

Chairman's Award - Team 1629

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2020 - Team 1629

Team Number

1629

Team Name, Corporate/University Sponsors

Garrett County Public Schools / Pillar Innovations / Beitzel Corporation / Wilson Supply & Northern Garrett High School & Southern Garrett High School

Briefly describe the impact of the *FIRST* program on team participants within the last five years.

This year 12 seniors are leaving us, but they are leaving a legacy, the FIRST community will be gaining many mentors and advocates; 15% of our alumni volunteer or mentor FIRST programs and the number keeps growing. GaCo is proud to have 100% of alumni continue their education past HS, 85% in a STEM field. With only 60% of local students going to college, this is an accomplishment! That is more than 60 students, who have been inspired to become STEM professionals, and inspire younger students.

Describe the impact of the *FIRST* program on your community within the last five years.

FIRST programs have ignited Garrett County as a hotbed of robotics throughout Maryland. Local organizations and schools have grown to rely on its FIRST teams to conduct STEM activities. From launching pumpkins to straw rockets, or decorating town streets with geometrically constructed Easter chalk eggs, FIRST programs are a part of Garrett County's fabric. As a tourist destination, visitors remember Garrett County by its FIRST program. FIRST and Garrett County are one in the same!

Describe the team's methods for spreading the *FIRST* message in ways that are effective, scalable, sustainable, and creative.

GaCo is synonymous with STEM fun in our local and FIRST community. We openly share with other teams in order for them to make a difference in their communities as we have in ours. We rely on engagement through LEGO. GaCo uses three methods to make a difference through FIRST programs: Partnerships, Making Connections, and Engagement. We use partnerships as a win-win scenario for all involved. Our team gets creative and passionate making connections which tie STEM into everyday life.

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

Our team members are enthusiastic and genuinely believe they are making a difference. They have experienced the joy and satisfaction of engaging a child in a STEM encounter. They are anxious to share their passion and are ready to help others have the same joy. We seek every opportunity to present at workshops, our FRC retreat, FIRST and championship conferences. It's what we intentionally model in the pits for other teams to observe at district and championship events- HOPEFULLY TO EMULATE!

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

FIRST programs are essential to establish our vision, which we've expanded past Garrett County to all of Appalachia. We formed a partnership with the Appalachian Regional Commission (ARC) which provides \$60K in matching federal funds to start FIRST programs, including FRC, similar to the GaCo Model. Since 2017, we have visited over 20 schools among 5 states (MD, WV, VA, PA & GA) to demonstrate the power of FRC teams to impact schools and school systems-our Grassroots Advocacy Campaign!

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

The last 3 years we have started 20 FLL, 9 FTC and 5 FLL Jr teams. Excitingly, 6 FLL and 2 FTC rookie teams are found beyond Garrett County in Appalachia. Plus, we created a Unified FLL team for students with special needs. Through our advocacy at the grassroots level we convinced two neighboring school districts to start FIRST programs using our FRC team as a model (the GaCo Model) for making system-wide impact. In May, we'll celebrate FIRST in GC at our annual FIRST Fun Day.

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

For the 4th year we have secured a \$12K MSDE Grant to develop a "Pipeline of Success" as students progress through FIRST. We use the grant to support more FTC teams that meet during the school day making use of activity periods. We start FTC teams at the 7th grade level finding after 4 years of FLL, students are ready to move on. Our experienced FTC students mentor FTC & FLL teams in and around Garrett County. GaCo's FTC program prepares students with the experience to mentor younger 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)

To whom much is given, much is required. GaCo students learn the true meaning of giving back by mentoring and teaching others. With the GaCo Model, all of our members are expected to mentor younger FIRST teams. We support more teams by using current FIRST students to mentor younger teams. Two of our sophomore team members, coached rookie FLL teams from WV and MD, they secured positions to compete at the state level for both teams. This is quite an accomplishment for young rookie coaches.

Describe your Corporate/University Sponsors

We have developed relationships with Frostburg State University's Education and STEM departments as well as corporations in our rural area. Our school system, Pillar Innovations, GC Government, and Garrett College are vital to our success. Pillar engineers have been our robotic backbone for 16 years. They are vested in the success and development of our team and students. GaCo 1629 is a family! Our professional mentors are excellent role models and inspire students to follow in their footsteps.

Describe the strength of your partnership with your sponsors within the last five years.

Our sponsors include the public school system, which shows a steady increase in engineering and computer science graduates. GCPS was awarded the COMPUTER SCIENCE Female Diversity Award. With a 79% success rate AP COMP SCI test scores far exceeded state averages. GaCo continues to reach every 3rd, 4th & 5th grade student in its district with STEM Waypoint lessons designed to ensure all students are STEM ready as well as establishing a systemic approach to embedding FLL in 6th grade.

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

FIRST represents opportunity, not only to build competitive robots, but more importantly, an opportunity to make a difference to ALL students on a FIRST team or not. It provides a framework that develops our FRC students for real world challenges as well as empowering us to change the world one child at a time. An opportunity to fight missed opportunity and to help others make a difference. It sets FIRST apart from the other youth robotics programs. We do FIRST to make a difference!

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

GaCo's growth is accelerating! The number of FIRST teams we STARTED or SUPPORTED increased 32%, up from last year's increase of 19%. All of our FIRST teams are founded with GaCo's vision. Our team's vision has driven us to become an essential partner to our school system and community. We are expanding our reach— ensuring all students in Appalachia are "STEM Ready" through FIRST Programs. 1629 has changed the culture of Garrett County, and now we're working on the culture of Appalachia!

For FRC teams older than 5 years, briefly describe your team's broader impact from its inception.

Being a leader in STEM Education is our mission. Using FIRST programs, our team has pioneered a vision that makes an impact on every student in our school system- whether on a FIRST team or not. We've garnered local support from the Garrett County community, and attracted attention from the MD State Dept. of Ed. and FIRST Chesapeake leadership. We've used what has been given to us to make a difference and we will continue to do so throughout Appalachia in order to make an even broader impact.

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

Katherine Catulle

Essay

Johnny Appleseed is one of America's fondest legends. Stories about him and his apple seeds spread across the country. Johnny is no longer traveling, but the tales of his apple trees live on. We are using this legend as a guiding principle to tell GaCo's story. We've spent 16 years SOWING our love of Science, Technology, Engineering, and Math. GaCo is PLANTING a legacy of STEM Ready Kids across Appalachia in our quest to become the "Johnny Appleseed of FRC" and leaders in STEM education.

OUR HARVEST

GaCo is committed to its vision of STEM Ready Kids. Johnny Appleseed envisioned fields of apple orchards. GaCo envisions all students across Appalachia emerging from elementary school with the essential skills needed for success in STEM. Every SEED is planted with the intention of ensuring our vision of STEM Ready Kids- our APPLE ORCHARDS.

OUR SEEDS

Johnny Appleseed was particular about his apple seeds, and so are we! GaCo's own packet of SEEDS are called STEM Waypoints- our LEGO Top Spinners, Binary Cards, and Key to the Universe. These lessons are based on research and CULTIVATED to support K-12 education standards and engage students. Over the last 5 years we've PLANTED over 4,500 LEGO Top Spinners, 3,000 Binary Cards, and 2,000 Keys to the Universe.

Educational research says the window to develop essential skills in STEM, like spatial reasoning, closes about the time students move on from 5th grade- the PLANTING SEASON for our Waypoints. Appalachia is where we seek to PLANT because our ROOTS are here and it's where we can make the most difference. GaCo has been prepared for such a time as this! It is where our passion meets our vision.

Elementary kids love when GaCo students enter their school! As part of the planting process, the elementary students get to keep their Waypoint each year, and everytime they pick it up, the SEED we PLANTED is WATERED!

SPROUTING

It takes about 10 days for an apple seed to sprout, but you can see GaCo's SPROUTS start to emerge immediately. The excitement our Waypoints produce is truly overwhelming for the students we teach and GaCo's own student teachers. Teaching these lessons makes students more PASSIONATE about PLANTING.

Even principals and superintendents get excited about our STEM Waypoint lessons. We have found that superintendents like the idea of having a FIRST robotics team in their school district, but love the idea of having a robotics team that makes a systemic impact! This makes a difference to every student- not only to those directly involved in the program. They like our APPLES!

To FERTILIZE our seeds, GaCo has begun an Impact Study to ensure we are making a difference. Initial results will be shared in our Chairman's Interview. They are very exciting!

PASSING ON THE LEGEND

GaCo's vision demands more JOHNNY APPLESEEDS. In order to get more PLANTERS we are establishing more FIRST programs, based on the GaCo Model. The GaCo Model has 3 components: making systemic impact, establishing meaningful partnerships, and mentoring younger FIRST teams. We hope these teams throughout Appalachia in turn REPLANT more seeds to produce more STEM Ready Kids.

Without water, plants will perish; meaningful partnerships are the WATER that keeps our program growing. GaCo seeks partnerships that are symbiotic or "meaningful" to support each partner's vision. Our most valuable partner is our school system. GCPS provides us with both funding and our most important asset- access to students. In turn we provide Systemic Impact to all students!

Over the last 3 years, we have been able to visit 21 schools across 11 school systems. One of our many valued partners is the Appalachian Regional Commission (ARC). We are implementing the \$60,000 ARC matching federal grant project to help identify school systems in rural communities that can benefit from a program such as ours. The ARC partnership helps extend our outreach. In March we are traveling to Georgia to a school in Southern Appalachia.

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Mentoring is the CORE of our GaCo Model. This year we have started or continued support for 20 FLL teams, 8 FTC teams and 5 FLL Jr. Teams- a 32% increase from last year. This is in addition to mentoring or helping at least a half dozen more including helping other FRC teams with their outreach and Chairman's submission.

THE APPLE DOESN'T FALL FAR FROM THE TREE

An FTC team we started in Tucker County is helping us start other FIRST teams in its community. This opens another opportunity to PLANT SEEDS. They are making a systemic impact in their school system and have started 2 FLL teams based on the GaCo Model. This is the realization of our dream, the pattern we hope to see replicated time after time throughout Appalachia.

GaCo is constantly calling on our experienced FTC students to visit and help FTC teams in and around Garrett County. They also help teach our STEM Waypoint lessons. The purpose GaCo has for its FTC program is to prepare students with the experience necessary to mentor younger FTC teams in the future.

We expect all GaCo FRC students to mentor younger teams. This is how we support the growth of our program. GaCo uses the FIRST Progression of Programs to its fullest advantage. More FIRST teams = more Johnny Appleseeds = more STEM Ready Kids!

AN APPLE A DAY...

GaCo's Appalachian project is NOURISHED by opportunities to share our vision. Nothing encourages GaCo more than when we finally get that one opportunity that allows us to share our passion. Sometimes, our seeds fall on rocky ground. It's the many seeds that have taken root and produced apples that keeps us going. An APPLE A DAY really does keep the DOCTOR AWAY and keeps encouraging and inspiring GaCo to pursue all opportunities that come our way.

Perseverance and patience are the key ingredients in our HARVEST. It takes time to build trust. In January, 2 FLL teams we started in a PA school district competed at their first official competition... 2 years from the first meeting with their Superintendent. GaCo has learned we have to work with each school system's timeframe and comfort level. As a result of GaCo's perseverance, FIRST is firmly ROOTED in the Salisbury Elk-Lick School District.

CROSS-POLLINATION

Sharing SEEDS is what we do best. We openly share our resources with other FIRST teams. We seek existing FRC teams to demonstrate teaching our STEM Waypoint lessons in hope that they will adopt our lessons as their own, resulting in even more STEM Ready Kids. To date, more than 6 teams are using our STEM Waypoints to make a difference in their schools and systems.

Our team's mission is to be leaders in FIRST and K-12 Education. The past 2 summers we co-hosted an FRC Retreat. The retreat gave us an opportunity to collaborate on a joint STEM activity for children at a competition. Last year kids visited each of our pits to make a model of the Saturn V. This year they will be visiting each of our pits to construct a Star Wars lightsaber! A great time of sharing and fellowship making the FRC community stronger in Maryland.

ADVOCATING FOR APPLES (FIRST programs) is important to GaCo. Again this year GaCo participated in FIRST's National Advocacy Conference, to help secure added funding for FIRST programs. Advocacy is important at the Federal level, but we also see the importance of working at the grassroots level.

Our Grassroots Advocacy Campaign is CULTIVATING interest and excitement for STEM and FIRST. We continue to seek out opportunities to share our program with superintendents and educators who are decision makers on curriculum and spending for school systems. At the local level, we have vested County Commissioners inspired by our program.

GaCo has learned when it comes to advocacy or planting seeds in general, there's no substitute for GETTING OUR HANDS DIRTY. Over the past 3 years we have driven over 16,000 miles, 6,000 just this year. We take every opportunity we have to plant our SEEDS personally. This is so important that our Superintendent purchased a Suburban large enough for 6 students plus our robot to support us!

GaCo was given a wonderful opportunity to Advocate for FIRST at the grass-roots level to a group from NaCo (National Association of Counties) commissioned by the Gates Foundation. As we shared with the NaCo group we learned that one of NaCo's Directors is from Wise County, VA, where we had just been to Coeburn Middle to teach our STEM Waypoint lessons. We're keeping in contact with this Director and hoping that this will lead to more opportunities in southwest Virginia. Waypoint SEEDS were PLANTED that will grow into a FIRST program at Coeburn Middle.

WIND BLOWN SEEDS

The strong winds across the high Appalachia plains have blown into many schools to the east. GaCo represented FIRST Chesapeake in Annapolis at the annual MABE Conference. Not wanting to miss any opportunity to sow seeds, GaCo made arrangements to visit a nearby private school. GaCo students were able to teach all 3 STEM Waypoint lessons

because we always have our seeds at hand. Amazing things happen when opportunity meets preparation!

FRESH BLOSSOMS

Being intentional about our vision led GaCo to an exceptional HARVEST which has led to many blossoms. New partnerships are on the horizon with WV's State Department of Education as well as leading education agencies in WV. One of our KY partners, the Creation Museum, which teaches our 5th grade STEM Waypoint on a regular basis is now selling our "Key to the Universe" in their gift shops. The seeds we have planted have grown to produce many beautiful apple blossoms!

THE APPLE OF OUR EYE

STEM Ready Kids are the APPLE OF OUR EYE. What's truly awesome is that our students get to see the sparkle of excitement with every child. That's over 9,000 SEEDS PLANTED- 9,000 students that have had an Ah-Ha! moment and are on their way to becoming STEM Ready. There is power and passion in that moment. Enough to grow an APPLE TREE with SEEDS, enough for all of Appalachia to become STEM Ready.