

Chairman's Award - Team 3024

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2019 - Team 3024

Team Number

3024

Team Name, Corporate/University Sponsors

Oregon Department of Education/Boeing Corp/Autodesk/Evogeneao/Project A/Modern Fan Co./Professional Engineers of Oregon/TC Chevy/Lithia Motors/Darex LLC/ESPI Metals/True South Solar/Society of Professional Engineers, Southern Oregon Chapter/Oregon Community Foundation/IBM Corp/RISK, Inc/Hosking Aviation/Stefanelli Distributing Company/Christina and Randall Murata/Barbara Rosen/Chris Gorog/Paul Mace/Jeff Nielsen/Jim Moen&Ashland High School

Briefly describe the impact of the *FIRST* program on team participants with special emphasis on the 2018/2019 year and the preceding two to five years

Since 2014, Team 3024 has been completely student-led. Our team prides itself on student leadership, so student leads direct the new members and take charge of the design process. This structure helps team members gain skills in communication and effective teamwork. Through these methods we have been successful in inspiring 75% of our team graduates to pursue STEM-related fields in college, as well as pursue *FIRST* scholarships.

Describe the impact of the *FIRST* program on your community with special emphasis on the 2018/2019 year and the preceding two to five years

Team 3024 has influenced our community to spread STEM education and inspired youth in the Rogue Valley to participate in *FIRST* programs. We have participated in local parades and festivals, cleaned up parks in Ashland, volunteered at our local food bank, and we have raised over \$1500 for homeless youth. We have also created a *FIRST* Connections program, formed three FLL teams, and organized two FLL tournaments in the past two years.

Team's innovative or creative method to spread the *FIRST* message

In 2017, we began working with a *FIRST* alum to create *FIRST* Connections which connects youth to STEM professionals through live video streams. We regularly participate in local holiday parades and parties. We have also presented to local organizations, retirement homes, and schools to spread awareness of *FIRST*.

Describe examples of how your team members act as role models and inspire other *FIRST* team members to emulate

Dedicated mentors and students inspire team members to reach their full potential. Our team encourages gender equity by ensuring that all students have equal access to earn leadership positions during and outside of tournament play. Team members have served as mentors and coaches to FLL teams, inspiring younger children and promoting STEM education. In addition, team alumni have inspired current team members by coming in to talk about their STEM-related career paths.

Describe the team's initiatives to help start or form other FRC teams

Team 3024 has advocated for the creation of FRC teams at all of our outreach events, particularly events geared toward high school students. Three schools have expressed interest so far: Crater High School, St. Mary's School, and North Medford High School. In addition, we outlined the process of starting an FRC team while teaching robotics seminars to over 150 students at Southern Oregon University's summer programs.

Describe the team's initiatives to help start or form other *FIRST* teams (including Jr.FLL, FLL, & FTC)

We have started three First Lego League teams so far at local elementary schools, those being the EV Cheddars (from Helman Elementary), WWESB (Willow Wind Community Learning Center), and the JediBots (made up of home-schooled students). After having introduced the FLL program to these schools, our team has helped them with fundraising, assisted in finding mentors and coaches, and volunteered our time. We are also in the process of creating FLL teams at two other elementary schools.

Describe the team's initiatives on assisting other *FIRST* teams (including Jr.FLL, FLL, FTC, & FRC) with progressing through the *FIRST* program

We have assisted other FRC teams by creating strategy apps that we have made available to all teams on platforms like the App Store and Google Play. Also, we have assisted FTC Team 7257 in Rogue River by aiding them with fundraising and helping them with technical challenges. Our team has volunteered at local FLL competitions for the past four years and hosted two competitions of our own. This year, we hosted our first FRC kickoff where three other FRC teams were in attendance.

Describe how your team works with other *FIRST* teams to serve as mentors to younger or less experienced *FIRST* teams (includes Jr.FLL, FLL, FTC, & FRC teams)

We have mentored five FLL teams (three of which we have started), attending their competitions and assisting them there as well. In addition, members of Team 3024 have spent over 930 hours working with these teams. We have attended over 80% of weekly team meetings, aided with outreach and fundraising, taught programming and design concepts, guided strategy sessions, and helped prepare teams for competitions.

Describe your Corporate/University Sponsors

Because of our supportive corporate and university sponsors, Team 3024 has become a distinguished robotics team. We were hired to be in a promotional video for Hewlett-Packard. We have also partnered with Southern Oregon University to teach robotics seminars at their yearly summer programs. Among our sponsors this year, we have TC Chevy, IBM, Lithia Motors, Society of Professional Engineers, Stefanelli Distributing Company, and the Modern Fan Company.

Describe the strength of your partnership with your sponsors with special emphasis on the 2018/2019 year and the preceding two to five years

We partner with a local science museum, ScienceWorks, to host activities promoting STEM education. We have also worked with Darex, the Professional Engineers of Oregon, and Southern Oregon University. Team 3024 has worked with SOU to host summer seminars about robotics and *FIRST* core values. Every year we include sponsors in team events, provide newsletter updates, and present to local businesses. Local businesses are core fundraising partners. This allows us to further spread STEM education.

Describe how your team would explain what *FIRST* is to someone who has never heard of it

According to our team, *FIRST* is "impactful" and "life-changing." *FIRST* is a diverse place where science and arts intermingle together; where you can learn leadership and communication as well as design and engineering. Through *FIRST*, we construct a robot in six weeks and compete against teams from around the world, but we do so much more than just robotics. We are gaining a skill set here that we can't get anywhere else. And, even better, we are creating lifelong friendships in the process.

Briefly describe other matters of interest to the *FIRST* judges, if any

Living in Ashland, an art-driven community centered around the Oregon Shakespeare Festival, it has been a challenge to spread *FIRST* values. Team 3024 has embraced Ashland's artistic focus by making art an important part of our team. We have a student artist, work with our school's graphic design department, and design our own t-shirts and posters. This method has been successful in advancing respect for STEM within our school and community while adding our own brand of creativity to robotics.

Team Captain/Student Representative that has double-checked this submission.

Katrina Singh

Essay

To Boldly Go...

"It's a fixer-upper of a planet but we could make it work."
Elon Musk, CEO of SpaceX

From spacecraft as simplistic as Sputnik and as complex as the International Space Station, space technology has completely evolved over the years. Our team has also evolved and realized the importance of spreading STEM education and FIRST values beyond the boundaries of our robotics shop to our school and community. As Team 3024 has grown over the last several years, we have challenged ourselves to become a team that can really achieve take-off.

Mission One: Sputnik - Our Team

Sputnik 1 was the first satellite to be launched into space by the Soviet Union in 1957. Team 3024 had humble beginnings similar to this revolutionary spacecraft. With only a few members, Team 3024 had to start building from within our team, similar to how the space industry had to build upon small missions like Sputnik. Team 3024 knows that we will only be successful in spreading passion about STEM if we are tight-knit and passionate ourselves. Our team's exponential growth has made this a challenge - over the past four years, we doubled in size twice! Our task has been to maintain our small-team camaraderie while expanding to include everyone who is interested in joining the team. To accomplish this, we held team dinners, movie nights, and game nights. These events have been effective in making us truly feel like a family. Second, we held summer classes teaching CAD and LabView to new members so they could feel like a part of our team before the season had even begun. We even extend this 'stronger together' philosophy beyond Team 3024. We have attended multi-team build season kickoffs in Klamath Falls and scrimmages in Corvallis. This year, we hosted our first FRC kickoff with two other Southern Oregon teams attending. We have also developed strategy apps that we shared with other teams through the App Store. We believe it is of utmost importance to increase cooperation and resource-sharing between FIRST teams, especially in regions like Southern Oregon where everyone's resources are particularly limited. Thus, Team 3024 has been successful in fostering a love of STEM and robotics within our team and the FIRST community.

Mission Two: Apollo 11 - Our School

Apollo 11 was the spaceflight that landed the first two people on the Moon. Just as Apollo 11 was "one small step for man, one giant leap for mankind", we hope to leave a lasting footprint on our school district. After providing a firm STEM foundation for our team, we wanted to extend our STEM influence to new heights in our school. We have worked hard to inspire dedication to robotics and technology in Ashland's school system. Historically, in a town so focused on the arts, it has been at times difficult for robotics to obtain the resources and funding it deserves. However, we have been the catalyst for a major mindset shift. Over the past four years, five new technology-related classes have been developed at Ashland High School: Tech Drafting with AutoCAD, Intro to Manufacturing and Robotics, Programming 1 & 2, and 3D CAD & Design. We have had numerous meetings with our principal, Erika Bare, and presented to the school board to discuss the importance of robotics in our curriculum. Additionally, we showed off our robot at all-school assemblies to spread excitement about our team. We have also taken our robot to Ashland Middle School to get 11 to 14-year-olds interested in pursuing STEM-related classes and activities. Next, we started, mentored, and coached numerous FIRST Lego League teams in the Rogue Valley. We started three FLL teams - the EV Cheddars (from Helman Elementary), the JediBots (made up of home-schooled children), and WWEBs (from Willow Wind Community Learning Center). Additionally, we mentored two other FLL teams and one FTC team. Team 3024 members attended the meetings of these teams, taught basic design and programming concepts, and accompanied them to their outreach and fundraising events - altogether spending over 930 hours with FLL teams. We even traveled to their competitions, where two of the teams we mentored won awards. We have volunteered at local FLL competitions for the past four years and hosted FLL competitions in Medford for the past two years. In these ways, we have spread excitement about STEM throughout local school districts.

Mission Three: Voyager 1 - Our Community

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In the same way that Voyager 1 contributed to the study of the outer Solar System, Team 3024 has grown by using our resources to spread greater levels of respect for STEM throughout our community. We reached out to our community through a combination of local partnerships, family-centered events, and community service. First, our oldest community partnership is a connection with ScienceWorks, Ashland's hands-on children's science museum. For the past six years, we have run a booth at ScienceWorks' community maker festival known as the Mini Maker Faire, where we let children play with and learn to drive our robots. We have also volunteered at other ScienceWorks events like Techtoberfest and helped them begin an annual Robotics Showcase, where robots from all around the Rogue Valley are put on display. Next, to connect with children in our community, we march in Ashland's Festival of Lights winter parade every year and run a booth at the Fourth of July Celebration, where we network with thousands of community members. We have also let children interact with our robot at events like a Hanukkah celebration at a local synagogue, the Jackson County Fair, a MathCounts Competition, and Ashland's annual Airport Day. To connect with businesses in the community, we spoke at multiple meetings of the Ashland Chamber of Commerce and showed off our robot to the local Rotary, Lions, and Kiwanis clubs. Finally, we taught robotics seminars to over 150 students at three different summer programs—Academy, Academia Latina (for Latin American students), and Konaway Nika Tillicum (Native American students)—sponsored by Southern Oregon University.

Team 3024 makes it a priority to assist the community that fosters us. We have helped sort cans at Ashland's Emergency Food Bank, provided support at a community climate change rally, and helped the local airport fix their webcam system. We also built up a partnership with Ashland's parks system, volunteering in our local parks and even adopting our own park (Scenic Park, which we call Growbot Park) to maintain and cultivate. Lastly, we have built a partnership with the Maslow Project, which provides support to homeless youth in Jackson County, by putting on an auction of local art pieces that raised over \$1,500. These continuing commitments allow us to reciprocate the generosity that our team has been shown as we have expanded.

Mission Four: Shuttle - Our Alumni

The Space Shuttle Program relied on the expertise of many mentors to be successful in its enterprise. In the same way, Team 3024 draws on the experience of FIRST alumni to aid in our own endeavors. First, Team 3024 alumni who have gone into STEM fields come back to our team every year to talk about their careers and encourage team members to pursue those fields as well. Second, we created a program called FIRST Connections where we have teamed up with FIRST alumni to bring exciting STEM curriculum to local schools. Last year, we have worked with an alumnus from Team 1912 named Katie Wolfson who works at the Denver Museum of Natural Science. The museum has two programs, Scientists in Action and Virtual Science Academy, where scientists (like astronauts or archaeologists) video chat with elementary schoolers. We worked with Katie Wolfson to bring this program to Walker Elementary and Ashland Middle School last spring. In this way, Team 3024 is drawing on the experience of FIRST alumni to further spread STEM education.

Mission Five: International Space Station - Our Future

Sputnik, Explorer, Luna 3, Apollo, and the International Space Station - these are programs that have changed the trajectory of space technology. It is important that Team 3024 also remains sustainable through our strong community support, innovative and creative students, and committed mentors. Team 3024 is working closely with school personnel and local businesses to maximize shop time, partner with potential large donors, extend our influence in the Rogue Valley and work with the Professional Engineers of Oregon and local entrepreneurs to find mentors. The team is pursuing opportunities to network with other teams, to connect students with local internships and career exposure, and to start and support other FIRST teams. To remain sustainable, Team 3024 has created and implemented a business plan which helps us to ensure adequate funding by making fundraising a top priority, work closely with school personnel to maintain meeting space, actively recruit new students and mentors, and reach out beyond Ashland to offer FIRST opportunities.

Team 3024 looks to the space industry to view cooperation amongst the different organizations that all work together toward the advancement of space technology. We see an incentive to grow as a team in the evolution of spacecraft. From the Sputnik 1 satellite that spurred the Space Race, to the International Space Station that ensures global unity, the aerospace industry exemplifies many FIRST values. It is easy for our team to find inspiration in our galaxy, and we hope to continue to spread this curiosity and amazement. Through our diverse outreach and work to create a love for robotics, we are inspiring greater levels of respect for science and technology. We are encouraging more of today's youth to become scientists and engineers. Our mission has been to foster a belief in the transformative power of robotics, and all systems are go.