

- The essay portion of the *FIRST* Impact Award submission provides teams an opportunity to describe their activities and achievements in narrative form. While Judges encourage creativity of expression, the essay must clearly deliver information and facts describing what the team is about. Teams are encouraged to use some of this space to explain how their team is structured and the number of mentors and students on the team. The essay should avoid merely duplicating information provided in the executive summary questions. However, it is appropriate for the essay to further expand on those responses and provide more in-depth discussion of notable team achievements.
- The most effective essays are characterized by an overview of team activities during the last 3 years, followed by in-depth discussion of notable activities during the most recent 12-18 months. Judges use the essay to get a big picture view of the team and to learn about achievements that may be unique and noteworthy.

“Our greatest glory is not in never falling, but in rising every time we fall.” - Confucius

Founded by 9 Ames High School students in 2011, Team Neutrino has grown to a dedicated team of 29 students from across Story County. The past three years have posed challenge after challenge, but 3928 excels at adapting to adversity. Despite a global pandemic, the aftermath, and 48% of our team graduating in 2022, Team Neutrino treats every obstacle as a chance to advance, turning roadblocks into pathways forward.

Developing Future Leaders

Team Neutrino develops future leaders and teaches applicable life skills. Through hosting annual summer training camps, we educate aspiring team members on all aspects of our team. This past off-season, we hosted 11 weeklong training camps, providing 56 students with hands-on experience. These camps were initially focused on technical subteams (CAD, coding, and manufacturing) but during the 2021 off-season were expanded to include all of our non-technical subteams. New students showed great interest in these, with our scouting and outreach sub-teams more than tripling in size this year.

Inspiring younger generations and connecting with our community is crucial to sustaining and improving relationships. At the outreach camp, members planned activities for Enrich, Empower, Excel (EEE), an annual summer education program run by the Ames Community School District with which we've been involved since 2012. In 2022, we taught five weeks of STEM-themed activities to 67 students from first to sixth grade. Young students engaged in activities designed to develop their problem-solving skills and cultivate their interest in STEM. Each week had a theme with corresponding activities ranging from a week on motion with ping-pong parachutes to a space week with air compressor rockets. Through our consistency, we've displayed dedication to positively impact our community. 3928 has applied for and received \$900 from United Way in the past two years to help us continue providing for and expanding this program.

Through our FLL mentoring programs, Team Neutrino enables local students to grow as individuals, equipping them with effective problem-solving, communication, and teamwork skills. We've mentored 29 FLL teams in the last three years. This program has allowed us to reach a total of 217 kids across 5 different schools, creating meaningful connections with FLL'ers. These

connections inspire students to be involved with FIRST further down the road, as shown by 23% of our current team members having been mentored by 3928 when they were in FLL. Additionally, 48% of our members are currently mentoring FLL Challenge or Explore teams. Team member and Controls lead Cale remarked, “[Being mentored] was cool because I had someone to look up to and it gave me an idea of what I wanted to do in the future.”

Relationships that Sustain Growth

By fostering meaningful relationships, Team Neutrino has cultivated a network of STEM advocates, mentors, and leaders. Within our community, 3928 has developed personal sponsor relationships. To connect with our sponsors, we post updated announcements through social media platforms and our website in addition to sending 13 annual newsletters. In addition, we coordinate and attend sponsor visits, reaching 5 companies this past year, including local businesses Danfoss and Workiva. 10 of our sponsors have supported us for the past three years. Having 6 mentors who work for sponsors strengthens our connections. These mentors also benefit from working with the team, like Moriah, a John Deere employee, who said, “Mentoring on 3928 has really helped me get a better understanding of the vast field of software programming from teaching it to others.”

Sustaining these relationships with our community has also led to having mentors that are largely made of alumni. Having 30% of our team’s mentors be alumni enables current team members to have role models to look up to, while enabling mentors to connect with and understand team members. Additionally, the team’s requirement for alumni to wait two years before being able to mentor the team allows them to build their own life and gain valuable life experience to be more effective mentors. Mentor Michael, who graduated in 2018, said “Coming back to mentor students who are in the same stage of life I was in a few short years ago is a wholly rewarding experience. It allows me to help students who are struggling with the same problems I struggled with in high school.”

Team Neutrino understands that strong bonds throughout the branches of FIRST are imperative to our sustainability. In addition to mentoring FLL teams, 3928 co-hosted the Ames FLL Scrimmage alongside FTC Team Photon, where we gave 6 FLL teams feedback regarding their innovation project presentations, robot design interviews, and robot matches to better prepare them for the upcoming regional. In 2022, 3928 volunteered at the Webster City and Johnston FLL regionals, further demonstrating our dedication to supporting and inspiring the next generation of FIRST, as many of the FLL members we interact with advance to join either FTC or FRC teams.

The foundation of Team Neutrino is built upon the action we take to form and sustain relationships within our team. To accommodate students who cannot make the full-time commitment that FRC requires, 3928 created the associate role in 2018. We’ve had 48 individual associates since the role’s creation in 2018, including the 17 on the team this season. Throughout the year, associates support our efforts in mentoring FLL teams. This system allows

3928 to have a bigger impact in our community, as more students are given opportunities to advance the FIRST mission.

Community Outreach

Community outreach has been part of Team Neutrino's culture since our inception. After schools were shut down due to the COVID-19 pandemic, 3928 created Stay-At-Home STEAM (SAHS), a YouTube series that supplemented learning for students stuck at home. SAHS features 24 DIY STEM activities, like Rube Goldberg machines, that were designed to be easy to assemble at home while promoting creativity. Through this program, we reached 5286 people. As schools switched to hybrid learning, 3928 planned, designed, and assembled 50 STEM kits for Kate Mitchell Elementary School 5th graders in early 2021. Each kit had four activities based on different scientific concepts like density and circuitry illustrated using lava lamps and Play-Doh circuits. Following this, they sent us letters of appreciation, with one student writing about how even though they missed a day, they were excited to try the activities at home.

The impact seen in SAHS inspired us to create Full Steam Ahead (FSA), a seven-episode educational TV show designed to encourage students to explore STEAM opportunities in their community. In each episode, team members guide viewers through locations around Ames, such as Reiman Gardens and McFarland Park, to learn about different STEAM topics including kinesiology and virtual reality along with demonstrations of DIY activities relating to the episode's topic. The scripting, filming, acting and editing of over 2.5 hours of runtime was done entirely by team members, with 17 students alone involved in editing episodes as part of the graphics summer camp. After a lengthy production process, FSA aired on Ames Public Access in August of 2022, along with a premiere event hosted through our partnership with the Ames Public Library.

We broaden our impact through state-wide outreach, engaging with a larger community. Through our relationship with the Science Center of Iowa (SCI), where we've volunteered since 2014, 3928 has interacted with over 2500 people from around Iowa since 2020. After SCI experienced staffing shortages at their 2019 Mini Maker Faire, 3928 brought additional team members as volunteers, setting a precedent for all future events we support there. Continuing our engagement with state-wide events and organizations, the team demonstrates our robot at many large community events, such as the Iowa State Fair. In 2022, representing 4-H, we volunteered at Blue Origin's State Fair outreach booth and demonstrated our robot for the Iowa Governor's STEM Council. A recent addition to state-level outreach efforts was our involvement at the Iowa Technology & Education Connection Conference, where we connected with educators, shared experiences, and learned from each other. In addition, we presented to teachers from across Iowa about STEM resources they can use in their classrooms.

The Successes of Failure

Each setback Team Neutrino faced enabled growth in new directions. We foster students' learning, sparking creativity and energizing a future generation of leaders and innovators. We

collaborate with our partners, expanding our network to generate bright new opportunities. We innovate community outreach, and the people of Story County reflect our efforts. Equipped with experience, adaptability, and ingenuity, Neutrinos will continue to break new boundaries and redefine their idea of success.