

Chairman's Award - Team 498

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2022 - Team 498

Team Number

498

Team Nickname

The Cobra Commanders

Team Location

Glendale, Arizona - USA

Describe the impact of the *FIRST* 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 *FIRST* programs as mentors/sponsors.

"Robotics taught me a lot about things related to design to help me succeed in Architecture school, but also leadership and keeping up with deadlines (life skills for the future)." - Braden D, Alumni 98% of alumni have attended college or served in the military within the last three years -74% of alumni are in STEM fields -71% of alumni have volunteered in FIRST since graduation -100% of current students want to pursue a career in STEM 85% of our mentors are alumni of FIRST

Describe your community along with how your team addresses its unique opportunities and circumstances.

Cactus and nearby schools all have Title I designation (over 40% of families live below the poverty line). This can present a unique opportunity for our students to be involved with the team. We ensure every student regardless of socioeconomic background can participate. Sponsors and mentors are crucial to our success and help "scholarship" students to help cover travel costs, team uniforms and necessary robot parts.

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?

Our team is working with the Diamondbacks to create a yearly STEM competition that other teams create a robot that could pitch a baseball. In addition, we are working on the Arizona Robotics League, a competition series that expands the FRC season throughout the summer and fall, free for all Arizona FRC teams. We have been featured on 5 different news channels, online newspapers and a radio station! We have projects that incorporate STEM concepts for Title 1 schools and the Children's Museum.

Please provide specific examples of how your team members act as role models within the *FIRST* community with emphasis on the past 3 years.

Participating and being the only Arizona Team involved in the Compass Alliance (a global network of FRC teams, providing support to teams that need assistance) we have helped a number of teams locally and through social media on all topics from robot design, programming help and game strategy. We also host the only preseason practice event. In addition, we are working on developing a spare robot parts depository available to all teams that need parts at competition and during build season.

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

"498 taught us the basic skills of engineering, programming, media, & practiced Gracious Professionalism. They have set us on the right path for the year!" Jocy, 7547 Alumni -Aided in starting FRC 7547 We shared build space, our members taught programming, how to write chairman's, lent tools, machinery & parts, guided them through game strategy and at competition. Assisted FLL 7156, 6921, 3040 - FTC 1351 shadowed us to start, run, & host their own FTC qualifier-hosted kickoff for 2662 & 6479

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?

We demonstrate at Title I schools, where we engage students who may be interested in pursuing engineering and robotics. Our classroom initiatives have inspired Peoria School District to further invest in our program, making us a flagship automation pathway for all students in the district. In 2 years since this designation, we have added 134 students. Presenting at the Diamondbacks STEM dugout informs the community about *FIRST* and connects them with nearby *FIRST* programs.

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

Our relationship with the Arizona Diamondbacks had blossomed over the last 3 years. What began as a single baseball game demo, has now evolved to helping create a new series of robotics competitions. We actively work with the SAMPE Foundation (The Society for the Advancement of Material and Process Engineering Foundation) to fund grants to purchase new equipment and support events. After discussion with EMCC, we now offer dual enrollment college credit for our on campus robotics classes.

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

We provide a safe environment for team members, alumni, mentors and community partners. All our team members feel that their opinions and feelings are heard and respected. All students are welcome and our team ensures socio-economic background, gender, sexual orientation, or ethnicity are not a factor. We actively work with school leadership on being present in our school on club days and working with other CTE programs on campus. " 498 has allowed me to be me without feeling judged." - Kylie H.

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

Our team structure is designed so that all students are trained for the future. We never hinder learning with the help of our mentors, always ensuring our new team members have the skill sets needed to accomplish our goals. Initiatives in the local community & elementary schools get kids excited for STEM before they get to high school. Students in 7th & 8th grade are an integral part of our FTC programs which provides training for the future before they step foot into a high school classroom.

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

Sponsorship packages, provide advertisements on our website, robots & present to sponsors about our *FIRST* programs. In collaboration, we have built a baseball shooter for our sponsor, designed new competitions & traveled to Championship & various competitions together so they can watch us compete. Bechtel sponsors us as they "pride themselves in supporting teams that have diversity in demographics and experience. They (us) have older members teaching younger members in their area of expertise."

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

The loss of the 2020 season had a huge impact on our program. Having lost many of our team leadership from graduating and COVID concerns. Existing students have lacked the knowledge of everything from what *FIRST* is, to basic things like manufacturing, programming and robot design. The one thing we need to improve on is our lack of experience. There has been a tremendous effort by alumni, mentors & the current students to participate in weekly workshops, learning new trades and teaching as we go.

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

We continue to focus on forming, building and maintaining collaborative relationships with our sponsors, school, and community. With the inception of the ARL we will be providing opportunities for students to continue with FRC completely free throughout the summer. We will be hosting a series of workshops during the competition weekends on all topics relating to *FIRST*. By starting this league we are increasing awareness in the community, inspiring collaboration, and fostering better competition.

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.

In these past three years, as tough as they have been for everyone, we have been implementing new initiatives like the ARL, more outreach with sponsors and at our Elementary Schools and newer methods to be effective FIRST members. - Sustainability is not about growing in size or numbers. Change is gradual and by having smaller programs, it pilots student interest, as well as solidifies members. After cultivating interest, we can start an FLL, FTC, or even FRC team with necessary funding.

Essay

Stepping up to the plate is Team 498, The Cobra Commanders! We began our rookie season in 2000, since then, we have been on a long journey of growth and development, striving to foster a visible and competitive FIRST program. We continue to focus on forming, building and maintaining collaborative relationships with our sponsors, school, and community. Our team recognizes how challenging the last two years have been on not just 498 but on the FIRST organization as a whole. Teams have had to navigate financial hardship, cancellation of competitions, and student turnover. These challenging times inspire our team to develop additional competitive opportunities to help programs alleviate financial burden and create a lasting FIRST presence in their community.

LEADING OFF

In 2018, we began fervently advocating to our school board about the importance of an engineering class. This would allow students with an interest in engineering and robotics, but with after school commitments, to have an outlet to formally learn engineering concepts. As a Title I school (over 40% of students live at or below the poverty line), we're providing students with skills for their future careers. Over that summer, we started with the renovation of 2 classrooms, one filled with computers to learn CAD while the other one offers machinery and tools for a variety of projects. The inclusion of FTC based curriculum, written by members of 498, taught lessons about fabrication, documentation, and programming. Since then we've had 277 students pass through our programs, with 87% being students who could not participate on the after school teams.

The success of our engineering class further inspired our school district to invest in our classrooms, with over \$100,000 on new machining and manufacturing equipment. Together, we have evolved the curriculum into a Robotics and Automation program, a new flagship pathway for students in the school district. Since 2020, students from across the district have come to Cactus for the opportunity to prepare for a career in the growing field of automation. Partnering with a local college, the courses are offered as a dual enrollment class. This allows students to earn college credit through Estrella Mountain Community College while still in high school. In addition we have worked with Career and Technical Education (CTE) leadership across the state to better align FIRST Robotics in the classroom. To accomplish this we have proposed a combination of Arizona state curriculum standards with FIRST robotics in high schools and middle schools along with advocating to make FIRST an official Career and Technical Student Organization. This will give students the opportunity to compete while being supported by CTE departments and the ADE.

Some of our greatest successes have come outside the walls of our school. We make sure our future is bright by building up the community around us. We mentor a FLL team at Heritage Elementary providing support in robot design, programming and team leadership. At Pioneer Elementary, we started an engineering class for 30 students that live in the foster care system or are in special needs programs to provide an avenue into FIRST. At Pioneer (a Title I school), our mission was to write a curriculum that was cost-efficient and simple for all ages. Curriculum is modeled after STEM concepts including an egg drop, a simple pneumatic system, brush bots, drag-drop coding, and LEGO designs! In the coming year, we plan to expand this program to schools throughout the school district.

FULL COUNT

Community service is a crucial component of our team. We don't have a community service requirement, but rather, we volunteer because we want to be a part of something bigger than ourselves. From campus and community cleanup projects, Feed my Starving Children and volunteering at the Phoenix Children's Museum, members have individually averaged over 180 volunteer hours per year. In December 2019, our school adopted a child's medical expenses through Sparrow Club. For every hour of community service, Beckham (the child) gets \$10. Because of our team's efforts we helped raise \$2000 during this campaign.

In addition to starting and mentoring other FTC teams, we invest in their prolonged success by hosting, running, and volunteering at FTC Glendale, Saguaro Blossom and Duel at the Desert Qualifying Tournaments. At our 2019 Duel in The Desert, the only pre-season event in Arizona, we featured competitions for all four FIRST programs. This marked the first time in Arizona history that all four FIRST programs competed under one roof. Starting in 2020, in response to the lengthening of build season, we've transformed Duel in the Desert to host two weekends of Arizona Open Practice Field Days. Our school community is getting involved with our Construction Technologies class helping us build the field elements and members of Student Council volunteering with events.

We're one of only 8 teams in the western US and the only Arizona team that is part of the Compass Alliance, which frequently partners with FIRST HQ to provide vital help and resources to teams around the world. As Compass Alliance members, we serve as a tag team and help hub for other FRC teams. We pride ourselves on helping local teams in game strategy, robot design and providing tools and parts to teams in need.

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Whenever the community cheers on FIRST they can surely expect the Cobra Commanders to be ready in the dugout to help with anything that comes up.

HOME RUN

Our partnership with The Arizona Diamondbacks started as a base hit and turned into a home run after we demonstrated at their "Science of Baseball" night in 2019. This opportunity allowed us to share with our community, what FIRST is about, hand out pamphlets on mini STEM labs they can do at home, and discuss how to start a FIRST team or connect to one in their area. Soon after that night they reached out to ask if we could build a robot to throw out the first pitch at a game. This opportunity showcased our program to thousands of spectators in the stadium and on Fox Sports during their pregame highlights. The success of the "Science of Baseball" night inspired the creation of the "STEM Dugout" for every home game in the 2020, 2021 and 2022 seasons. These outreach events allow us to reach an average of 26,000 fans per game. That's over 2 million people in the last 3 seasons!

In late 2021 the Diamondbacks contacted our team with a desire to create a yearly STEM competition that invites other local FIRST teams to follow our lead and create a robot that could pitch a baseball. We have developed official rules and guidelines that will showcase 10 Arizona teams competing in a robo-pitchers' duel, vying for the championship trophy. We are excited for our competition to launch at the Diamondbacks inaugural, FIRST Robotics Night on May 1st, 2022 at Chase Field.

The ball hasn't landed yet! Recognizing how challenging the last two years have been for everyone in the FRC community and wanting to make all Arizona FIRST teams as successful as possible, we presented our newest vision to the Diamondbacks, a league of our own, the Arizona Robotics League (ARL). The ARL is a new series of competition, designed and created to enhance the FIRST experience in Arizona, opening a whole new world of competitive opportunity.

Launching upon the completion of the official 2022 FRC season we will be hosting a monthly series of competitions, culminating in a league championship in November. This will provide opportunities for students to continue with FRC after their seasons have ended, throughout the summer, and into the fall months. While our school believes in our mission and vision, providing the space to host all 6 events in 2022, the goal is to eventually host ARL events at other schools and colleges throughout Arizona. The investment in our initiative has helped purchase a complete regulation FRC playing field, field electronics, and, after coordinating with FIRST, we have secured official game elements to give teams the same competition environment as a normal regional event.

In addition, with support from other teams, we will be hosting a series of workshops during the competition weekends on all topics relating to FIRST. The best part of it all is that it will be free for all AZ FRC Teams! By starting this league we are providing additional playing opportunities for all teams, increasing awareness in the community, inspiring collaboration, and fostering better competition. ARL was designed to lower a FRC season's cost per-play providing a more manageable investment for team's schools and sponsors. With the purchase of a regulation field and the continuing support of the Arizona Diamondbacks, the ARL is sure to be a sustainable home run in our community.

EXTRA INNINGS

We strive to be a model for other FIRST teams by, sparking new opportunities to expand their playing season, inspiring our community, and working together to make everyone's FIRST experience as great as possible. Our mission has changed over the last twenty years to focus on forming and maintaining reciprocal relationships with sponsors, schools, and community partners, providing resources and assistance for STEM programs state-wide, and creating robotics education opportunities for students in our community, with a focus on Title I Schools like ours. We've never given up, and we never will. As the final out is called in this year's game, we know the youth we inspire and the others we connected with will go on to the "Major League" in anything they choose to do.