

Chairman's Award - Team 1086

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2016 - Team 1086

Team Number

1086

Team Name, Corporate/University Sponsors

Powertrain Control Solutions/Watson Machine Corp/Midas of Richmond/Verizon Foundation/ShowBest Fixture Corp & Deep Run High

Briefly describe the impact of the *FIRST* program on team participants with special emphasis on the 2015/2016 year and the preceding two to five years

Promotes lifelong learning (100% college, 93% major in STEM, alumni volunteer w/ FIRST) 100% of students use skills learned from FIRST Ignites passion for STEM in apprentices, members & alumni Teaches engineering, business, communication, teamwork & leadership via professional mentors Instills confidence thru imparting hard & soft skills Allows members to create connections thru community and global outreach Creates a positive social environment, Gracious Professionalism & lasting friendships

Describe the impact of the *FIRST* program on your community with special emphasis on the 2015/2016 year and the preceding two to five years

Inspires all ages through 90+ demos: schools, RVA Makerfest, Scouts, museums, nursing home Promotes STEM to underserved: RAPME, James River Detention Center, CodeVA camps, inner city libraries, LEGO Math Kits Advocates on local, state & national level for STEM education funding Inspires women to pursue STEM: Women ETC Conference, DigiGirlz, Women in STEM info bags Donates to: Food Bank, Christmas Mother, Jeans for Teens, books to Prison Messages project

Team's innovative or creative method to spread the *FIRST* message

Team 1086 innovatively spreads FIRST's message by: Advocating locally & nationally for STEM education Sending LEGO Math Kits to youth: Kenya, Ecuador, Nepal, Ghana, Nicaragua Sending Flat Dean & Woodie & geocaching travel bugs worldwide (19 countries; 102,377 miles) Participating & demoing at RVA Makerfest Narrating PBS/Science Matters video about Maker Movement Hosting CHED talks (Cheesehead Engineering Discussions) Producing podcasts & vlogs Demoing at James River Juvenile Detention Center

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

We embrace the full FIRST program! Advocate for STEM education locally & nationally: Team 27's National Advocacy Conference in DC - 3 yrs, recruited 7 teams Presented on local advocacy at NAC & FIRST Champs Presented on STEM to VA General Assembly, VA Cyber Commission & School Board Female members speak at STEM conferences - WomenETC, DigiGirlz Incorporate Gracious Professionalism: help with robots & Chairman's videos/essays, lent parts & tools at competition Present FRC/FTC/FLL Workshops

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

Advocate to DC & VA legislators for bipartisan support of FIRST & creation of FIRST teams Advocated at NAC for Franken-Kirk-Murray amendment - almost all verbiage made it into Every Student Succeeds Act Support of VA SB17 & SB246 - grants for STEM programs/competitions in Title I schools Testified before VA Joint Commission on Technology & Science requesting STEM funding for underserved schools Presented to VA Cyber Commission for FIRST programs funding Assisted FRC Team 5425 their rookie year

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

Funded and mentored new FTC team at Glen Allen HS in 2010 Host FLL/FLLJr team formation sessions Host annual FLL Kickoff event with project experts Train & mentor FLLJr/FLL coaches year round Created a FLL resource website for new teams Our mentor is a FLL Ambassador Host FLL summer camps, FLL presentation day, team building & programming workshops Started NXT robotics program at James River Juvenile Detention Center

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

Lead FRC Workshops: Chairman's, Safety, Scouting, Inspection Helped rural FRC teams @JMU workshops Assist

teams @tournaments to get robots on field Initiate/edit other team's award essays Help create Chairman's videos @competition Provide parts & programming aid Helped 2 FRC teams plan 1st FLL tournaments Run & host FTC Workshops Run FLL kickoff (100+ attended) 3yrs Run FLL tournament & FLLJr expo - 6yrs Hold FLL presentation sessions Train & mentor FLLJr/FLL coaches Donate LEGO to FLLJr 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)

In the past 5 years, 1086 has reached out to other teams in the community and lent a helping hand to teams in need: Mentored 34 FLL teams & assisted 43 FLL teams Mentored 3 FLLJr teams & assisted 11 FLLJr teams Provided registration fee to start a FTC team & mentored them for several years Assisted 70+ FRC teams last 5yrs including rookie FRC Team 5425 RVA Coder Collective Our Alumni mentor other FIRST teams - FRC Team 401 An alumni works with Illinois FIRST to teach programming & robotics

Describe your Corporate/University Sponsors

Powertrain Control Solutions - build site/engineering mentors Creative Grafix - graphics Watson Machine Corp - fabrication BMG Metals - metal Hanover Powdercoating PTC - software/grant SolidWorks - software/funds Funds: Midas, Verizon, Henrico Cty, Showbest Fixture, Jody Korman, Meadwestvaco, UpTime Solutions, Symantec, All Tune & Lube, Associa, Anthem, DST Systems, BRECOflex, Larry Mills Realtor, McGeorge Toyota, Skye Bruce Properties, Trident Plastics, Dominion & Blue Cheese Booster Club

Describe the strength of your partnership with your sponsors with special emphasis on the 2015/2016 year and the preceding two to five years

23 sponsors including: PCS - build site, machinery & engineering mentors Midas of RVA: fundraising opportunity - oil change coupons & matched funds. We donate to their food drive. Watson Machining Co - metal fabrication BMG Metals - metal Hanover Powdercoating - powdercoating Solidworks: funds & software. They use our CAD drawings for their electrical tutorial for FIRST teams. PTC: grant & we assist with their workshops Funding from: Verizon, Henrico County, Showbest Fixture Corp, PwC, Dominion

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

FIRST was founded with the mission of changing our culture. Besides being a robotics competition, the program educates students about STEM & inspires them to be leaders. It builds important life skills such as innovation, self-confidence, problem-solving & communication. The community benefits from the program through workforce development. In addition, FIRST promotes an ideal called Gracious Professionalism, which emphasizes high quality work while respecting individuals & the community.

Briefly describe other matters of interest to the *FIRST* judges, if any

FIRST Team 1086 Blue Cheese is passionate about spreading STEM & FIRST around the world, with special emphasis on underserved & underrepresented youth. We advocate for support of programs like FIRST at all levels of government. We continue expanding our international initiatives and advocating for hands on K-12 STEM education through out the United States. "Any WHEY you slice it, FIRST Team 1086 Blue Cheese is making the world a CHEDDAR place."

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

Abigail Mescher

Essay

MAKING THE WORLD A CHEDDAR PLACE

FIRST Team 1086 Blue Cheese is making the world a CHEDDAR place by igniting passion for science, technology, engineering & math to build the next generation of innovators. Our team aims to BRIE the best we can BRIE by cultivating & spreading our cheese culture in our school, community & worldwide. We invite you to join our quest to be LegendAIRY!

GROWING THE FIRST COMMUNITY

Our cheese is a blend of 45 students: 31% minorities & 36% women. Powertrain Control Solutions opens its facility to us all year & provides engineering mentors. Cheeseheads must be SHARP! We tutor students in our No Cheesehead Left Behind Program. Cheese Whiz Academy educates team members on all aspects of robotics. All team members complete a formal safety/training program.

Deep Run High School holds the Center for Information Technology, a specialty Center, which helps us be as GOUDA as we can be. Our team is 67% CIT students, who use their skills to work on our website, program, create presentations & build. We partner with CIT to market their program along with FIRST at outreach events.

While we love our bots, STEM outreach is the core of our cheese. We change society's definition of fun by promoting and growing every level of FIRST and STEM from ages 1 - 99. Over the past 5 years, we exposed 75,000+ to FIRST with 90+ demos at elementary schools, fall festivals, science fairs, YMCA, Girl & Boy Scouts, homeschoolers convention & Science/Children's Museums of Richmond. For the past 2 years, we have been featured at RVA MakerFest where we demoed to 14,200 attendees. In partnership with Science Matters, we narrated a PBS video about makers shown on WCVE.

We are passionate about growing FLL because it introduces project based learning to MOLDable minds. Over the last 5 years, we mentored 34 & assisted 43 FLL teams. We hold info sessions to organize & form new teams. In addition, we created a FLL resource website & hold FLL summer camps. We started a regional FLL Kickoff, inviting experts to speak. We support new coaches by holding training sessions & assist teams all year. In partnership with VA/DC FLL, we ran & hosted our 6th FLL Tournament. We assisted 540 & 2402 with planning their 1st FLL tournaments.

In the last 5 years, we mentored 3 & assisted 11 FLLJr teams. For the past 4 years, 1086 ran & hosted a FLLJr Expo. We assisted FIRST Israel with planning their 1st FLLJr Expo.

In partnership with VA FIRST, we hosted & assisted with FTC workshops/kickoff. In the past 5 years, we gave sessions on: Judging, Veteran Panel for Rookie Teams, Samantha, Engineering Notebook, It's Not Just about the Robot & assisted with PTC software. When a new high school opened, we provided the registration fee to start a FTC team & mentored them for several years.

For the past 5 years, we have presented at FRC workshops on topics such as Programming, AutoDesk, Scouting, Chairman's, Safety, Inspection, Pneumatics, Inventor, Business/Marketing & assisted with PTC. When a new coach started at James Monroe HS, we mentored his team 2402 and assisted them for the last 4 years. Over the past 5 years, we assisted 70+ teams: lending parts/batteries, repairing robots, providing lunch & chairman's advice/videos. We assisted with the JMU FRC summer workshops for 10 rural teams. Last year, we assisted rookie Team 5425 RVA Coder Collective from the City of Richmond. We publish our resources on our website to assist teams.

Globally, we continue our innovative Flat Dean & Woodie World Wide program started in 2008. By sending out FIRST approved images of Woodie & Dean, we encourage children to celebrate STEM. They have traveled from the South Pole to Hawaii & everywhere in between, as shown on their Facebook page.

Launched in 2009, our geocaching travel bugs have traveled 102,377 miles exposing the world to FIRST & our team. They have been across the US, Germany, Czech Rep, Austria, Canada, Portugal, China, New Zealand, Romania, Serbia, Moldova, Albania, Bosnia, Slovakia, Norway, Hungary, Poland, Slovenia, Cyprus, UK & Ireland.

In 2011, we initiated CHED talks (CheeseHead Engineering Discussions) where we invite STEM professionals to share their career experience & knowledge. We post the videos on YouTube for others to be inspired. So far, we have done 17.

We also spread the word of FIRST through media: bluecheese1086.org, Facebook (852 likes), Twitter (1902 followers), Tumblr, Instagram, YouTube, vlogs & podcasts. Our team has been featured in Henrico Schools media outlets, Richmond Times Dispatch, Deep Run Sentinel & other newspapers. We were interviewed by Popular Science & Science Matters (PBS).

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ENGAGING THE UNDERSERVED IN STEM

While we continue our sustained outreach to our local community, we recognize there is a critical need to expand our reach to the underserved & underrepresented. Last year, we partnered with the Richmond Area Program for Minorities in Engineering (RAPME) where we shared robotics & were featured in its video.

We initiated a NXT robotics program at James River Juvenile Detention Center & annually demo our FRC robot. We also volunteer our experCHEESE at CodeVa camps in inner city Richmond. This summer, we demoed at 5 inner city Richmond libraries.

In 2010, we started our Let Go Your LEGOs collection drive donating hundreds of pounds of LEGOs to at-risk daycare centers, underserved schools & exceptional education programs worldwide to inspire children to build. New this year, we received a grant from the Youth Philanthropy Project & a donation from LEGO Education. We expanded our LEGO Math Kits by posting a White Paper on Chief Delphi that was downloaded 158 times. Team 418 used our kits for a camp in Ghana. Our kits have been distributed to: Richmond City schools, MED Students Without Borders (Ecuador), Nobility Project (Kenya), Peru, Nicaragua & WPPC Nepal Foundation which helps victims of human trafficking.

We use Kiva to fund education in Peru, Kenya, El Salvador, Paraguay, Indonesia, Uganda, Philippines, Dominican Republic, Pakistan, Iraq, Nicaragua, Armenia, Jordan, Lebanon, Palestine & Tajikistan - 27 loans.

We promote women in STEM by presenting at the Women ETC conference, DigiGirlz & developing our "Brie the Best in STEM" info bags. We received the Women ETC grant for promoting women in technology. 1086 has women in leadership roles within every aspect of the team.

ADVOCATING FOR STEM

In 2013, Blue Cheese launched into STEM education advocacy by starting a White House petition for FIRST robotics in every school in the USA, signed by 1,350. Team RUSH invited us and 3 other FRC teams to join them in DC, where we met with VA legislators to advocate for STEM education funds. In 2014, it became the National Advocacy Conference (NAC). At RUSH's request, we recruited 7 teams to join the conference. We spoke with House Maj Leader Cantor, the offices of Sen. Kaine & Warner, Gov McAuliffe & Rep. Scott about reauthorizing the Elementary and Secondary Education Act (ESEA) and including STEM funding.

Preparing for 2014 NAC, we met with local leaders to hear concerns about federal education legislation. We met with FIRST Foundation Board member Scott McKay; Kelly Blair Hardt - VA & Natl. Education Assoc; Robert Boyle - HCPS School Board; & Karen Richardson - Exec. Dir. VA Society for Tech.

In 2015, we met with school board Rep. Ogburn & VA FIRST Director Stan Southworth. At NAC, our team led a session to train 240 attendees on state level advocacy. On Capitol Hill, we pushed for the Franken-Kirk-Murray amendment, which supports partnerships between schools, businesses & nonprofits in order to improve/expand STEM education. In addition to the offices of Sen. Kaine & Warner, Gov McAuliffe, & Rep. Scott, we met with Rep. Bratt. As a result of NAC advocacy, almost all verbiage from the Franken-Kirk-Murray amendment is included in the new Every Student Succeeds Act (ESSA).

RUSH also asked us to join them as a FIRST team representative on a STEM diversity workforce panel with Dean Kamen for the Congressional STEM Education Caucus. We partnered with RUSH to run an advocacy recruiting/training workshop at FIRST Champs.

In 2014, we began advocating at the state level. We were invited to Sen. Stosch's Christmas Party where we spoke with School Board Rep. Cooke, VA. Sen. Stosch & Del. O'Bannon. Locally, we attended the opening of the Democratic HQ & met with Sen. Warner, Sen. Kaine & Rep. Scott. At our invitation, Del. Farrell visited our build site & drove our robot.

In Oct. 2014, with FRC Team 2998, we testified before the VA Joint Commission on Technology & Science (JCOTS) requesting STEM funding for underserved schools. We partnered with government agencies to participate in the 1st VA Datathon & spoke to Gov. McAuliffe at the Commonwealth of VA Innovative Technology Symposium (COVITS).

In 2015, Blue Cheese partnered with Sen. Stanley to edit 2014 Senate Bill 805, which grants funding to Title I schools for STEM programs. While making our edits, we met with Del. Farrell for his suggestions and support. Sen. Stanley submitted the edited version of SB805 (SB17) this year & initiated SB246 which creates a grant program for STEM competition teams. We contacted FIRST teams in VA to advocate for both bills.

In Sept, Sec. Jackson invited us to present about FIRST & STEM education to the VA Cyber Security Commission. After, we met with VA Sec. of Education Holton & VA CTIO Keener regarding placing STEM education in the Governor's proposed VA 2016 budget.

Our greatest accomplishments are our cheeseheads - AGED TO PERFECTION. For the last 5 years, 100% of seniors graduate & attend college - 93% majoring in STEM. Alumni continue in FIRST by mentoring & volunteering as robot inspectors, judges, scorekeepers, technical advisors, etc. Our alumni work at: CapTech, VCU, Microsoft, DoD, Boeing, SpaceX & 3M.

As Blue Cheese ages, it gets better. Any WHEY you slice it, Team 1086 is making the world a CHEDDAR place!

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