we guest starred on Stony Brook University's radio station, WUSB 90.1 FM, to talk about FRC and advertise our Week 0 event, reaching listeners from across New York. Our livestream of the show reached over 150 viewers from teams as far away as Mexico and Turkey. But that's not all; in our volunteer and mentorship work, especially on Long Island, our team discovered a disconnection between Long Island teams. In an attempt to promote the ideals of coopertition, we devised LIFA: Long Island *FIRST* Alliance. LIFA is a group chat made of Long Island-based students, mentors, and volunteers to discuss events or request for immediate aid in all levels of *FIRST*. In addition to LIFA, we created the first chapter of #FIRSTLikeAGirl to promote females in *FIRST*. This has allowed us to create a network of females on many different Long Island teams through group chats, get-togethers, and meet-ups at competitions.

After seeing our success across the world and Long Island, we were inspired to expand STEM education throughout our district. Starting in 2015, having observed the lack of STEM in our primary schools, we instituted a Makerspace in our middle school. This space is aimed at offering students a location to engineer with components, like LEGO products. To further promote STEM in our community, we partnered with our school's science research department. This allows us to demonstrate our robot at the annual Science Symposiums and STEM/Astronomy Nights, educating over 2,000 Bethpage residents on the multidisciplinary nature of *FIRST* this year alone. In 2016, we realized we could use our robot to spark STEM interest in youth while also fundraising for charity. With our school, we demoed our robot at a school dodgeball tournament fundraiser for the Autism Speaks organization. Our school-wide efforts were emphatically acknowledged by the Board of Education, notably in the past four years. The team has been invited to make presentations at four Board of Education meetings, where we conveyed the importance of STEM to our administrators. Our team has become the

poster child for STEM in our district; our three elementary schools distributed a flyer to every resident in our school district, showcasing our team as the face of STEM education. After meeting with our team several times, and understanding the importance of STEM programs at an early age, our district pledged to spend \$2.5 million dollars for STEM labs in every elementary school in our district. In June 2018, our school district opened its first STEM Lab in one of the elementary schools, and later that summer two more STEM Labs opened in our other elementary schools. This rewarded us with the excitement of Bethpage students, and a Legislative Resolution from New York State Senator Kemp Hannon for our team's success and efforts in expanding STEM education in New York State. At the opening, elementary students from across the district gathered and help cut the ribbon and they demonstrated a variety of STEM related experiments. The STEM labs are now apart of the science curriculum, and they give students in a hands-on STEM experience. An example lesson, taught in the STEM labs, is that the students used Lego WeDo 2.0 Kits, and they built a flood gate that can be programmed to open and close when the water level reaches a certain height. After visiting the labs, kindergartener Luis Roman exclaimed, "The STEM Lab is my favorite part of school! I can't wait to work with bigger robots when I'm older!" Not to mention, we have created over 40 non-competitive classroom FLL teams in our school district, and we have hosted two LEGO Robotics summer camps for students, grades K-8. Every day at the camps we challenged the students to complete a task as a team using LEGO Mindstorm kits. By the end of the week, the students were so excited, they decided to create their own challenges and held their own small-scale FLL tournament.

Throughout the last ten years, we have stretched outreach in our school, community, and across the globe. We have reached for the stars, and now it is time to reach deep space.

