

## FIRST Impact Award - Team 3374

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| <b>2023 - Team 3374</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Team Number</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>3374</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Team Nickname</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Jackson Hole RoboBroncs                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Team Location</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Jackson, WY - USA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>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.</b>                                                                                                                                                                                                                                       |
| Within the past three years, over 95% of graduating seniors in our FIRST programs have pursued post-secondary education. RoboBronc Alumni have held successful STEM careers, including working with AI technology, automated recycling technology, and becoming mechanical, civil, and software engineers. One of our 2013 captains became a local FTC/FRC coach, one of our 2011 captains became a head coach on FRC team 2036, and seven of our alumni are mentors for our FRC team.                               |
| <b>Describe your community along with how your team addresses its unique opportunities and circumstances.</b>                                                                                                                                                                                                                                                                                                                                                                                                        |
| Team 3374 is located in a rural community, making it challenging to spread the message of FIRST. This has led our team to look outside our community for outreach opportunities. Collaborating with the neighboring Wind River Reservation, we have assisted in creating FIRST teams at five different schools over the past three years. Our team invests in our community by traveling to local schools and community events. Because of our small community, Team 3374 expanded its focus to the rest of Wyoming. |
| <b>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?</b>                                                                                                                                                                                                                                                                                                          |
| Team 3374 has spread the FIRST message through team growth, with our post-pandemic participation higher than ever. Every RoboBronc participates in programming, CAD, or subteam-specific certification, allowing them to build their confidence and enable them to pursue STEM careers. We assist FRC/FTC programs at five schools, with a focus on the Wyoming Indian High School. We see success as a combination of student and community involvement, creating passion for STEM in our community and beyond.     |
| <b>Please provide specific examples of how your team members act as role models within the FIRST community with emphasis on the past 3 years.</b>                                                                                                                                                                                                                                                                                                                                                                    |
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Team 3374 develops leaders with hands-on experience and collaboration with mentors, instilling the confidence necessary to lead themselves. Students are the driving force behind all club aspects, from business to mechanical. Our FRC students mentor all of the FLL and FTC teams in our district and several FTC teams throughout Wyoming. We continue to build FIRST's message with students on the Reservation, assisting teams with improving their robots and running 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.**

Much of our team's focus is on growing FIRST in our region. Our FRC students regularly mentor FLL and FTC practices at schools in Teton County. With our efforts to expand our programs, our mentoring now reaches 30 FLL teams and six FTC Teams. We assisted in the formation of six FTC teams across the state of Wyoming. Additionally, we mentor FRC team 4175 in Idaho. Our efforts have reinforced the impact of FIRST around Wyoming and ensured team sustainability at all 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, we lowered our FRC age requirement to 9th grade. Our team hosts FLL and FTC practices, kickoffs, workshops, and scrimmages at our lab, high school, and around Wyoming. We used the pandemic as an opportunity for students to gain certifications in CAD and Java. Most FRC students have gone into engineering fields, and many have been awarded internships at engineering firms. In 2022, 100% of our seniors pursued STEM education/careers.

**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 for our K-12 programs, funding our outreach initiatives. By working with Teton County School District, we included FLL in the elementary science curriculum. In 2021 we partnered with the Wonder Institute, giving us access to a new facility where we host our FTC and FRC teams. 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 struggled with team diversity, our team recently gained an exchange student, and 24% of our team consists of gender minorities. We promote diversity by presenting to our Spanish Dual Immersion School and a local girls' leadership club (GAP!). For the first time, our machining sub-team is run entirely by females, and we gained four female mentors this year. To further grow participation, we started the RoboBronc Student Success Program to help remove academic barriers to entry.

**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. We have been working on our K-12 initiatives for the past three years to encourage students' involvement with FIRST. Currently, we have over 200 students in our K-12

programs, with our FLL programs continuing to expand this year. Along with FLL, our FTC and FRC teams have also 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 Bill's Fun Run, which allows families to donate to organizations they wish to support. We have mentors from numerous sponsors who help advance our team's abilities. We have partnered with the Wonder Institute, a local nonprofit that provides us with a workspace where donors and mentors can visit regularly. In the last year, we gained eight mentors, with 18 in total.

**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 Latino enrollment at our schools is 31%, but only 14% on our FRC team. We have shifted our focus towards outreach within our district, specifically in elementary and middle schools. Frequent presentations to students in both English and Spanish have helped increase team diversity in young students. We have had tremendous success in these efforts, with the highest number of FLL members 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 aims to fulfill FIRST's mission by increasing access to STEM, which we have done by implementing FLL in our county's 3rd-grade science curriculum and working with the Electric Feather FTC teams on the Wind River Reservation. Together we grow FIRST programs K-12, in and around the Reservation. Our FRC team recently moved to a new facility with a better ability to offer improved facilities, and increased mentor support of younger students, growing technical skills and confidence.

**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, allowing us to work with students from different backgrounds and gain perspective outside our secluded community. We've provided over 50,000 items in the last 3 years to support them with books, baby and winter clothes, masks, and toilet paper. Our collaboration with students on the Reservation provides exposure to technological opportunities 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, our 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.

**Forest: 2019/20 Season** In 2019, we celebrated growing into a prosperous forest. By including 9th-grade students in our FRC program, 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. Additionally, 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, where we also assisted three new FTC teams. Members of our FRC team volunteered on the reservation to help their FTC coaches host their first-ever FTC Scrimmage. We found success through the challenges of being a FIRST team in a rural setting, continuing to help others achieve the same prosperity. Our team focused on expanding our forest by helping other rural teams find mentors, fundraising, and outreach.

**Drought: 2020/21 Season** During the pandemic, our forest experienced a drought, which forced us to shift our goals towards developing new skills to overcome our 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. With the help of our community, we delivered over 1500 much-needed articles of warm winter clothing to the Reservation. We created JH FTC Bootcamps, including Onshape and Java lessons. Our team provided these courses to students in our district and on the Reservation. As the pandemic continued, our FRC students mentored both virtual and in-person meetings. Our team experienced a sharp decline in business members in 2020, causing technical members to take on traditional business responsibilities. Shifting tasks was an unexpected challenge, but in the end, it led to better communication and an Impact Award written by the entire team. The pandemic was an obstacle for our team, but despite this, shedding our old leaves allowed for new growth. Instead of uprooting ourselves, we created a more solid root structure to overcome the drought.

**Regrowth: 2021/22 Season** After facing drought, our team went into a period of regrowth. After learning about our team's programs and outreach over the last 13 years, the Wonder Institute expanded its mission to integrate STEM. Our partnership enabled us to move out of a single classroom into a two-story facility, allowing us to expand to over 30 students comfortably. With their assistance, we've been able to better share the message of FIRST with an ever-growing number of students. By functioning apart from our high school, we've dedicated more time towards increasing STEM opportunities during the off-season and include students in our area that are not enrolled in our local public high school—enriching the soil our team depends on. We placed more emphasis on CAD, designing our entire robot in CAD before building it. Our FRC students collected over 45,000 articles of clothing, over 1,000 books, and over 100 toys for the Wind River's youth population. Over the off-season, we assisted Wind River in starting five new FTC teams across five schools. We assisted new FTC coaches in understanding FIRST's values and familiarizing them with FTC tools and materials by building chassis. Recovering our

forest involves the nurturing of every tree and growth in every partnership. We expanded our FLL program by starting and mentoring four new FLL challenge teams in the middle school. Exposing young students to STEM is crucial; however, our team must also provide them with the resources necessary to stay engaged. Our underclassmen took on the challenge of creating those resources, including; multiple video and text guides covering technical writing, Java programming, FTC game strategy, and CAD. Our resources help our FTC programs to grow independently and prepare for the future responsibility of an immense forest.

EcosySTEM: 2022/23 Season With new roots laid down, the JH RoboBroncs were ready to bloom more vividly than ever. This year, Team 3374 expanded into an ecosystem of STEM programs, exhibiting growth not only in FIRST robotics teams but also in developing media programs and a makerspace for our local community.

To fully utilize our newfound space provided by the Wonder Institute, we began running FTC practice for six local teams in our lab. Additionally, we hosted various local FIRST and STEM promotional events in our lab, bringing new-found attention to FIRST robotics in our area. Through our outreach events and other programs, the Robobroncs have started FIRST teams at two schools in our community and have assisted in starting teams at two more schools. Through the help of Team 3374, every Wyoming school in a thirty-mile radius has a FIRST robotics team.

Following the 2022 season, our team undertook the replanting of our overall structure, adopting a more professional atmosphere with a wider variety of leadership positions and departments. Part of the change to our team structure was removing an overall team president position, fostering more effective relationships between sub-team captains, with each individual able to promote their own sense of creativity and freedom within FRC. In this system, our captains prioritize training younger team members to increase our team's sustainability and ensure success for years to come. Additionally, since the 2022 season, our team has had a massive increase in mentor support, with eight new mentors to our team, increasing their overall count to 18. Within our student-led team, we've combined the newly established departments with our new mentor growth to provide a greater learning potential for team members and facilitate closer professional relationships with mentors, including eight alumni from our team.

This year we extended our branches across Wyoming and surrounding states, with clothing drives to the Wind River reservation and Idaho Falls. We have delivered more than 15,000 items to these locations, with additional drives planned for later this season, including a winter clothes and diaper drive. Additionally, Team 3374 has run various events in our community and around Wyoming. This includes running two FLL scrimmages, including the largest scrimmage we have ever run, totaling 25 FLL teams across seven schools. Additionally, we hosted an FTC kickoff in Dubois, allowing us to invite teams from all over Wyoming. This FTC season, we also ran two scrimmages in Dubois and the Wind River Reservation. Besides running these events, students from our FRC assisted attending teams with robot design and programming. With FIRST teams now at every school in our area, the JH RoboBroncs took the opportunity to mentor more teams than ever before. Our FRC mentors six local FTC teams and five other teams from around Wyoming, as well as our local FLL program, which has 39 teams between local elementary schools, with multiple new teams and schools joining our program this year. 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. Our team members provide design, mechanical, and programming assistance to numerous FTC teams from around Wyoming and assist nearby FRC team 4175. Alongside our work inside the FIRST community, we have given back to the community at large with presentations to over

800 students at local elementary schools and interactions through outreach events as part of both Pizza for a Purpose and Old Bill's Fun Run, which reaches more than 5,000 people every year.

Situated at the base of the Tetons, only 3% of the land our team calls home is developed. The rest primarily consists of National Park Land. For many residents in our area, the picturesque landscape surrounding them is the perfect place to pursue media. First identifying this in students, Team 3374 started an official media program by recruiting two media mentors. With their help, the JH RoboBroncs developed a filmography and video editing course, using our new lab as a training ground to develop skills. With the success of our local media program, Team 3374, along with the Wonder Institute, is in the process of growing a media and manufacturing makerspace, branching our programs to reach the adults in our community who would otherwise never have the opportunity to grow their STEM skills. Scheduled to open in Summer 2023, this space would become an oasis for all things STEM in our community.

This year, the Jackson Hole RoboBroncs grew into a thriving and diverse ecosystem of robotics and STEM, inspiring life across our community and beyond. Through the framework of a newly defined team structure and the incorporation of new mentors to our team, we've reached all corners of Wyoming and have grown a culture of STEM extending past our community. ;

