

***FIRST* Impact Award - Team 1671**

2024 - Team 1671
Team Number
1671
Team Nickname
Buchanan Bird Brains
Team Location
Clovis, CA - USA
Describe the impact of the <i>FIRST</i> program on team participants within the last 3 years. This can include but is not limited to percentages of those graduating high school, attending college, in STEM careers, and in <i>FIRST</i> programs as mentors/sponsors.
100% of our seniors graduate, each of them attending college and 90% pursuing a STEM major. To motivate our students—especially the 24.1% that come from low socioeconomic backgrounds—to pursue STEM, we partner with sponsors to provide scholarships to graduating seniors. Bird Brains then migrate back to the nest: eight alumni have come back to mentor, helping in CAD, fabrication, and PR; over 30 alumni come back consistently to volunteer at various Central Valley FIRST events.
Describe your community along with how your team addresses its unique opportunities and circumstances.
The Central Valley is the agriculture capital of the U.S., where STEM careers are not prevalent. Community events and farmer's markets are the soul of our area. We helped the Sikh Jakara Movement to help establish West Fresno's first farmer's market. We are a reliable volunteer source for Central Valley Robotics, a non-profit that hosts FIRST events, for the last 20 years. To establish relations with local government, we assisted city staff with their annual Mayor's Breakfast for 500+ attendees.
Describe the team's methods, with emphasis on the past 3 years, for spreading the FIRST message in ways that are effective, scalable, sustainable, and creative. How does your team measure results?
We host events annually to foster trust with our school and local organizations. Whether it be robot demonstrations, book readings, or school rallies, our team's consistency helps us reach new audiences each year. To increase visibility on our campus, we came up with creative games, utilizing our robot at school's rallies. Lending a hand when needed, our team helped our school's leadership team fix a wooden sign for their multicultural event which reaches 2400+ students each year.
Please provide specific examples of how your team members act as role models within the FIRST community with emphasis on the past 3 years.
Our team hosts annual Impact Exchanges at regionals for other FRC teams to learn new ideas, experiences, and cultures. We embrace coopertition through annual workshops at Capital City Classic, reaching 500+ people in the last 3 years by publishing our presentations. Our students have been

volunteers and role models at every FIRST event in the valley. As part of the National Advocacy Conference, we have lobbied our congressmen for greater investment in STEM education in Washington, D.C.

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

We mentor 8 FLLC teams in our area. To reach teams that we can't directly mentor, we host a free scrimmage event that has prepared 46 FLLC teams for competition in the last 3 years. We held an info session to support new mentors in establishing and running FLLC teams. Locally, we assisted Team 6305 with programming and helped Team 7589 in Taiwan expand their public relations. This season, our feeder FTC teams, 14323 and 17094, used our shop facilities to build parts for their robot.

Beyond starting teams, what initiatives have you done to help inspire young people to be science and technology leaders and innovators? What results have you seen from your efforts in the past 3 years?

Our Flight School Pathway cultivates STEM interest in hatchlings at every level. We host readings of our children's book for pre-k students and demonstrate our robot for 1st-4th graders. For 5th-8th graders, we teach basic CAD, programming, fabrication, and media skills through our GEMS, and CADathon programs. GEMS alone has produced 25% of our team's leadership. Through our outreach efforts we have reached over 2,000 K-6th graders in the last three years.

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

We're always there when Central Valley Robotics needs a hand. We are major helpers at the FLLC Regional Championship, winning our team a Volunteer Award. We work with FRC teams 1422, 3970, 6305, and 8768 at FLLC events and local workshops. Working with Fresno County Office of Ed., we present annually at the STEM for Girls event to introduce engineering to girls from marginalized schools. We have also collaborated with First Tee to teach young Golf players the physics behind their swing.

Describe your team's efforts in the past 3 years to promote equity, diversity, and inclusion within your team, *FIRST*, and your communities.

We spread FIRST to over 600 students at local Title I schools, increasing their access to STEM. Hosting multi-day workshops, we help local Girl Scouts earn their robotics badges. Our targeted outreach has helped us match our school's 55% minority student population. We host resume and cover letter workshops to provide equal access to leadership positions for all students. 60% of the women in our leadership team were participants in our team's GEMS workshop in years prior.

Explain how you ensure your team and the initiatives you have created will continue to run effectively for the foreseeable future

Google Drive organizes 11 years of our progress for new students to reference throughout the season. After competitions, we hold pluses and deltas to recap our progress and identify areas of improvement for future events. Our team modifies our subgroups and leadership structure to accommodate the strengths of our ever-evolving team. During competitions and outreach events, new and veteran members are paired up together to promote communication skills and transfer knowledge to our future leaders.

Describe your team's innovative strategies to recruit, retain, and engage your sponsors within the past 3 years

Our team recruits benefactors through cold calls, emails, and sponsor packets detailing our mission statement and the benefits of sponsorship. To highlight our progress, we release weekly build-season emails to our sponsors and post shout-outs on Instagram and Twitter. To add a personal touch, we hand-write thank you letters to each person and company that sponsors us. All of our patrons are invited to the team's annual Open House, showing them their first-hand impact on our team.

Highlight one area in which your team needs to improve and describe the steps actively being taken to make those improvements.

This year, our team's leaders focused on improving student engagement and collaboration during team meetings. To address this, we've emphasized giving each task a clear purpose, noticing that highlighting the "why" drives student dedication. We implemented GANTT charts team-wide to streamline efficiency and organization, empowering students to take on new tasks. Our Friday night dinners encourage students to form more tight-knit relationships with other members, fostering a more cohesive team.

Describe your team's goals to fulfill the mission of *FIRST* and the progress you have made towards those goals.

Continuing our efforts from last year, our team has promoted STEAM from Ghana to Mexico, through our Workshop in a Box initiative. Based on last year's feedback from Impact judges, we decided to tackle increasing FTC presence in our area. We developed a 5 year plan to bring an FTC qualifier back to the valley, start new FTC teams, create an FTC league, and finally have an FTC program at each school in our district. This season, we collaborated with FRC 5817 to host an in-person FTC qualifier.

Briefly describe other matters of interest to the *FIRST* 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 or particularly noteworthy.

Making it loud for STEM and FIRST on a local and global scale, our team consistently reaches an annual audience of 32,881 people through our Instagram and Facebook. The Bird Brains have been featured on the Central Valley's biggest news stations, including KMPH 26 and ABC30, allowing us to spread the FIRST message to a wider audience. During a FIRST Global Conference held by team 5635, our team presented strategies we use to engage with our community to other FRC teams.

Judge Feedback

Who/When

Feedback

Mar 23,
2024
08:20:11
PM EST

Given the subjective format of judging, are there systems in place to switch judging to a publicized rubric-based system? We saw that FLLC and FTC have switched to a new system recently.

An area the team has an opportunity to improve.

Something that really impressed the judges.

Essay

Every composition starts with a single note. With creativity, innovation, and dedication, a simple melody can be flourished into a symphony when orchestrated by passionate minds and dedicated individuals.

Mr. Paul Lake helped play our first note, directing his passion and drive toward developing a program that continues to interactively engage students with STEAM. What he and others have orchestrated is re-interpreted by each succeeding generation of the Bird Brains to propel our mission of inspiring future leaders.

FOR THE NEST

Our team consists of 9 mentors and 60 students, including 12 student leaders. To ensure the most efficient organization possible, we structure our team like a business, consisting of Chiefs, Directors, and Leads.

To combat the challenge of a quarter of our team graduating out of the program each year, we put training at the forefront. Veteran members and returning-alumni take charge of teaching incoming members technical skills that will boost their career-readiness. To streamline training and ensure we don't "reinvent the wheel," we refer back to records that are meticulously kept in our Google Drive. We utilize GANTT charts, databases, and Slack (our main communication platform), to record information and reference throughout the season. For each initiative that we carry out, we use the pluses-and-deltas method to continually improve our events.

To strengthen the bonds in our flock, we plan frequent team bonding events like parties, valentine grams, and team meals to encourage members to depend on one another, making a cohesive and tight-knit team. Our environment provides a sense of belonging for many marginalized students. We have seen that this makes a true impact - as our returning alumni mention time and time again, "We come back for the people, not the work."

FOR THE NEXT GENERATION

Located in the heart of California's San Joaquin Valley, we work to provide STEM access to all, fostering each student's unique skills and interests. This has made us among the few spaces in the district where musicians, artists, and public speakers can work alongside STEM-oriented individuals in a professional setting towards one common purpose: to develop the leaders of tomorrow. Here, STEM becomes STEAM.

We introduce students to our Flight School Pathway at a young age. Beginning with students in kindergarten to 2nd grade, we spark their imaginations by reading our team's published children's book, "Three Little Birds: Reach for the Stars." To improve accessibility, we have translated our book into 8 different languages, including Spanish, French, and Mandarin as well as created animations and voiceovers for our story.

Starting in elementary school, our team hosts First Flight workshops to expose students from 4th to 6th grade to STEAM concepts: a tower building game that teaches kids collaboration, a magnetic coding game to develop critical thinking skills, and Hour of Code that puts programming theory into practice.

Approaching middle school, students begin to catch our rhythm. One of our most successful recruitment efforts is visiting middle school science classes each year, ensuring that we reach students not already attuned to STEAM. Along with recruiting efforts, our Girls and Guys in Engineering, Math, and Science

(GEMS) workshop caters to 6th through 8th graders. We've hosted this two-week program which covers skills in CAD, fabrication, programming, and media. More than just developing practical skills, the GEMS program exposes students to the opportunities of STEAM careers. In addition to our GEMS workshops, this year, our team started a CADathon where we taught 12 students how to use OnShape to create everyday items, such as pencils and desks.

At the high school level, we have been involved in two of the biggest student initiatives on our campus: student rallies and our on-campus high school news program, Bear News Network (BNN). Each year we collaborate with the school's leadership team to reach our entire student body of 2,600 students by attending our school's Winter Rally where we showcase our robot, bringing it to the centerstage. Along with that, we recruit our media team directly from our campus' videography pathway. As a result, we have been able to utilize our relationship with BNN to spotlight FRC on campus and provide students the resources to get involved.

We strive for greater inclusivity within our athlete-oriented school, creating an annual all-academic-team winter party to strengthen the academic community. Continuing to support others whenever we can, we've designed and manufactured buttons for Academic Decathlon and have shared materials with Science Olympiad students for their engineering projects.

Harmony, which celebrates cultural diversity on campus, is the largest event our school hosts each year. This year, to support the show, we designed and fabricated an eye-catching sign that served as the centerpiece for their stage. We plan to continue supporting the arts on campus, hoping to assist drama with stage set production in future plays this year.

Leaving no stone unturned, we've expanded beyond our school and spread our song to the Central Valley. By attending popular local farmers' markets, we take advantage of yet another way to expand awareness of FIRST in our community.

Keeping in touch with the community, we host events throughout the season to exhibit our team's passion and efforts. During each season's kickoff, we invite everyone to join us for the game reveal and the excitement of creating a new robot. From alumni to parents, our doors are open to anyone interested in sharing our brainstorming and problem-solving. Before our first competition, our team hosts an Open House to showcase our team's accomplishments throughout the years, featuring previous robots, presenting our outreach efforts, and most excitingly, revealing our current robot to our community for the first time.

We continue fostering interest in STEAM through our partnerships. At every Boys and Girls Club location across the Central Valley, we hosted STEAM workshops, and in one location, we joined with local mom-and-pops to organize Summer fairs at the Boys and Girls Club. We reached 200 kids from marginalized backgrounds, many excited to engage with a robot for the first time in their life. In the Summer of 2023, we worked with First Tee to teach golfers the physics behind their swing, introducing them to STEAM in a fun, impactful way that connected with their passion. We have also partnered with our local Girl Scout troops to guide 38 of their members towards gaining their robotics badge.

FOR FIRST

We support FIRST at every step of the way. Our birds volunteer at FLLC Jr. events around our area and

we host the only FLLC scrimmage in California's Central Valley, the Free Flight Scrimmage. This year we doubled the size of our scrimmage from 12 teams to 24 to accommodate the growing FLLC community in the Valley. Our Free Flight Scrimmage simulates real competition day and allows teams to go through mock-judging and robot challenges. Following the scrimmage, we host our own FLLC qualifier, the Battle at the Nest Qualifier and work to support Central Valley Robotics with the Regional FLLC Championship.

Our work with the Free Flight Scrimmage teams begins well before the competition. For years, Team 1671 has provided support to local teams through our Hatching-It-Out Workshops, meant to help newer FLLC teams and coaches navigate the world of FIRST. In addition to mentoring eight FLLC teams, our members have mentored two of our local FTC teams, team 14323 the Half-Wit Hatchlings and team 17094 E.G.G.

Recently, we shifted our focus to FIRST Tech Challenge. Since COVID-19, there has been a lack of FTC presence in the Central Valley, so we created a strong foundation to encourage and support more FTC teams. As the first part of a five-year plan, this year we hosted a new FTC qualifier with FRC Team 5817, Uni-Rex. For the next two years, we plan to create 5 new FTC teams in our area. In five years, we hope to have created the very first FTC League in the Valley.

Our team also makes it a point to support fellow FRC teams. We have sent our children's books to FRC teams 5740 from Pennsylvania and team 4735 from Mexico. Our team creates and sends out our Workshop-In-A-Box (WIB), which includes interactive activities intertwined with the principles of STEAM, in order to get students more interested. We have sent out four WIB boxes: two to team 5026, Iron Panthers, from California and two to team 4735, Prepa Tecmilenio - DEROF - Peñoles, from Mexico.

In order to connect with more teams, our team has hosted impact exchanges at the regionals we attend. During these exchanges, we have gained connections to teams 4010 from Mexico and 7539 from India. We've also created an open shop policy to assist other teams through gracious coopertition, allowing any team to use our shop free of cost whenever need be.

Our alumni have gone on to volunteer at various FIRST events and assist other teams, with one even helping us get in contact with and support team 7589, Lishan Blue Magpie from Taiwan. Through zoom, we helped mentor them in the fundamentals of outreach, importance of team organization, and programming basics.

Our team is always there to sound the beat of the FIRST drum. Our mentors, parents, and students have bought into the FIRST program and work hard each year to bring FIRST to new heights in the Central Valley.

FOR THE LEGACY

"To inspire young minds to spread their wings." Ten years ago, this motto brought our team to the grand stage, and it resonates true to this day. From the sound of machines running in our shop to the excitement of kids at FLLC events, our legacy lives on within the chorus of our community. Always ready to take flight, we're ready for the encore. ;

