

Chairman's Award - Team 3374

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2021 - Team 3374

Team Number

3374

Team Nickname

Jackson Hole RoboBroncs

Team Location

Jackson, Wyoming - 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.

The RoboBroncs have seen a 100% graduation rate amongst their students. With 60% pursuing engineering as a career after graduation last year. Multiple alumni have been involved in FIRST beyond their high school career; as well as consuming multiple engineering jobs around the country. This includes jobs under SpaceX and running FRC team 2036. We have also seen returning alumni assisting in mentoring.

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

The Jackson Hole RoboBroncs, team 3374 is located in Jackson Hole—a rural community which makes spreading the message of FIRST difficult—even more so during the pandemic. This does not stop our team from reaching out within our small county, and also to our neighboring Indigenous communities. With Wind River Reservation being home to our sister FTC team, we have created multiple opportunities to reach out and offer resources such as zoom academies, and mentor and student support.

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?

During the past three years we have expanded access to FIRST through a K-12 initiative, a standing rec district fund, and continued growth in our FTC program. We measure our results through the number of students we reach with the message of FIRST. Due to the pandemic, our team shifted focus to supporting FIRST teams in our area. We created a hybrid mentoring system for FTC teams which was offered to our local middle school students, Wyoming Indian High School, and JH Classical Academy.

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

The RoboBroncs strive for inclusivity within our team, and every team we mentor. The students take the lead in proving their passion in STEM by presenting to other programs within the community, volunteering in elementary schools, as well as co-hosting an FTC scrimmage at the Wyoming Indian High School. The RoboBroncs created and led an entirely student based JH FTC Bootcamp—allowing for growth in interpersonal and leadership skills, all while developing completely new technical skills.

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

In the past, team 3374 has started and mentored seven local FTC teams, thirteen FLL teams, and helped embed the FLL Jr. curriculum in our third grade science curriculum. Team 3374 also started the first FTC team at Wyoming Indian High School where we continue to mentor all four of their current teams. Our seven local FTC teams all have an FRC student mentor who helps teach the younger students the skills that they will need when they become members of FRC Team 3374.

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?

Being a RoboBronc goes beyond starting teams in order to encourage STEM within our students. We are active in our WOW chapter, striving for more female participation with success of more leader roles fulfilled by young women. Over 50% of students have gone into engineering fields, as well as student participation in high school internships offered by our FRC mentors. Over the past 3 years, we have seen growth in the interest of STEM within the students of the Wind River Reservation.

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

Teton County Recreation District fully funds our K-12 program, allowing us to utilize our fundraising resources for outreach in the Wind River Reservation. We partner with Jackson Hole Bronc Backers and participate in Old Bills yearly to gain extra funds for our FIRST missions. By partnering with the FTC program at the Wyoming Indian High School, we plan on expanding the FIRST footprint at the Wind River Reservation, utilizing our extra resources to create more teams K-12.

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

Our team has always strived for equity and diversity. For many years our team has only had female business captains. This year we have made huge strides with women included in our programs with our first two female build leads, and we have increased the diversity in our FTC program. We have been able to work very closely with Wyoming Indian High School to plan the implementation of teams in underserved communities on the Reservation.

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

Our Recreational District funding pays our coaches and for building materials. It also frees us up to raise money for initiatives, instead of sustainability. For the past 4 years, we have been working on our K-12 initiative, helping expand access to FIRST for the youngest students in our community. We will have 200 FIRST students in TCSD this year. Wyoming Indian High School programs have become independent, and we are partnering with them to now start new teams around the Reservation.

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

We participate yearly in Old Bill's, a program that allows people from the community to learn about and contribute to our team's growth. We have mentors from two different corporate sponsors who help advance our team's abilities and skills. Without the global pandemic, we would have multiple donor nights where we could show off the year's robot and the progress accomplished. We would also have presented the robot at donor's requests and at community events where donors would be advertised.

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

Team 3374 needs improvement in the number of girls and Hispanic students in all levels. Last year we expanded our WOW chapter to the middle school, and our FRC business team has been very successful in gaining diversity throughout the year. Our team has also elected two female build leads; and a quarter of our FTC members are female, which has increased since previous seasons. Due to the implementation of FLL Jr. in third grade we have been able to diversify the FIRST participation in TCSD.

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

In 2020 the Jackson Hole RoboBroncs welcomed 7th graders into our FTC program. This fall we created the JH FTC Bootcamp utilizing hybrid lessons for CAD and Java to teach students higher level skills earlier in their FIRST career. With our sponsors, we added a CNC Router in our lab; the adding of equipment gives our students the ability to custom machine parts. We continually work with the Wyoming Indian High School to help students become engaged within STEM.

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.

The RoboBroncs are located in a remote rural area with the closest college being over 2 hours away. Our community

revolves around art and athletics. With this, colleges and large industry sponsors are non-existent. Team 3374 gave kids a resource for finding passion and opportunity inside STEM which otherwise would not be available. Finding mentors and extra support has presented extreme challenges, especially due to the pandemic cutting the number of mentors by over half.

Essay

In 2009, a student from Georgia had mentioned to our present coach about a robotics program that was engaging and life changing for kids. Upon learning more about the FIRST Robotics organization, our Coach, Gary Duquette, along with former STEM Curriculum Coordinator, Kathy Milburn, effectively started robotics in Jackson Hole, creating the only FRC team in our community. Since Teton County is located near two National Parks, outdoor sports are an obvious focus. Our community lacked an academic niche, where driven students could have an outlet. This academic gap in Jackson was filled in 2009 by the RoboBroncs, now a full grown K-12 program.

Although our team continues to thrive, our growth to become a prosperous ecosystem took as long as a decade. After the founding of the RoboBroncs in 2009, the team has achieved much success. In the first four years, the team went to Internationals twice due to winning the Engineering Inspiration (2011) and the Chairman's Award (2013). Mentors and students were recognized through the Dean's List Award (2011, 2013) and the Woodie Flowers Award (2011). After early success, our team lacked a solid foundation to be able to continue being successful. After our business mentor, Mrs. Milburn, left our team in 2014, the business team struggled without her guidance of outreach. The team learned how to fundraise, recruit, and retain members and mentors on our own. During this time, our coaches even considered discontinuing FRC to focus on a new blossoming FTC program. Yet, our coaches realized with investing time, the FRC team could be a successful team again; focusing on a solid root system this time. Through changes, initiatives, and projects, a new journey began where our goal of a blossoming tree could create and inspire other FIRST seedlings.

Roots. Season 2016-17

In establishing our root system, our team learned from other successful FIRST teams. While visiting Team 1619, Up-A-Creek Robotics, a paradigm shift occurred in our team. The team recognized our weaknesses as strengths. We realized we needed to focus on smaller goals, with mentors being a key component of our root system. Our team learned by bringing in dedicated experts that we could grow each branch through professionals with different skills. While more mentors was crucial, funding became an obstacle that threatened our team's future. Designing a financial plan was essential to the root system that our team lacked. We found through strong relationships in the community, involving attracted donors. The strength we gained from this season was our ability to identify our weaknesses and brainstorm for solutions.

Trunk. Season 2017-2018

We focused on fundraising and outreach during our second year of growth. Our team created a three-year budget to manage funds efficiently. Within the budget, policies were established for each FIRST program. We included entry fees, materials, travel, and staff costs. This allowed more sustainability for the long term. Our team addressed outreach by creating a parent group. Their focus included food, grant writing, and business expertise. Inspired by the work with Navajo Nation, robotics Team 3132, Thunder Down Under, we reached out to the tribes in the Wind River Reservation. Our team shared the FIRST message by teaching them the opportunities FIRST offers.

Branches. Season 2018-2019

In our team's third year, we focused on membership growth, creating strong female representation, partnerships, and continued outreach. During this growth, we changed our FRC team by accepting freshmen. Freshmen diversified our team and fostered an atmosphere of ingenuity and camaraderie, in addition to opportunities for current members to mentor freshmen. This allowed them to gain knowledge and make our team more consistent in skills. Another strategy to our growth was the RoboBroncs pilot chapter of Women of the World (WOW). WOW is a program developed by Team 2485, The W.A.R Lords, who recognized the lack of females in both STEM and FIRST. Our WOW chapter allowed us to target girls who would benefit from FIRST. Launching this chapter in 2019, brought great results. Our team hosted meetings where 6-12 grade girls were exposed to strong female leaders in STEM and began practicing lab skills, taught by members and mentors of the RoboBroncs. While the WOW chapter of Team 2485 was targeted for high school girls, our team made our main challenge to target girls as they transition into high school. Another branch of our success was partnering with our school district to oversee the implementation of FLL Jr. into the third grade curriculum. Robotics in the 3rd grade meant over 200 new students joined the RoboBroncs family as mini-engineers. Nurturing last year's relationship with Wind River, our team started an all-girls FTC team at the Wyoming Indian High School, Electric Feather. The girls of the Electric Feather team would go on to compete at the FTC Wyoming Championships. Our Influence aided an Electric Feather member to apply and be admitted to the School of Engineering at the University of Wyoming. Her significance of accomplishment is due to her school's graduation rate of 50%. Having been part of her success is what drove us to set goals to continue growing robotics at the reservation.

Forest. Season 2019-2020

During the fourth year our team established our root system, cultivated our trunk, spread our branches, and celebrated our forest. Our team continued to focus on membership, mentors, and outreach. FRC participation increased in members. Our team retained over 93% of FTC members while moving to FRC, making 2020 the year with the highest amount of RoboBronc members ever! We added six new mentors half of which are RoboBroncs alumni. We acknowledge the value of strong feeder programs-by expanding FTC grade requirements from 8th and 9th grade to include 7th graders. Although the high number of members was challenging, it allowed our team to be involved in greater outreach programs. Our team hosted two FLL Rodeo Scrimmages, and hosted a local FTC Scrimmage. Beyond outreach, we also held a Fall Donor Showcase and bi-monthly Open House celebrating all of the RoboBroncs accomplishments, which celebrated our supporters as well. Branching outside of the community, we invited the FTC Wind River teams to our first ever FTC kick-off. Additionally, three more FTC teams were formed in Wind River. Although our goal was to create an FLL club in the Wind River Reservation, we realized from past experience the importance of not rushing growth-especially with no roots formed. Dedicated to further outreach, we designated February as "FIRST February". To honor our special relationship with the reservation, we kicked off FIRST February by volunteering in the Wind River Reservation at their first hosted FTC Scrimmage. Through this outreach, our tree will continue to RISE. The next FIRST February outreach will be presented at two elementary schools, a middle school, and a preschool. The past four years of our growth, we learned how to be a successful rural FIRST team and wish to continue to help others achieve the same. Having the success of winning chairmans under the circumstances that we did and looking ahead-our team focuses on helping other rural FIRST teams with challenges like mentors, fundraising, and outreach.

Drought. Season 2020-21

Over the past years, our team strived to pursue stronger outreach within our unique community; growing our forest. Though this year, we have experienced a drought and our plans have been forced to shift towards a different goal-redirect our focus on developing our skills to overcome this unexpected dry season, so we can continue to grow our forest in the future.

Our main focus became reaching out and creating connections with the Wind River Reservation. During the beginning of the pandemic team 3374 created a cloth mask and toilet paper drive for the Reservation. We delivered two truck loads worth of masks and toilet paper getting them the critical supplies that they needed. Another major problem that we identified on the Reservation is a lack of adequate snow clothing. To help provide the clothing they need, team 3374 started a winter clothes drive in the parking lot of the school. Since the start of this drive we have taken three truck loads of clothing to them, amassing over fifteen hundred articles of clothing. We wanted to offer a resource that could be accessed from the reservation and other schools. We created a Canvas course for our JH FTC Bootcamp which involved custom Onshape lessons for CAD, as well as Java lessons. These lessons were designed for absolute beginners, and they were built out and taught by our own students. Once the bootcamp concluded, we deemed it unsafe to continue to meet in person and shifted to complete virtual meetings-continuing to focus on building and advancing skills not previously developed in these grade levels. The virtual meetings, and later socially distanced meetings, were mentored and overseen by our own students who offered their resources and insight with dedication and enthusiasm. Recently our team has gotten an eighty-thousand dollar recurring donation from our local rec district fund. These resources have allowed us to acquire new equipment including a CNC router that has been used by members of both FTC and FRC, in creating custom machined parts-which was a huge leap for our team. Although great effort was put into the technical aspect of the team, the RoboBroncs struggled this season with their business team. Following a huge drought in members after previously winning chairmans, the entirety of the team came together to support and write the awards. This drought allowed our technical team members to build skills that they would not have otherwise, and to influence the image of the team in a way that only the business team had in the past.