

Chairman's Award - Team 1671

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2019 - Team 1671

Team Number

1671

Team Name, Corporate/University Sponsors

Apple/Harris Manufacturing/NVIDIA/Brin Wojcicki Foundation/Valley Iron Inc/Educational Employees Credit Union/Pelco by Schneider Electric/Schneider Electric/J IT.Outsource/WestCoast Products/SolidWorks/ComptonTech/ADCO Manufacturing/Buchanan Foundation&Buchanan High

Briefly describe the impact of the *FIRST* program on team participants with special emphasis on the 2018/2019 year and the preceding two to five years

Team 1671 prides itself on 100% high school graduation rate, with around 90% graduating with one or more AP classes. Throughout the past five years, Team 1671 has trained its members in OSHA, Adobe software, SolidWorks, C++, Java, and Electronics. These newly developed skills enable an easy transition into their desired college and career. Of these graduates, around 74% of Bird Brains pursue STEAM based careers and some former members even mentor our team to influence the next generations.

Describe the impact of the *FIRST* program on your community with special emphasis on the 2018/2019 year and the preceding two to five years

In tandem with our usual outreach efforts, our Bird Brains STEAM Workshop targets Title I schools to inspire at-risk elementary students to pursue engineering, math, and science. Additionally, our team hosts CaT 4 Girls, a female-led workshop for computing and technology. We attend the Girls World Expo and the STEM Girls Conference to inspire girls to consider a science career. Our team also founded the Turing Initiative to bring awareness to areas in our County that lack STEAM opportunities.

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

This year on YouTube, we started a podcast and docu-series about different STEAM programs. With 1100+ followers, Instagram keeps us relevant in the *FIRST* community. Twitter promotes our content to 2,300+ followers and Facebook reaches 1300+ people, including our sponsors, families, and community supporters. Utilizing different platforms widens our reach; we give our community an inside look of the team by conveying all of our activities.

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

Team 1671 holds our members to a high standard and strives to exhibit *FIRST* core values on and off the team. We provide the opportunity for all students to participate regardless of sexuality, race, or socioeconomic levels. We create an environment of persevering through adversity for the goal of igniting young minds, and we form a team that not only enjoys what it does but is also able to recognize the purpose of collaboration and hard work.

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

We have continued a progressive effort towards the establishment of new teams in the region. Three years ago, we established Project CURIE and with it we successfully unified and funded teams within our district. There is now an FRC team at every high school in CUSD. Most recently, our team aided new FRC teams at Clovis High and Clovis North and maintained constant contact with neighboring teams to give advice and manufacture parts. Outside of CUSD we helped to form FRC teams 3970 and 5817.

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

We reached out to NorCal partners to bring FTC to the Central Valley, and directly mentored our feeder middle school's winning rookie team, The Half-Wit Hatchlings. We provide FLL teams and coaches with needed resources and mentorship, guiding them through *FIRST* and ensuring their growth. Moreover, during last year's build season, we invited multiple teams into our workshop to show them the inner workings of an FRC team and give them something to strive for.

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

As the team grows, our duty to assist others increases. We continue annually hosting the FLL scrimmage and our own qualifier, and lend huge support at the regional championship. An FTC qualifier we introduced last year. We also actively collaborate with Team 6305 to serve the needs of our FLL community, and we maintain an Open Door Policy for any teams needing a place to work.

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)

This year, we directed efforts towards hosting events like the FLL scrimmage and FTC qualifier early for teams to have competition experience minus the stress. By hosting and supplying volunteers for FTC and FLL competitions, our influence reached younger teams. We offered immediate assistance, robot demos/presentations, and assigned members to teams in need of mentors. We mentor the FLL teams 16050, Intergalactics, and FTC team 14323, Half-wit Hatchlings, the first FTC team in our district.

Describe your Corporate/University Sponsors

Team 1671 would not be successful without our dedicated sponsors: Harris Manufacturing, Pelco by Schneider Electric, J-I.T. Outsource, Educational Employees Credit Union, Valley Iron, etc. We pride ourselves on our sponsors ranging from local businesses like Bulldog Village to organizations like NASA. Our sponsors offer different types of support: funds, mentorship, networking, etc. Because of our diverse network of sponsors, we are extremely grateful for their support and faith in our team.

Describe the strength of your partnership with your sponsors with special emphasis on the 2018/2019 year and the preceding two to five years

We've maintained long-term relationships with sponsors through gratitude gifts, weekly updates, a sponsor banquet, sponsor visits, and an open house. Our sponsors interact with us frequently; they enjoy seeing us build our future and spreading *FIRST*. We show our progress, ambition, and success by consistently keep in touch with our sponsors to build strong, trusting relationships. Sponsors stand behind the assurance that we always work hard to pursue our mission and put meaning to their money.

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

Rather than defining the organization, our team emphasizes the experiences and values from engaging in *FIRST*, and robotics competitions. *FIRST* gives us valuable skills, creates community relationships, and prepares bright individuals for a future in tech. It provides an environment for young minds to explore the world of technology and science, turning their hobbies into a career.

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

Team 1671 created a children's activity book this year. The book includes activities such as word searches and coloring pages that incorporate content to teach kids about STEAM and *FIRST*. Furthermore, the content of the activities include pioneering scientist and their contributions to their respective fields. Coupled with our children's book, our activity book supplement engages a younger audience to learn about the history and foundations of STEAM in a fun way.

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

Julie Nguyen

Essay

The Buchanan Bird Brains, FRC Team 1671 is a launchpad for FIRST in California's Central Valley. Our Mission, "Inspiring Young Minds to Spread Their Wings" is deeply ingrained into our team culture. Over our 15 years of existence, we have consistently produced and mentored new teams, forged new community relationships, and started, maintained and expanded on new initiatives. Year after year, we remain a crucial contributor to FLL, FTC, and FRC teams in our area and beyond.

Bird Brains STEAM Workshop

The Central Valley is in dire need of early intervention to give students a fighting chance to excel in math and science. Of 71,000 students in Fresno alone, 89% are socioeconomically disadvantaged, and 55% of the student body performs below the state standard in math concepts and procedures. Students in Title I schools such as these are among the lowest-performing in the nation. To combat this issue, this year, Team 1671 pioneered the Bird Brains STEAM Workshop to teach the principles of math and computer science to elementary school students in order to break the cycle of poverty, inspire students to pursue FIRST in the future, and encourage them to imagine themselves changing the world through math and science.

Our workshop tackles coding, fabrication, electronics, and computer aided design through interactive group activities that were vetted by teachers as educationally sound. While we have targeted Title I schools, the workshop is meant for everyone. Our rollout began in Clovis at three elementary schools, one of them being a Title I school. Word spread, demand rose quickly, and we were soon invited to Olmos Elementary in Fresno, where students and teachers alike raved about the engagement and educational value brought to their school. While it is important that our team is personally hosting workshops, we struggle to keep up with demand. The Bird Brains STEAM Workshop in a Box focuses on making our workshops easy to teach and transport. It includes the curriculum and all required materials, as well as a documented standard for how the workshops run, their duration, and the impact each workshop should have. With a solid plan and means to do it, our team will create a multiplier effect by shipping this valuable content to any school that needs it.

Turing Initiative

In 2015, with generous support from our community, Team 1671 launched the Clovis Unified Robotics Initiative for Engineering Project, providing a way for struggling FIRST teams in Clovis Unified School District (CUSD) to receive the financial and educational resources they needed. As time went on, we witnessed that the real need was just outside our own school district. We desired to find a way to help these deserving districts, and thus the Turing Initiative was born.

Named after Alan Turing, "the father of computer science," the Turing Initiative is an online database that documents student involvement in STEM at elementary, intermediate, and high schools over time. For FIRST teams who want to increase STEM engagement in schools, the Turing Initiative provides a simple, easy-to-visualize aid to assess low-income and low-engagement regions. The Turing Initiative also tracks the effectiveness of FIRST team outreach at specific schools.

Team 1671 has applied the data we have collected so far to host the Bird Brains STEAM Workshop at Title I schools. Our efforts in establishing the workshop and the Turing Initiative were met with astounding success. In January 2019 alone, we impacted hundreds of students at elementary schools and at the Fresno Interdenominational Refugee Ministry, which serves the needs of over 10,000 refugees from 22 countries. Our vision for the Turing Initiative extends beyond the scope of Fresno County; this initiative can be used to MAKE IT LOUD. We anticipate that the Turing Initiative will additionally serve as a tool for collaboration amongst FIRST teams as they provide data for their own regions to log in this public archive.

A Children's Book to Inspire and Educate

In 2015, Team 1671 published Three Little Birds: Reach for the Stars, written to instill ideas about curiosity and discovery to children with a plot centered around three birds building a rocket to fly to space. New for 2019, we've created a supplemental activity book to pair with the children's book, which provides a foundation for STEAM fields. Our activity book incorporates the history of the team and FIRST, as well as a basic explanation of each aspect of STEAM through various workbook activities. It is an educational supplement for teachers, and engages children's minds to think about each discipline.

CTEIG Grant

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In 2015, our team started a Principles of Engineering course at our high school to bring the knowledge and technical skills of robotics to other students. Inspired by our initiative to make engineering a vital part of our education, our school introduced a Career Technical Education Engineering Pathway in 2017. Our team worked with school and district administrators to secure a \$500,000 CTEIG grant that expanded the Engineering Pathway to include an AP Computer Science course and other advanced engineering courses. Additionally, our school has purchased professional machinery that has been made available to all FIRST teams in our region. This build season, we assisted teams 5817, 1422, and 3459. Thanks to the CTEIG Grant, the education that a FIRST program provides is now available to the entire student body of Buchanan High School.

Community and FIRST Involvement

Team 1671 is integral to the success of FIRST events in the Central Valley due to the sheer size of the workforce our team brings. Our members have worked directly with Central Valley Robotics (CVR) for years under the directorship of Michael Adam, a Bird Brain alum, to provide volunteers as referees, pit administrators, MCs, and DJs among many other positions at all FIRST events. We host our own FLL scrimmage and FLL qualifier, and are the primary workforce at the regional FLL Championship.

When we saw an unoccupied niche in the Central Valley for FTC teams, we formed a partnership with Alta Sierra Intermediate to establish the first FTC team in the Central Valley: the Half-Wit Hatchlings. We also co-hosted the first FTC qualifier in the Central Valley, bringing FTC recognition to our area. With our team's avid mentorship and support, the Half-Wit Hatchlings joined the first-seeded alliance at the FTC qualifier, and won.

Communication and Social Media Campaign

We use social media as a method to provide updates about team events, outreach, and progress. This year we created new content to engage existing supporters as well as those without prior knowledge of FIRST. We use Twitter and Facebook to reach parents, supporters, and sponsors to keep them informed on all team happenings. Instagram and YouTube are two outlets that serve to document our team's story and give an inside look on the people behind 1671. From silly moments on our "Insta-story", to posts of Bird Brains visiting the Children's Hospital, Instagram connects our audience to our team in an intimate way. On our YouTube channel, our media team executed a rigorous schedule to make videos each week, showing our team in action. "Bird Talk" is our bi-weekly Podcast, and "STEAM Showcase" is our bi-weekly docu-series featuring other ways to get involved where FIRST is not available.

Women

Team 1671 is structured like a business with a C-Suite and Directors in key roles. Our past five CEOs have been women. This year we welcomed our very first female Chief Technical Officer. Together our female CEO, CCO, and CTO create a 1:1 ratio between our female and male officers. Our strong female leadership does not stop there; we have female leaders in each of the subgroups of our team.

We encourage girls within our school and community to learn about the opportunities FIRST can provide. Thanks to the support and donation from NCWIT, we were able to host our very own "Computing and Technology for Girls." This month-long, female-led workshop taught girls CAD, fabrication, and other engineering skills.

We are invited annually at the Fresno County Office of Education's STEM Girls Conference and the nationally-hosted Girls World Expo to inspire young women to get involved with FIRST and with STEM careers. Our female alumni know the incredible impact that FIRST has had on their lives, and want to make sure every girl can be given the chance to experience it too.

Community Support

Our team and the community have a symbiotic relationship. Our community support comes in many forms: sponsor relations with local organizations, parent assistance, and mentorship. We pride ourselves on our relationship with our corporate sponsors and community supporters. Parents also play a vital role in supporting the Bird Brains by helping to coordinate fundraisers, team events, and meal planning. We show our appreciation at our annual Open House, Sponsor Banquet, and add a personal touch when we show our appreciation in person.

Conclusion

It took the Bird Brains 15 years to become what we are today. From a team that started with 14 members, one teacher advisor, and a vision, to a business-style, student-led operation consisting of 63 members, the Bird Brains have not fallen behind, but rather have grown stronger. We have strengthened our resolve to improve STEAM culture and bring new opportunities in FIRST to the Central Valley. New in 2019 we have brought forth many fresh, successful, and ambitious projects. We continue to make large strides to accomplish our mission by improving our projects and laying down foundations to sustain and expand upon them. This year, while "Inspiring Young Minds to Spread Their Wings," the minds we appear to have inspired the most have been our own: our greatest incentive to continue this rewarding work year after year.