

Chairman's Award - Team 3374

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2022 - 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.

Within the past five years, 95+ percent of all graduating seniors in our FIRST programs have pursued post-secondary education. Notable RoboBronc Alumni have held successful STEM careers, including working with AI technology, automated recycling technology, becoming mechanical, civil, and software engineers. One of our 2013 captains became a local FTC/FRC coach. Additionally, one of our 2011 captains became a Colorado FRC head coach on The Black Knights Team 2036.

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

Team 3374 is located in a rural community which has traditionally challenged our team when trying to spread the message of FIRST. This has led our team to look outside our community for outreach opportunities. By collaborating with the neighboring Wind River Reservation, we have assisted in creating five FTC teams at five different schools this year. Team 3374 has also remained invested in our community by implementing FLL Junior into the science curriculum for all third graders in the district.

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?

Team 3374 has spread the FIRST message through team growth. Due to losing members during the pandemic, we focused on recruitment in the middle school. Interacting with the robot and the team builds students' confidence and inspires them to pursue STEM. We have assisted FTC programs at the Wyoming Indian High School and other schools around the Wind River Reservation. Due to our relatively small community, we measure our results with the number of students participating across every program.

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 emphasize building leadership skills through operating autonomously from our mentors. Students are the driving force behind all club aspects, including business and mechanical. Our FRC students take the lead in mentoring all of the FLL and FTC teams within our district and FTC teams on the Wind River Reservation. We continue to build FIRST's message with students on the Reservation by assisting their teams with programming and building, in addition to refereeing their scrimmages.

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

Our team focuses on growing regional FLL and FTC programs. Our FRC students have been mentoring FLL practices at schools in Teton County since expanding our FLL program in 2018. Their mentoring reaches 28 FLL teams. We assisted the formation of five FTC teams in Fremont County. We presented to teams across Wyoming, Montana, and Native American Reservations to train many FTC mentors. Our students presented *FIRST*, fortifying team structure, and team sustainability at the younger grade levels.

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?

To increase the impact of our FRC program, our FRC age requirement was lowered to 9th grade. Our team continues to host FLL and FTC practices supervised by FRC members, as well as hosting FLL and FTC scrimmages at our high school. Throughout the pandemic, we encouraged students to gain certifications for Onshape and Java. Some of our FRC students have been awarded internships at engineering firms, and many former students have gone into engineering fields.

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

A Teton County Recreation district grant provides over \$80,000 to fund our K-12 programs, funding the resources we allocate for outreach. We continue to work with Teton County School District to implement FLL into the elementary science curriculum. We recently partnered with the Wonder Institute, which provided us with a new facility. We also work closely with the Wyoming Indian High School to do outreach events and start and assist several FTC teams throughout the Wind River Reservation.

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

Although we have always struggled with team diversity, we are working to improve this issue. We have seen an increase in female participation in the mechanical team in the past three years. This is our team's first year having two female team presidents. In addition, we have had success in recruiting female Latina students through outreach events in the lower grade levels, seeing a 10% increase in participation. Our total female participation in FTC and FRC increased from 6% to 25%.

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

Our team's annual \$80,000 Recreational District Grant allows us to focus on student engagement and learning rather than fundraising. In the past three years, we have been working on our K-12 initiatives to encourage students' involvement with *FIRST*. Currently, we have over 350 students in our K-12 programs, with our FLL programs continuing to expand this year. While FLL is growing, the FTC and FRC teams have also increased and shown growth despite the challenges of the pandemic.

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

Our team has created relationships with our corporate and familial sponsors through various methods. We participate annually in Old Bills Fun Run, which allows families to donate to organizations they wish to support. We have mentors from different corporate sponsors who help advance our team's abilities to higher levels. We have gained a partnership with the Wonder Institute that has provided a new work space allowing us to have a more reasonable schedule for donors and mentors to visit.

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

One area in which our team needs improvement is increasing team diversity. The percent minority enrollment at our schools is 38%, but our team minority population is just 25%. This year we have seen a notable increase in female participation and our highest number of Latina members yet. We have shifted our focus towards outreach within our district, specifically in middle school. We have had tremendous success in these efforts, seeing the highest number of young students in our team's history.

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

Our team has fulfilled *FIRST*'s mission by implementing FLL in our elementary school's 3rd-grade science curriculum and working with Team 15604, Electric Feather. Together we grow *FIRST* programs K-12, in and around the Reservation. In the Teton County School District, we encourage STEM learning through our team-supported lessons in both CAD and programming. Our FRC team has recently moved into a new facility giving us more space and opportunities for the inspiration of our students.

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.

We pride ourselves on our unique outreach. We continue to grow our partnership with the Wind River Reservation, giving us the ability to reach outside our community. We provide resources to support them with books, baby and winter clothes, masks and toilet paper, and other donations. Our collaboration with students on the Reservation provides exposure to technological opportunities that they otherwise would not have access to.

Essay

Roots: Team History

In 2009, a student from Georgia told our head coach Gary Duquette about a transformative robotics program. Upon learning about FIRST Robotics, our former coach and STEM Curriculum Coordinator, Kathy Milburn, established the robotics program in Jackson Hole. Our community emphasized athletic ventures; we lacked an academic niche where driven students could access a STEM-focused activity. The formation of FRC Team 3374 filled this gap. After our business mentor Mrs. Milburn left our team in 2014, the business team struggled due to a lack of guidance for outreach. During this time, the team learned how to fundraise, recruit, and retain members and mentors independently. We planned to inspire future engineers by building a root system to support our rapidly expanding forest. A new journey began where our trees could create and inspire other FIRST saplings.

Branches: 2018/19 Season

In our 2018-19 season, we focused on branching out to new opportunities by inviting 9th graders into our FRC team. Including younger students in our FRC program allowed for diversity and vital skill-building. We began the RoboBroncs chapter of Women of the World (WOW). The WOW program empowered us to encourage female participation and connect with Team 2485, The WAR Lords, founders of the WOW program. We hosted meetings and taught skills to young women in grades 6-12, extending the membership requirements of WOW to include middle schoolers. We invited an array of successful women in STEM to present to our team and work closely with our female captains. We found success partnering with our school district to oversee the implementation of FLL Explore into the 3rd-grade curriculum. Our initiatives in the 3rd grade meant over 200 new students joined the RoboBroncs family. Nurturing the previous season's relationship with Wind River, our team started Electric Feather, an all-girls FTC team at the Wyoming Indian High School. The girls of the Electric Feather team would go on to compete at the FTC Wyoming Championships. We were able to extend our branches and strengthen connections beyond our community.

Forest: 2019/20 Season

This season we celebrated growing into a prosperous forest. Our FRC team grew to its largest population. We gained six mentors, three of whom were Robobronc alumni. We expanded the FTC age requirements to include 7th graders. Our team hosted two FLL scrimmages and an FTC scrimmage. We held a Fall Donor Showcase and bi-monthly open houses within our community. We reached outside our community by inviting FTC teams to our first FTC kickoff on the Wind River Reservation. We began to form a greater ecosystem alongside our growing forest; we assisted three new FTC teams on the Wind River Reservation. Members of our FRC team volunteered on Wind River to help their FTC coaches host their first-ever FTC Scrimmage. Over the past four years, we found success through the challenges of being a FIRST team in a rural setting. We continued to help others achieve the same prosperity. Our team focused on expanding our forest by helping other rural teams find mentors, fundraise, and with outreach.

Drought: 2020/21 Season

During the pandemic, our forest experienced a drought, and we were forced to shift our goals towards developing new skills and overcoming the unexpected dry season. We lost mentors, students, and overall motivation. Our primary focus became creating connections with the Wind River Reservation, extending our roots deeper in different soil. In the initial months of the pandemic, we supported the community with two truckloads of masks and toilet paper. Another resource in high demand on the Reservation is adequate snow clothing. With the help of our community, we delivered over fifteen hundred articles of warm winter clothing to the Reservation. We created JH FTC Bootcamps that included custom Onshape and Java lessons. Our team provided this course to students within our district and on the Reservation. As the pandemic progressed, our FRC students mentored both virtual and in-person meetings. Our team experienced a sharp decline in business members during this season, causing technical members to take on traditional business responsibilities. Shifting responsibilities was an unexpected challenge, but in the end, it led to better communication and a Chairman's Award written by the entire team. The pandemic was an obstacle for our team as it was for the rest of the world. Despite this, shedding our old leaves allowed new growth. Instead of uprooting ourselves, we created a more solid root structure to overcome the drought.

Growth Overdrive: 2021/22 Season

After facing a drought in our forest, our team went into growth overdrive, which occurs once the trees have enough water to begin recovery. They grow at a much faster rate than they would have before the drought. We brought new elements into our team, including sponsors, workspaces, members, roles, and additional outreach.

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This season, we upgraded our FRC workspace by collaborating with the Wonder Institute, a new sponsor. The Wonder Institute is a non-profit organization whose mission is to provide artistic spaces for young adults. However, after learning about our team's programs and outreach over the last 12 years, the Wonder Institute expanded its mission to integrate STEM. Our partnership enabled us to move out of a single classroom and into a two-story facility-a surreal experience for our team. The new space allows us to comfortably expand to over 30 students and ten mentors, our biggest team yet. With their assistance, we will be able to better share the message of FIRST with a growing number of students each year. The space also allows us to function apart from our high school and dedicate more time towards increasing STEM opportunities during the off-season. The new space increased our mechanical ability by providing space for three new machines. This enriched our soil for our forest to grow exponentially.

Taking a step back and redefining our team from the roots up allowed us to reorganize our team structure with intention. We created presentations defining goals for younger students to succeed in different leadership positions. Feeling the need for holistic organization and leadership, we created team president as a new position for the RoboBroncs. Our two female mechanical captains filled the role and allowed our team to be student-led. We recently integrated CAD as a primary component of our team, and have seen incredible success in this effort. This year, unlike previous seasons, we could wholly design our robot in CAD before building it. In addition, our presidents incorporated Monday.com into Team 3374's infrastructure, allowing us to make a schedule, increase team productivity, and communication. Mentors continued to be hands-off of the team's awards and most technical aspects. Similarly, our captains prioritize training upcoming members. Our focus on sharing knowledge with younger team members increases our team's sustainability and ensures success for years to come.

While restoring our woods to suit a new generation of green life, we moved forward with outreach in continuing our partnership with the Wind River Reservation. This season, our FRC students collected over 45,000 articles of clothing suitable for all seasons and started two new drives for books and toys. We amassed over 1,000 books and over 100 toys to be delivered to Wind River's youth population. In addition to drives, our FRC students hosted an FLL Challenge and FTC scrimmage. We also ran an FTC kickoff and competition in Ethete, Wyoming. We offered assistance in building chassis, judging, mentoring, and refereeing during these events. Over the off-season, we assisted Wind River start five new FTC teams across five schools. We traveled to the reservation to help the new FTC coaches understand FIRST's initiatives and help familiarize them with the tools and materials by building chassis. Recovering our forest involves the augmentation of every tree and growth in every partnership.

We continue to assist the 3rd-grade FLL Explore initiative we began in 2018 that allows all 3rd graders in our district to participate in robotics. We expanded our FLL program by starting and mentoring four new FLL challenge teams in the middle school. Along with starting FLL teams in every elementary school in our district, our FRC members assisted teams at Jackson Hole Elementary School every Friday, offering extra hands-on support. This collaboration prepared them for our team's biggest FLL Challenge scrimmage, consisting of 24 teams from 6 schools. This scrimmage gave the students access to an engaging and competitive FIRST environment. In addition to this, Team 3374 has started and mentored eight FTC teams in middle and high schools. Exposing young students to STEM is crucial; however, our team must also provide them with the resources necessary to stay engaged. Our sophomore FRC members took on the challenge of creating those resources, including; multiple video and text guides covering technical writing, basic autonomous and drive codes, FTC game strategy, and introductions to CAD and Onshape. These resources have helped our FTC programs become effective in independent growth and prepares them for the future responsibility of an immense forest.

Last season, we fell dormant and lost our leaves. This season we experienced growth overdrive across all aspects of our community. We made tremendous progress towards team sustainability by re-establishing and strengthening our team structure. We heightened our goals with long-lasting partnerships and formed valuable new connections, paving the way for FIRST in our rural community.

Season Statistics:

207 3rd graders in FLL Explore

28 4th-6th grade FLL Challenge teams across six schools

Eight FTC teams

One FRC team

Overall 360 students participating in Jackson, Wyoming

13 paid coaches for FLL and FTC, four paid coaches for FRC