

Chairman's Award - Team 1164

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2020 - Team 1164

Team Number

1164

Team Name, Corporate/University Sponsors

NASA/Boeing&Arrowhead Park Early College High School

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

Project Neo is a sanctuary filled with robots and family! Our team is city-wide, comprised of students from 4 separate High Schools. Despite residing in a high-poverty school district with ~80% graduation rates, we've managed to create a safe environment where students of all socioeconomic backgrounds can build robots, receive homework help, eat food, and learn STEM! 100% of our team continues on to attain a higher education, and many alumni have attained careers in STEM fields.

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

From farmers markets, to STEM days, to school science nights, Project Neo has become a symbol for STEM education within Las Cruces and Southern New Mexico. In addition to hosting/running 1 of 5 NM FLL Qualifiers, financially supporting 26 FLL Jr teams, and hosting weekly training sessions for FLL coaches/students run by Project Neo team members, Project Neo's continual advocacy for FIRST Programs to the school board led to the approval of FLL/FLL Jr as hands-on classroom programs in 2018.

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

In 2017, Project NEO founded the nonprofit corporation "Southern New Mexico STEM Alliance (SNMSA)", so that we could better support FIRST outreach in Southern NM. Since then, we've been able to use this foundation to financially support 26 Fll Jr teams, purchase LEGO WeDo 2.0 kits for every team, host 2 FLL Jr Expos each year, and help fund/mentor the city's sole FTC team. Our outreach has not gone unnoticed! Over the past 2 years, Project Neo has been featured by 3 prominent NM news sources.

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

Our team members are ambassadors of FIRST! While in Project Neo, team members have individually founded free programs such as "Girls Get Tech" and "Future IT girls" aimed at decreasing the gender gap in STEM. This year alone, one student has successfully lobbied for increased educational funding in the State Legislature, another has worked tirelessly to organize a free city-wide STEM film screening, and two more students individually hosted a 2-week LEGO-Mindstorms crash-course for children!

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

We host an annual FRC Kick-Off event with Team 5613 from Otero County NM. By providing a place to share resources/ideas, we ensure that NM FRC teams (though far and few in number) remain viable. As one of the poorest states in the US, the biggest challenge we face is not in establishing new teams, but in recruiting students/securing funds for existing ones. To combat this, Project NEO ensures that participation is free for all members and continually advocates for increased STEM funding.

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

Through Project Neo's SNMSA, FLL Jr teams receive full financial support as well as LEGO kits, making the establishment of new teams easier than ever. Since Project NEO began providing this support, the Las Cruces FLL Jr expo has grown from 4 to 42 teams over the span of one year. In 2019, largely inspired by Project NEO's success in expanding these programs, LCPS approved FLL/FLL Jr as hands-on classroom programs under State Science Standards, thus integrating FIRST into science classrooms.

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

Our "Tech-Know Thursdays" (weekly offerings of training to FLL/FLL Jr students/coaches by our team members) are integral in the development of competitive NM teams. In 2019, Project NEO hosted their 6th FLL NM Qualifier, and, as of 2018, completely financially supported 8 LCPS FLL teams and partially financially supported 4 others. 26 FLL Jr. teams are financially supported by Project NEO, we assist in running city-wide biannual FLL Jr tournaments, and we provide LEGO WeDo 2.0 kits to all teams.

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)

Project Neo founded/mentors the FLL team "Mini NEO's". We also coach/mentor the FTC team "Weapons of Mass Destruction". Project Neo team members have served as coaches/mentors on numerous other teams including "the Dust Riders", "The Nukes", and "CIA". In all of our mentorship endeavors, we stress the importance of gracious professionalism and strive to ensure that the students are not only equipped with technical knowledge, but also skills such as public speaking and scientific writing.

Describe your Corporate/University Sponsors

Project NEO is largely funded by NASA's White Sands Test Facility, Boeing, and donations from local businesses. We are housed in a classroom at Arrowhead Park Early College High School, and all tools and equipment we use were purchased with funds from the Southern New Mexico STEM Alliance.

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

In 2017, our partnership with NASA and Boeing expanded from primarily supporting our operational costs, to supporting our outreach efforts as well. After our formation of the nonprofit corporation SNMSA, NASA-WSTF, Boeing, and other small donors have equipped us with an annual working budget of ~\$50,000 to help expand and support FIRST programs throughout Southern New Mexico. Moreover, these companies have provided mentors for our team, and internships for our alumni.

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

Globally, FIRST is a community of people who work to ensure students have access to STEM programs. And while the same is true here in Las Cruces, our FIRST programs do more than simply teach students about robotics. Here, FIRST programs provide a safe space for students to learn and be themselves. They allow students to network with professionals and score internships/jobs, and they help students graduate high school and apply to college. In short, FIRST transforms thousands of lives.

Briefly describe other matters of interest to the FIRST judges, if any**For FRC teams older than 5 years, briefly describe your team's broader impact from its inception.**

As the oldest sustaining FIRST team in New Mexico, Project NEO has transformed from a few students working in a mentor's garage, into a district-wide program whose priority is to increase the accessibility of STEM activities (especially for economically disadvantaged students). Project NEO has helped procure 2 state robotics grants, taught district-wide professional development courses, advocated for FIRST programs to the school board/state legislature, and made our city truly care about STEM.

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

Mireya Sanchez-Maes

Essay

"Yeah, we come from humble beginnings. That's just who we are!"

What does Project NEO have in common with Amazon, Google, and the Walt Disney Company? Well, besides our inherent charm, remarkable public involvement, and unremitting affection for our Logo, our team began as a group of rag-tag, curiosity-filled individuals working out of a mentor's garage. This was way back in 2003. At the time, there was no trace of FIRST in New Mexico, and other Science Technology Engineering and Math (STEM) programs were sparse, expensive, and hard to find. Despite receiving little funding, Project NEO jumped from garage to garage, managing to provide students the opportunity to pursue technological/mechanical interests in a competitive environment - something previously unheard of in Las Cruces. Still, we knew we had to do more. In 2008, in an effort to reach as many students as possible, Project NEO expanded to become a district/city wide team, welcoming students from 5 public high-schools as well as homeschooled students. Located in a high-poverty community, with ~40% of students receiving free/reduced lunch, Project NEO has always striven to remain free to students, so as to increase socio-economic diversity in STEM! In 2012, when Project NEO was invited to move into a classroom at Arrowhead Park Early College High School, we found ourselves in the perfect position to reach even more of our community. Thus, our team moved in and got to work promoting FIRST: beginning a wave of change that would change our community for the better!

"We make more than robots, we make change."

Project NEO has a huge presence in Southern New Mexico. We have traveled all over, spreading FIRST's mission at major events in Las Cruces, Los Alamos, White Sands, and Sunland Park! In 2017, three Project NEO mentors formed the nonprofit corporation "Southern New Mexico STEM Alliance (SNMSA)" to be able to more easily support the outreach of Project NEO. Largely funded by NASA's White Sands Testing Facility, Boeing, and small donors, the SNMSA has garnered an annual working budget of ~\$50,000 which we use to expand and improve FIRST programs throughout the Southwest. Thanks to SNMSA, Project NEO was able to financially support, host, and mentor Doña Ana county's first ever FTC team, the "Weapons of Mass Destruction".

Project NEO team members serving on the Las Cruces Public School District Student Advisory council successfully advocated for FIRST programs, when, in 2018-2019, the school board approved FLL and JR FLL as hands-on classroom programs under the NM STEM ready science standards released by NM PED in May 2018. This allowed for the integration of FIRST programs into classrooms and curriculums.

Project NEO members represent FIRST wherever we are, and we're proud to report that FIRST looks great thanks to that representation! Our team members help organize elementary school science nights to spark the interest of youngsters in STEM, teach after school robotics programs at the elementary schools, and volunteer with the local program Young Women in Computing. Inspired by FIRST, and working to close the gender gap in STEM, Project NEO team members have founded 2 free programs targeting young women, "Girls Get Tech" and "Furture IT Girls". Project NEO team members reached ~67 young women through these programs! Whether we're volunteering at the soup kitchen, reading books to kids, tutoring our peers, or showing our robots to school board members, we are agents of FIRST!

"Seeing the excitement of the younger FIRST kids makes it all click- now I know why our mentors have stuck around for so long!"

As part of our mission to expand FIRST, Project NEO has been instrumental in establishing FLL programs in our district. Through a grant written by one of our mentors, Project NEO was able to give each of 35 elementary and middle schools three EV3 Mindstorms education kits, three Mindstorms expansion kits, an EV3 software site license, and an HP laptop! This, combined with robotics professional development delivered by Project NEO team members, is what allowed for the increased establishment off FLL teams throughout the past 5 years.

This is Project NEO's 6th year hosting the Southern NM FLL Qualifier, one of only five such events in the state. As of 2018, 8 FLL teams are completely financially supported by Project NEO, with an additional 4 being partly supported. We have one FLL house team, "The Mini Neos". They are mentored by our team members, supported with Project NEO funds, and meet at the same time as our FRC team.

Always looking to do more, in Spring of 2017, Project NEO hosted Las Cruces' first ever FLL Jr Expo for 4 teams in a high school cafeteria. Over the course of a year, this event has expanded to include 42 teams and ~250 students. 26 of these teams are financially supported by Project NEO. Additionally, our team was also able to purchase LEGO WeDo 2.0 Kits, to ensure that everyone who wants to start an FLL Jr team has the resources and financial capability to do so. To further ensure that FLL/Jr FLL teams have the support they need to thrive, Project NEO hosts "Tech-Know Thursdays" during the FLL season. These are weekly offerings of training and practice sessions by Project NEO students to help FLL coaches and students.

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Project NEO's success in establish FIRST programs has not gone unnoticed! Our FLL qualifying events have been featured numerous times in the Las Cruces Sun News, which has a daily circulation of ~22,646 people. That's 22,646 more people who know about the mission of FIRST!

"It's kind of fun to be those kids from the borderlands crossing borders."

1164 has gone beyond our own community in so many ways. Through aggressive social media presence, we are able to get the amazing things our team is doing out to people on the large scale. So much of outreach is communication, and spotlighting FIRST on our social media channels (with a combined total of over 793 followers) allows us to reach out and spread the word beyond the physical confines of our typical outreach efforts. In this way, we are always striving to better reach out to others. Through social media, email and in-person chat we keep contact with teams from 10 states! As one of few FRC teams in NM, we keep a close relationship to our fellows, demoing together, and helping out in every way we can. Our outreach traverses borders as well. In 2015, our members created two libraries in Ghana and Sierra Leone through a book drive and fundraising efforts, taking care to include lots of books about science and technology in hopes of taking that curiosity incited by FIRST, and instilling it into disadvantaged children overseas. Project NEO is truly without bounds.

"Everyone says it's more than robots, but it really is. It gives us a place to share ideas - and it inspires us to change the world."

We don't stop there. Our members take the lessons learned in FIRST and run with them to solve problems within the community, and the world. While part of Project NEO, several of our members have used computational and mathematical modeling of algae growth to optimize biofuel operations here in NM. Another member created an innovative mobile android app to help raise awareness about conservation and water usage in our drought-stricken community. This year alone, team members have used what they learned in FIRST to create non-invasive hypoglycemia detection devices, novel conservation methods to be implemented on our Rio Grande river, and solar powered devices. Great things are happening here, and it's all because of FIRST!

"When I first joined the team, I mainly joined for the scholarship programs. But getting to experience the world of FIRST Robotics, I discovered that I can do a lot more than I thought I could."

In a state with a 71% graduation rate, 100% of NEO members graduate high school and continue on to college. Serving a largely Hispanic population, with many of our members economically disadvantaged, our members go on to make a better life for themselves based on the encouragement they got through FIRST. We have all been touched by the FIRST message. It's the only thing that explains why so many kids would voluntarily devote countless hours to something so difficult. And why successful engineers would volunteer so much of their time helping those crazy kids! It's rewarding. In the past 3 years, 100% of 1164 members have gone on to pursue degrees in STEM fields. That's quantifiable impact! There's a profound sense of accomplishment when the robot succeeds; but that's dwarfed in comparison to the sense of pride we have in our members. Their lives have been touched, and they'll go on to inspire others. FIRST means something unique for every person on our team, but it's all part of our story. One that grows ever more exciting with every year of our participation.