

FIRST Impact Award - Team 1086

2025 - Team 1086
Team Number
1086
Team Nickname
Blue Cheese
Team Location
Glen Allen, VA - USA
Describe the impact of the <i>FIRST</i> program on team participants within the last 3 years. Think about percentages of those graduating high school, attending college, in STEM careers, leadership skills, and serving as mentors/sponsors in <i>FIRST</i> programs.
Over the last 3 years, we have had 258 members. 95% of our members went to college after graduation, with 85% majoring in STEM, 14% higher than our school's statistics. 15 of our alumni directly mentor/assist our team, volunteering with FIRST. Alumni have worked for SpaceX, Ford, Firefly, Google, Bethesda games & Amazon. One of our alumni developed the Blue Ghost lunar lander at Firefly Aerospace. Our students learn project management & conflict resolution skills throughout the season.
Describe your community along with its unique opportunities and circumstances. Think about your geographic region, diversity of town/school, language barriers, socioeconomic barriers, and cultural expectations.
Deep Run High School (DRHS) hosts the Center for Information Technology, pulling 46% of our team from 245 sq mi of Henrico. 72.6% members are 1st or 2nd generation immigrants. DRHS provides students with learning assistance in 13 languages. Several members are exceptional education students in roles such as programming, build & outreach. We have participants of all cultures & genders; this year we have 28 women, 58 minorities & 7/8 subteams have had women in leadership, including team-captain.
Describe the team's methods, with emphasis on the past 3 years, for spreading the <i>FIRST</i> Mission in ways that are effective, scalable, sustainable, and creative.
We have a Flat Dean & Woodie outreach activity that kids take all over the world to spread FIRST, as of December 2024. They've traveled to 19 states & 28 countries totaling 158,529 miles. We make STEM kits using recycled materials to effectively provide learning experiences over a short period of time. Our longest standing program is "LET GO YOUR LEGO", which we've done since 2013. We collect LEGO bricks & create LEGO on-the-go bags & LEGO Math Kits to donate locally & internationally.
Describe your team's goals and the progress you have made towards them to fulfill <i>FIRST's</i> Vision.
Our team has 3 goals - Increase the presence of robotics in schools, Expand Blue Cheese STEM education outreach in schools & Increase funding for our STEM+C Competition Team Grant Program. Our STEM+C Competition Grant Program is now permanently part of the Code of VA. We're working with

HCPS Head of Innovative Learning to create the FIRST Robotics Pathway to enable kids to experience FIRST from FLL to FRC. We expanded our demo offerings to include 4 robots and 23 activities.

What impact has your team seen from your efforts described in the above question? How does your team measure impact?

Our team measures impact through the number of STEM interactions, team impact & area reached. Our grant program has distributed \$1.7 million to start STEM+C Competition teams including 70 new teams in the last 2 years. In our school system, there are now 58 FIRST teams as part of our FIRST Robotics Pathway and 37,976 of all HCPS students have access to join. Through 34,000+ service hours since 2022, we've had 14,000+ interactions with community members from 30+ outreach events.

Please provide specific examples of how your team and team members act as role models within the *FIRST* community with emphasis on the past 3 years. How do you share these best practices with other teams?

Our members strive to be role models across all levels of FIRST. Many have been long term mentors of award winning FLL teams & volunteer at regional, state & international FLL, FTC & FRC events in various roles like referee & robot inspector. In the last 3 years we've hosted 14 FIRST tournaments including hosting 2 FTC tournaments, 2 days in a row when FIRST CHS needed more tournaments. We host FLL & FRC workshops on a variety of topics to share best practices & teach skills.

Describe your team's initiatives to Assist, Mentor, and/or Start other *FIRST* teams with emphasis on activities within the past 3 years.

Our FIRST Robotics Pathway funded by our STEM+C Competition Team Grant Program has led to FIRST teams in 73% of all HCPS schools. We provide programming assistance & coach support, build & donate FLL Tables. We're mentoring rookie FRC 10224, who we donated a kitbot & other equipment to. Our grant program is also leveraged by other Virginia FRC teams for their initiatives. We have paid NAC registration fees for 4 FIRST teams & engaged our school board to provide a practice space for FIRST teams.

What other initiatives have you created, grown, sustained, or participated in (*FIRST* or otherwise) to help inspire young people to be science and technology leaders and innovators? What outcomes have you seen from your efforts in the past 3 years?

In 2022 we partnered with a local mall & launched our annual STEMfest Powered by Blue Cheese with hands-on activities to teach STEM concepts & robotics. In 3 years it's grown to 23 stations, 3 FLL & 1 FTC team resulting in 2500+ STEM interactions with kids. We founded the VA STEM Advocacy Seminar (VSAS) with FRC 5338 & 422 to strengthen advocacy efforts to increase STEM education opportunities. We delivered the keynote speech at EDEtech RVA to inspire educators to take STEM back to the classroom.

Describe the partnerships and relationships that you've created with other organizations (teams, sponsors, educational institutions, government, philanthropic entities, etc.) and what you have accomplished together, with emphasis on the past 3 years.

In 2024, we worked with FRC 5338 & 422 to establish VSAS, a state-wide advocacy conference to teach STEM advocacy to teams. Attendees advocated for 5 bills & 4 passed. Blue Cheese's primary sponsor has been Powertrain Control Solutions for 10+ years, who provide build space, funding & mentors. Many

of our students have interned there & been hired as alumni. Fundraising with our partners like Midas & Showbest enable us to succeed. We partnered with local nonprofits to rekindle RVA MakerFest.	
Describe your team's efforts in the past 3 years to promote equity, diversity, and inclusion within your team, <i>FIRST</i>, and your communities.	
We created an internal peer group for women on the team to bring awareness to scholarships & other STEM opportunities to inspire them to pursue STEM careers. To accommodate kids from all backgrounds, we translated our STEM kits to multiple languages making them more accessible to schools with a large population of immigrants. For RVA Makerfest we intentionally chose makers who represented our diverse community. No matter the culture, background or ability, Blue Cheese finds a place for everyone.	
Explain how you ensure your team and the initiatives you have created will be sustainable.	
Sustainability is a prime factor in Blue Cheese's processes. We hold weekly summer boot camps for CAD, Build, & Programming to reinforce skills for all members. We emphasize teaching rookies during the offseason, including having them build kitbots & learn safe machining practices so they are ready for build season. Through our Cheese Whiz program, rookies are paired with veterans for knowledge transfer. To boost team funds, our members write and apply for grants.	
Highlight one area in which your team needs to improve and describe the steps actively being taken to make those improvements.	
A problem we face is a lack of commitment & communication, resulting in members missing meetings & events. To improve, we use Discord for easy communication & set clear participation expectations. We post weekly attendance forms that notify the attendees for every meeting. We encourage engagement through team-building events, providing increased motivation to attend meetings. At the end of meetings, all members share their daily contributions, promoting team unity.	
Briefly describe other matters of interest to the <i>FIRST</i> Judges, including items that may not fit into the above topics. The judges are interested in learning about aspects of your team that may be unique, particularly noteworthy, or had a large impact.	
Our team's theme is cheese. We inteGRATE our cheesiness behind the scenes by writing bills & working to bring our national advocacy efforts to the state level. We partnered with 4 FRC teams to found the Student Association for STEM Advocacy a national nonprofit to develop student advocates for STEM opportunities. We took this program to the state level as VSAS. Our strong advocacy program is expanding STEM opportunities for all, paving a path for students to pass through FIRST nationwide.	
Judge Feedback	
Essay	What needs do you see that we are not addressing through our outreach and advocacy efforts that we can work on for next year? An area the team has an opportunity to improve. Something that really impressed the judges.

We are FIRST Team 1086 Blue Cheese & we're paving a pathway to a cheddar future through our Mission: Spread STEM education accessibility & our goals: Increase the presence of robotics in schools, Expand Blue Cheese STEM education outreach in schools & Increase funding for our STEM+C Competition Team Grant Program. We aim to be impactful by growing FIRST experiences around our school, community & world.

Team

Our team is a well-aged wheel of cheese sliced into 8 subteams: Build, Fabrication, CAD, Programming, Media, Outreach, Impact & Advocacy. Currently, 41% of our team & 38% of our leadership are women. Our members come from diverse backgrounds, speaking 18 languages.

Our greatest accomplishments are our cheeseheads - AGED TO PERFECTION. 83% of our alumni have pursued careers in STEM fields, which is 14% higher than our school's statistics of alumni(69%). Our alumni return to mentor, coach & volunteer in FIRST, work for Google, MS, Lockheed Martin & more. One alumni developed the Blue Ghost Lunar Lander at Firefly Aerospace.

At DRHS, our team participates in the Homecoming Float Parade, Freshman Orientation & our robot played a role in the school play.

Blue Cheese's build site has been Powertrain Control Solutions (PCS) for 10+ years. PCS provides us with machinery, funding & mentorship. Many of our students have interned there & been hired as alumni. We've developed relationships with partners like Watson Machine Corporation & Showbest, who provide us with parts & metal services. Partners such as Midas and Dave & Buster's provide funds & this year we have a new partner & official team pizza - Marco's Pizza. In return we promote & celebrate our sponsors through social media, uniform, robot logos, & event recognition.

Outreach:

We've interacted with 14,000+ kids through our 30 demos at elementary schools, libraries & churches in underserved areas with various STEM activities since 2022.

In 2022, we hosted the inaugural STEM Fest Powered by Blue Cheese Robotics, a free community event at our local mall. We had 17 hands-on activities like 3D printing & binary bracelets & promoted FIRST by collaborating with FLL & FTC teams. We've been growing this event yearly, expanding to 23 different activities this year, resulting in 2500+ STEM interactions.

This past year, we partnered with Build RVA to bring back the RVA Makerfest, a large family-friendly event that celebrates the vibrant maker community in central VA. From 2014 to 2018, we were one of the original supporting makers. In 2019, RVA MakerFest lost use of its event space & support from critical partners. Working with the Build Forward Foundation, we pulled in additional partners for funding & resources including the Virginia Opera. In November 2024, we hosted its return as RVA MakerFest Resurgence at our school with 49 makers & partners. Almost 2000 attendees partook in free hands-on activities & live demonstrations. Makers included blacksmiths, hackers, glassblowers & more.

As a result of our reputation as a STEM leader, we've received multiple opportunities to promote FIRST & STEM education. In 2022 we were asked to be part of the Governor's Inauguration Parade. In 2023,

The Greater Richmond Area Education Technology Consortium invited us to deliver the EdTech RVA keynote to 258 VA education professionals representing elementary through higher Ed. They said that due to our “strong presence in the community & widespread STEM outreach” they wanted us to inspire educators to instill a passion for STEM in their own schools.

We recognize the barrier to STEM education & opportunities for underserved populations locally & globally. We’ve sent LEGO math kits that teach basic addition & subtraction with Med Students Without Borders to safehouses & clinics in remote areas. We work with Kiva Microloans, an international nonprofit, by funding microloans. Our team has provided funding for 109 loans in 32 countries. Most recently, we provided funding to an organization in Ecuador that tackles underrepresentation in the tech industry in Latin America. We support teachers by providing funding for projects through Donors Choose, a website where teachers post requests for classroom resources. Our team has helped fund 23 projects focused on STEM & Students with Disabilities.

We’re passionate about growing FIRST programs. We’ve mentored & assisted FLL, FTC & FRC teams. We do a yearly workshop series with an Intro to FLL Workshop, Coaches Workshop, Season Kickoff with expert speakers, FLL Tournament Prep Workshop. Yearly, we run 2 weeks of LEGO Robotics Summer Camp & help with local YMCA FLL camps. We teach engineering design, programming, & strategy. Many students who attended our FLL camp joined our team in high school. This year, we helped start FRC 10224, providing them with parts, a kickbot, mentoring & hosted them at our FRC kickoff event. In the last 3 years, we’ve hosted 3 FLL, 3 FTC, 3 FRC season, 3 FRC Week 0 & 2 FRC offseason tournaments.

In 2022, we reached out to our school board to request resources for our county teams. Our team created a budget plan & practice space schematics to present. We invited the school board to outreach events, our build site & FRC competitions to showcase the impact of robotics. This resulted in the school board covering FIRST registration fees for all HCPS FRC teams that year & providing a full-field practice space for all HCPS teams to use.

Advocacy

While mentoring FIRST teams, we found that a critical issue in the creation & sustainability of teams was the lack of resources. We contacted Sen. Stanley in 2016 & asked him to introduce the STEM+C Competition Team Grant Program (SB246), a bill we wrote, targeting FIRST’s goal of expanding STEM opportunities. We introduced SB246 for schools with 40% or more free/reduced lunches; it was passed as a two-year pilot program. While the statute expired, the program was still providing grants but funding could have been pulled at any time. To make this program permanent, we worked with Sen. Stanley in 2022 on SB806, targeting support to underserved schools. The bill passed through the Senate but was tabled in the House. In 2024 we reintroduced SB806 as SB5, it passed unanimously & was signed by Gov. Youngkin in March 2024 making our grant fund, The STEM+C Competition Grant Program, a permanent part of the Code of VA.

Our grant program is administered by the VDoE & has distributed \$1.7+ million in grants to create & sustain STEM Competition teams. These grants have started programs, resulting in creating 200+ FIRST teams. In our county, the grants made possible the creation of a FIRST Robotics pathway for students starting in elementary school to high school. We’re working with the lead Innovation Specialist in HCPS on this initiative. The HCPS FIRST Robotics Pathway aligns with the Henrico learner profile & targets STEM skill goals. In 22-23, grants started 2 FLL teams, in the 23-24 school year this grew to 13 FLL

teams & an interschool FLL Explore Festival hosted yearly. This year we grew to 52 FLL teams & will host an inaugural FLL Challenge tournament. Since last year there has been a 550% increase of FLL Teams in HCPS with FLL present in 72% of our elementary schools & 75% of our middle schools. Our grant program has provided funding for a FTC team next school year, broadening our FIRST Robotics Pathway to cover 7/9 or 78% of high schools in our county. This means 37,976 or 73% of all HCPS students have access to join teams in our FIRST Robotics Pathway from elementary to high school. To further support these FLL teams we provide them in person & remote programming support, FLL tables & other supplies.

As charter members of the Student Association for STEM Advocacy, the nonprofit that hosts the National Advocacy Conference (NAC), we're part of the NAC planning committee. NAC has grown to almost 300 robotics student attendees. In the past 3 years we've held 16 meetings with legislators, the US Department of Education, the Office of Science & Technology Policy at the White House. Through NAC we've made strong connections with our officials & promoted key pieces of legislation like the CHIPS Act & ESSA Act.

In 2024 we extended NAC into VA & held a state-wide advocacy conference, the Virginia STEM Advocacy Seminar(VSAS) during the General Assembly session. We had 40 attendees from 5 VA teams collaborate in 107 different meetings. Last year, we advocated for our STEM+C Competition Grant Program & FRC 422's FIRST Robotics Day bill & more. Through this effort, 4 of the 5 pieces of legislation we advocated for passed. This year's session has 73 attendees registered from 8 teams, will hold sessions on advocacy processes & visit the VA General Assembly to advocate for STEM education & increasing funding for our grant program. On Feb 28th 2024 we hosted Breakfast with Robots at the General Assembly with Sens. Stanley & Van Valkenburg. Legislators & staff from 30+ offices & the Asst Secretary of Education from the Governor's office attended. We invited US FIRST, FIRST CHS, FLL & FTC teams with their robots & members of FRC 422. Legislators were able to speak with students to learn about FIRST & get hands-on robot interactions even driving the robots.

In 2023, we created the VA Advocacy Roundtable with FRC teams across VA to collaborate on advocacy initiatives. Along with our direct advocacy efforts, we assist other teams locally & nationally in growing their advocacy programs including rookie teams like FRC 10004 & 10224. We do this through conference calls, workshops & speaking at events like the VA Virtual Advocacy Conference each year.

Since 2003 Blue Cheese's mission has been to make STEM education accessible to all. We do this through outreach, FIRST events & advocacy to ensure STEM teams have the resources they need. As Blue Cheese ages it gets better. Any WHEY you slice it, Team 1086 is making the world a CHEDDAR PLACE! ;

