

**“Coming together is a beginning, keeping together is progress, working together is success.” -Henry Ford**

Formed in 2011, Team Neutrino has grown from 9 Ames High School (AHS) students to a team with 30 students dedicated to enabling the enrichment of STEM through FIRST. Now located at Iowa State University (ISU), 3928 draws students from across Story County. With 8,936 hours volunteered and over 566,000 people reached, 3928 impacts our community in a way that is inspiring, innovative, and driven.

This season, 53% of our team is new, but 3928 has structured our team to quickly integrate new students, which mitigated the challenges presented by inexperience. In 2016, we refined our subteam system so that each has a clear mission for the season, making it easier to delegate tasks. In 2017, members began teaching 10 annual training camps on CAD, programming, wiring, graphic design, and mentoring. 3928 has also grown in our empowerment of women in STEM; this year, over 30% of our members are female.

To clarify our team’s goals and ensure the unity of our team, leadership recently instituted a Code of Culture highlighting 3928’s expectations: teamwork, respect, and effective communication. Though members come and go, the feeling of family has never left. Through our summer camps, outreach events, and movie nights, new members have become an integral part of our culture. From leading cheers at offseason competitions to organizing mentoring programs, “New-trinos” have found their place on the team. As freshman Quinn says, “Team Neutrino...is really a community. We all work towards the same goal even if we’re working on different things...it’s a community of togetherness.”

**“Think of giving not as a duty but as a privilege.” –John D. Rockefeller Jr.**

Our 15 sponsors and partners make everything we do possible, supplying us with opportunities and resources that enable us to inspire others through FIRST. 3928 establishes and maintains professional relationships with sponsors via regular newsletters, annual visits, and thank-you cards. We recognize our sponsors with logos in team literature, on team shirts, the robot, and in the pit. Sponsors often commend the professionalism in 3928’s communication and published resources such as our business plan, identity standards, and SWOT analysis. At the end of each year, we send our sponsors personal testimonies from each member.

3928 also fosters personal connections with sponsors; 60% of our sponsors have been supporting 3928 for 4+ consecutive years. This year, our John Deere mentor stepped down from his role after 6 years. To maintain our connection with the company, we demoed for nearby engineering leads. They were all thrilled to hear about FIRST, and we gained two new mentors who quickly embraced their role on the team. We love showing potential sponsors what we do because this allows us to promote the future of STEM and FIRST. As CIT employee Kim says, “We continue to sponsor because we believe in the mission of FIRST. FIRST has so many opportunities for students to excel...lifelong skills are taught through this organization.”

**“How wonderful it is that nobody need wait a single moment before starting to improve the world.” – Anne Frank**

3928 recognizes that STEM is vital to the success of our team and surrounding community. 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. In 2018 alone, we engaged in 34 outreach events, with 1,779 hours volunteered and 36,000+ people reached.

In 2013, 3928 began volunteering with Ames teachers and mentors for Ames Middle School’s (AMS) annual “Super Summer” camp for K-8 students. We helped with 2 classes in 2013-14 and stepped up to teach in 2015. We now teach 6 classes, 2 of which were created by 3928. These 6 classes cover LEGO Mindstorms, engineering basics, and STEM activities such as paper circuits, conductive Play-Doh, and 3D printing. Through creating lesson plans and providing hands-on challenges, we have volunteered 1,526 hours and impacted 412 students. As 3928 parent Kelly says, “the focus on robotics creates a platform for all areas of involvement, and with the culture of ‘everyone has a role to play’, it’s powerful. That’s the message youth need to believe. And Neutrino is accomplishing this by leading classes with enthusiasm and helping kids try new things and find a way to be involved.”

Our oldest outreach event is the AMS FLL Scrimmage; 3928 assisted with the event in 2011-14 and ran it in 2015, 2017, and 2018. We ref matches, give feedback on projects, and promote FIRST. Since the summer of 2015, we have run a MakerTech camp at Edwards Elementary with activities such as programming, soldering, and sewing with conductive thread. So far, the camp has impacted 125 students and serves as a yearly fundraiser for the Edwards MakerSpace. Lead coordinator Teresa Green emailed 3928 saying g “Our parents LOVE it, the kids love it, they benefit so much from this camp!”

3928 has demoed at 144 events in the last 5 years including ISU’s Women in Science and Engineering STEM Fests, 4th of July parades, and the Iowa State Fair. In 2014, we demoed at the American Solar Car Challenge, reaching 14,000+ people in one day. Also in 2014, we demoed at SCI’s Mini Maker Faire. Due to our success with engaging the event’s 2,700 attendees, SCI has invited us back every year since. Each February at SCI, we introduce 800+ girls to circuitry basics at the Girls in Science Festival. In 2016, Account Executive Taylor Lefebvre of 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. That July, we presented at a race to a new demographic of 10,000+ NASCAR fans.

Outreach not only gives us a reason to spread FIRST, but gives 3928 the opportunity to reflect on why we love the message of FIRST. Because of her experiences in mentoring and outreach, member Moriah discovered her passion for teaching STEM and plans to pursue a science teaching degree in college. Through our outreach, members have had opportunities to connect with our community in unique and impactful ways.

**“Education is the most powerful weapon, which you can use to change the world.”  
-Nelson Mandela**

3928’s programs have grown from mentoring 4 FLL teams at AMS in 2014 to starting 34 FLL & FLL Jr. teams in 7 schools and mentoring a total of 64 teams over the last 6 years. In 2015, 3928 started 3 all-girls FLL Jr. teams at Edwards Elementary that provided them access to STEM through programming, design, and problem-solving. Since our founding, 3928 has put 2,035 hours towards mentoring 445 FLL & FLL Jr. kids.

Since 2014, 3928 has created programs that schools can sustain on their own after 2-3 years by working with teachers to lead the programs, planning and mentoring each meeting, and providing training for parent coaches. This season, 2 schools have FLL & FLL Jr. programs that are self-sustained, providing their own funding and coaches. Beyond FLL Jr. and FLL, 3928 has extended their reach to both neighboring and distant teams. Since 2012, we have mentored 2 and assisted over 20 FTC and FRC teams, including teams in Turkey. This summer, we assisted rookie FRC team #7411 in their fundraising efforts, video calling them to share our business plan, budget template, sponsor resources, and fundraising strategies.

To ensure our team’s sustainability and share our resources with others, we maintain a detailed public archive that contains a wide range of documents to assist teams with everything from camp curriculum to FLL & FLL Jr. team startup guides. Resources such as scouting systems, graphics templates, and FLL, FLL Jr., and summer camp lesson plans are available on our website for an average of 11,605 annual viewers.

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 our community and provide a hub for STEM education. 3928 keeps FLL & FLL Jr. alumni involved in FIRST through high school. Over half of 3928 members have prior FIRST experience, with 62.5 % of those members coming from 3928-led programs. For FLLers now on 3928, transitioning to FRC kept their passion for STEM alive. As member Connor says, “I joined Team Neutrino because I felt like it was a place that I could have an impact...and I could give my all.”

**“If your actions inspire others to dream more, learn more, do more, and become more, you are a leader.” -John Quincy Adams**

Inspired by 3928, 72% of current members take computer science, robotics, CAD, and shop classes at ISU and AHS. They’re also working with ISU professors to do research in areas ranging from biomechanics to airplanes to physics and astronomy. Inspired by experiences on 3928, alumni Benjamin works as an undergraduate research assistant at ISU, Nathan was offered an internship his freshman year of college with John Deere, and Dagney was hired as a camp counselor at SCI, where she plans to work full-time after graduating from ISU. All have stayed in FIRST through mentoring 3928, other FRC teams, and volunteering for FIRST events.

As alumnus James noted, “Team Neutrino attracts some of the smartest, most dedicated people 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.” With every outreach event we go to, every team we mentor, and every kid we teach, we’re building a generation of future inspirers. We know that the more students we can inspire through FIRST, the more will be encouraged to succeed in STEM and make the world what they dream it to be.