

Welcome to Planet Neutrino, ID #3928! As you touch down, prepare to witness an incredible story of expansion, sustainability, and impact.

3928 was formed in 2011 by FIRST alumni and 9 Ames High School (AHS) students. Since then, we moved from AHS to Iowa State University (ISU) and have 25 current student-residents (dubbed Neutrinos) from the Story County solar system. Here, our mission is to work with parents, ISU students, and corporate sponsors to ensure the enrichment of STEM through FIRST.

On 3928, we uphold our reputation as an approachable, cohesive unit; we emphasize teamwork and Gracious Professionalism in all we do. Neutrinos are family, cementing their bond through long build season hours, ping-pong-movie-game nights, and surprise birthday parties.

Neutrinos know that 3928 is entirely student-driven; in fact, “I will let you fail,” is one of the first things lead mentor Tony tells residents. Because of this mindset, we’ve been able to experience firsthand failures, successes, and consequences and learn how to adapt. We decide what we need and are the primary points of contact whether it’s writing grants, designing and ordering robot parts, or managing the budget.

Our hierarchy includes 3 leads who delegate work between 6 subteams. To ensure 3928’s sustainability, experienced Neutrinos transfer knowledge to new residents through 10 annual student-led training camps over CAD, programming, wiring, graphic design, and mentoring. This past offseason, we created and competed with a minibot to give novices hands-on opportunities to learn about FRC.

3928 recognizes that STEM is imperative to the success of both our planet and the surrounding galaxy. We have the plans, resources, and dedication to sustain and expand future generations of innovators; from huge events to bonding with individual FIRST teams, our impact is far-reaching and spreading rapidly.

In 2012, we launched a mission to involve 3rd-8th graders in FIRST by assisting 2 LEGO Mindstorms Robotics classes as part of the Ames Super Summer program. The mission was so successful that classes doubled in size the next year. In 2015, the coordinator stepped down, and we stepped up to teach the classes. In 2016, we expanded our mission to include 4 more classes at the request of the Super Summer leaders. By creating lesson plans and providing hands-on challenges, we have reached 315 students to date.

Each summer since 2015, we’ve run a MakerTech camp, with activities such as soldering, making 3D pens, learning to sew, and programming Spheros. Thus far, the camp has impacted 95 students and serves as a yearly fundraiser for a MakerSpace used

by both the school and camp, with coordinator Teresa Green emailing Neutrinos, “Our parents LOVE it, the kids love it, they benefit so much from this camp!”

Neutrinos have demoed at events including ISU’s Women in Science and Engineering STEM Fests, 4th of July parades, Edwards Elementary Science Nights, and the Iowa State Fair. We’ve presented at the Ames STEM enrichment program for underserved youth, introducing them to opportunities in robotics and attended the Iowa STEM Day at the Capitol, working with legislators to spread FIRST. In 2014, we demoed at the American Solar Car Challenge, reaching 14,000+ people in one day. Through this event, we met Lane, who hadn’t heard about FIRST and couldn’t believe high school students built a robot in 6 weeks. He then joined 3928, even making an astronaut suit so he could be the team mascot, demonstrating our ability to draw students to STEM.

As evidence of 3928’s growing visibility, Account Executive Taylor Lefebvre of space station NASCAR contacted us about presenting at the Iowa Speedway as part of their STEM weekend. She excitedly told us about finding our website and how her department loved our values. This new mission was an amazing opportunity to explore the unknown, and we loved presenting to a new demographic of 10,000 NASCAR fans.

Alongside cosmic expansion, maintaining current missions and strong relationships is at the top of our agenda. At the Science Center of Iowa (SCI) space station, each February we introduce 800+ girls to circuitry basics at the Girls in Science Festival, each August we represent FRC on Robotics Day for 500+ people, and each September we demo with other FIRST teams for 2700+ people at the Des Moines Mini Maker Faire. When arriving at one event, the SCI program director greeted us with, “Yay, it’s Team Neutrino!” showing their appreciation and recognition of 3928.

In addition to reaching out to the community, one of our highest priorities is spreading and sustaining FIRST throughout the universe, starting with our oldest outreach mission: the Ames Middle School (AMS) FLL Scrimmage. Neutrinos assisted with the event from 2011-2014 and ran it in 2015 and 2017. We ref matches, give feedback on projects, and promote FIRST. In 2014, we started mentoring each AMS FLL team, attending every meeting to provide guidance on programming, robot design, the project, presentation skills, and core values. One of our teams, the Joyful Olives, qualified for the State Championships and won the Judges’ Award. When asked where they see themselves in 5 years, multiple Olives replied, “On Team Neutrino!”

Noting the success of the AMS mentoring program, we expanded our mentoring by starting Club Proton in 2015. These 3 all-girls FLL Jr. teams at Edwards Elementary provided access to STEM for younger girls, where they learned problem-solving, programming, and design. Over the next 4 years, we expanded, launching 56 teams in 8

different schools, exploding FIRST in Ames. This season's teams flourished, with parent Alisha exclaiming, "We love having the Neutrino mentors there, they are so great with the kids!"

From FLL Jr. students who didn't want to leave, to FLL students who thought about college for the first time, to summer camp participants who said they "want to grow up to be just like you," our endeavors have a large impact on the galactic neighborhood and provide a hub for STEM education. 3928 keeps FLL Jr. and FLL alumni involved in FIRST through high school. When current Neutrino Moriah asked her 8th graders who was going to join us, every hand shot up. For FLLers now on Planet Neutrino, transitioning to FRC kept their passion for STEM alive.

Beyond FLL Jr. and FLL, Neutrinos have extended their reach to both neighboring and distant teams. Since 2012, we have mentored and assisted 16 FTC and FRC teams, including teams in India and Turkey. In addition, resources valuable to teams like graphics templates, FLL and FLL Jr. lesson plans, and scouting systems are available on our website for an average of 12,300 annual viewers.

We know that our planet and missions couldn't exist without our 16 sponsors and partners. Like stars emitting energy, they shine light on us and provide Neutrinos with the means to expand our technology and develop new missions.

3928 establishes and maintains professional relationships with our sponsors via regular newsletters, annual visits, and thank you cards. After visiting our sponsor Emerson, vice-president John Sankovitch wrote us saying, "Thanks to the team for coming to spend time with us!! You did a great job presenting, answering questions, and demonstrating what your robot could do." To show our appreciation, we recognize our sponsors with logos in team literature, on the robot, and in the pit.

Through these endeavors, we establish personal connections with sponsors that keep them coming back, maintaining and even increasing their support with each year. For Interstate Batteries, what began with an in-kind donation in 2015 grew as we kept in contact. At a sponsor visit, they were so impressed that Michael, an Interstate employee, became a mentor.

Sponsors, mentors, and the surrounding community believe in and inspire Neutrinos to achieve their full potential. Planet Neutrino equips residents with the tools to build their own spaceships and venture into the unknowns of higher education and career advancement; as alumni Tiffany said, "now, when given the tools, I can [do] anything." Because of their time on Planet Neutrino, senior residents know they can take on any

challenge and be successful. 2017 captain Evan stated that, “Neutrino has shaped my life and the direction I will take it, as it has with every other member.”

To continue voyaging in STEM, 76% of current Neutrinos are taking or have taken computer science, CAD, and shop classes at ISU and AHS. They’re also working with ISU professors to do research on everything ranging from biomechanics to airplanes to physics and astronomy. Inspired by experiences on Neutrino, alumni Timothy secured a position at Workiva, Sarah had an internship straight out of high school with Blue Origin, and Dagney was hired as a camp counselor at SCI, where she plans to work full-time after graduating from ISU. All have demonstrated their commitment to FIRST by coming back and mentoring Planet Neutrino and volunteering for FIRST.

As alumnus James noted, “Team Neutrino attracts some of the smartest, most dedicated people [in Story County], and focuses their energy on FIRST and helping the community. This team helps all members by exposing them to opportunities to learn, grow, and help others. I have learned more from being on the team than I have from any classes I have taken thus far.” With our skills, we’re building the rockets for future generations so they can thrive on Planet Neutrino and in the rest of the galaxy. We go on missions not because it’s easy, but because we know that the more students we can provide FIRST for, the more will be encouraged to succeed in STEM and take on larger missions themselves. As Neutrinos return from missions throughout the galaxy, we are continually inspired to teach more, do more, and be more.