

SHAPING YOUNG MINDS, POWERING TOMORROW

ROBOTICS EDUCATION & COMPETITION FOUNDATION (RECF)
2023-2024 ANNUAL REPORT



INSPIRING STUDENTS ONE ROBOT AT A TIME

BEYOND THE GEARS

2023-2024

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MISSION

The Robotics Education & Competition Foundation's global mission is to provide every educator with competition, education, and workforce readiness programs to increase student engagement in science, technology, engineering, math, and computer science.

VISION

We see a future where every student designs and innovates as part of a team, overcomes failure, perseveres, and emerges confident in their ability to meet global challenges.

LETTER FROM OUR CEO

It has been a remarkable year for the Robotics Education & Competition Foundation. Through the combined efforts of our partners, volunteers, educators, parents, students, and incredible staff, we achieved new milestones with more than 55,000 teams from 109 countries competing in our competition programs! Every day, I am inspired by the ingenuity, resilience, and passion of our community as they work together to prepare students for today's technology workforce.

Whether in classrooms or competitions, our robotics, drones, and workforce programs provide a unique learning environment that fosters creativity, problem-solving, and adaptability in a world where technology is constantly evolving. Our industry certifications in robotics and pre-engineering continue to expand, now offered in 15 states, equipping students with the skills and credentials needed for future careers in STEM fields.

One of our fastest-growing programs, the Aerial Drone Competition, has seen a remarkable surge in participation. In just two seasons, student involvement has soared from 949 teams to 1,576 teams with 165 events throughout 41 states. This growth reflects the excitement around drones and the real-world skills students gain through hands-on learning.

We are committed to making STEM education accessible and empowering future leaders. This year, we expanded partnerships with Native American Tribes across the U.S., working alongside supporters such as Google.org and Amazon to provide Indigenous students with cutting-edge robotics and drone programming. Additionally, over 100 Deaf and Hard of Hearing robotics teams participated in our programs.

Our Girl Powered (GP) initiative continues to inspire and engage thousands of girls, with 99 GP workshops reaching 9,633 students in 13 countries this year. Throughout October, we spotlighted these efforts in honor of the International Day of the Girl, celebrating the next generation of female innovators.

Every year, our students' creativity, hard work, and innovation culminate at the VEX Robotics World Championship, the world's largest robotics competition. Congratulations again to the 2023-2024 World Champions, Online Challenge winners, and Inspiration All-Stars - your achievements exemplify the best of robotics. In this dynamic, fast-paced world, our students are proving that the future is bright with their technical expertise, collaboration, and relentless drive to innovate.

To our entire drones and robotics community - thank you for your passion, commitment, and continued support.



DAN MANTZ
CEO, RECF





OUR BOARD OF DIRECTORS

ROBOTICS EDUCATION & COMPETITION FOUNDATION BOARD



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Founder & CEO,
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OUR PARTNERS

The Robotics Education & Competition Foundation is grateful for the generous support of our sponsors who partner year-round to provide team grants, support local tournaments, state championships, and the VEX Robotics World Championship. We value their commitment to advancing student interest and engagement in STEM.



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Hillwood
United States Air Force Special Warfare
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United States Air Force
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Lamar College
Vaughn College

▶ THANK YOU, NORTHROP GRUMMAN FOUNDATION

From 2015-2024, the Northrop Grumman Foundation served as the presenting sponsor for the VEX Robotics World Championship. Through their generosity, the Robotics Education & Competition Foundation (RECF) has been able to provide a championship experience, welcoming students from across the globe to compete in Anaheim, Louisville, and Dallas. In that time, the World Championship grew from 412 teams in 21 countries, to 2,400 teams from over 60 countries in 2024. This explosive growth was due in no small part to Northrop Grumman Foundation's unwavering support for the Robotics Education & Competition Foundation.

We thank the Northrop Grumman Foundation for their belief in our mission and vision and express our deepest gratitude as we look forward to our final year in Dallas. Their contribution will not be forgotten by thousands of students whose lives have been positively impacted through RECF programming.

LOOKING

BACK

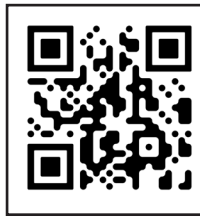
RECF and Google Inspire the Next Generation of Innovators with Nationwide Robotics Workshops

Throughout 2023-2024, the Robotics Education & Competition Foundation (RECF), in collaboration with Google, held robotics workshops in fourteen locations across the US.

At each stop, hundreds of students attended immersive, hands-on workshops to dive into the exciting world of STEM and robotics. Nearly 700 middle school students participated, with almost 600 students

exploring robotics for the first time. Students were led by RECF staff, Google volunteers, and local community members.

For many students, this was their first opportunity to collaborate as a team and unlock their creativity while learning new skills. The experience left a lasting impression. "I had fun, and now I'm thinking about robotics as a career," shared one excited student participant.



GOOGLE.ORG X RECF



▶ VEX AI: A NEW STEP FORWARD

Artificial intelligence is all around us, from predicting traffic patterns to autonomous vehicles and virtual assistants. Now, with the VEX AI Robotics Competition (VAIRC), students are using machine learning and smart sensors to compete in robotics competitions completely autonomously, with no human intervention. In May of 2024, the VAIRC World Championship took place in Houston, TX, with teams from as far away as Saudi Arabia in attendance. Hear from students, coaches, and volunteers about how AI is changing their approach to robotics, and how they believe this emerging platform will impact humanity as a whole.



VEX AI ROBOTICS WORLD CHAMPIONSHIP RECAP

▶ DHH STUDENTS THRIVE AT 6TH ANNUAL NRSC TOURNAMENT

Deaf and Hard of Hearing (DHH) students are an integral part of the RECF community. In February 2024, dozens of teams came together at the University of Kansas School for the Deaf in Olathe, KS to compete in an invitational tournament for students with hearing loss. While the tournament, sponsored in part by the National Institute for the Deaf Regional Stem Center (NRSC), was much quieter than your average VEX Robotics event, students showed off their skill and enthusiasm for working with robots over the course of this exciting three day gathering. Watch as DHH students and educators describe what robotics means to them and how building a communal space for those with disabilities can create a better world for all.



6TH ANNUAL NRSC V5RC TOURNAMENT FOR THE DEAF AND HARD OF HEARING RECAP

▶ FLYING HIGH AT THE REGIONAL AERIAL DRONE CHAMPIONSHIP: PERSEVERANCE

Named for the car-sized rover currently traversing the surface of Mars, the Perseverance Aerial Drone Championship was one of five regional championship events that capped the 2024 competition season. The South Central event saw student drone teams from Arkansas, Kansas, Louisiana, Missouri, New Mexico, Oklahoma, and Texas gather in a large aircraft hanger at the School of Science and Aeronautics in Tulsa, OK to display their mastery of coding and piloting. This year, the Aerial Drone Competition increased its team count by 66%, doubling the number of student participants. See a recap of this exciting event using the QR code below.



AERIAL DRONE COMPETITION REGIONAL CHAMPIONSHIP PERSEVERANCE 2024

▶ THE VEX ROBOTICS WORLD CHAMPIONSHIP EXPERIENCE

The VEX Robotics World Championship gives students from around the globe the opportunity to challenge themselves, and their opponents, at the highest level of play. In 2018 the VEX Robotics World Championship was named as the largest robotics competition in the world by Guinness World Record. In order to truly experience the excitement and scale of the VEX Robotics World Competition you have to be there. However, the video below will give you a glimpse inside what it is like to be among thousands of robotics students, their coaches, and their fans as they pursue the crown of world champion.



VEX ROBOTICS WORLD CHAMPIONSHIP



OUR PROGRAMS

VEX GO ROBOTICS COMPETITION



ELEMENTARY

GRADES 2-4

- VEX IQ Robotics Competition
- VEX GO Robotics Competition



- VEX IQ Robotics Competition
- Aerial Drone Competition
- VEX V5 Robotics Competition
- Technology Student Association

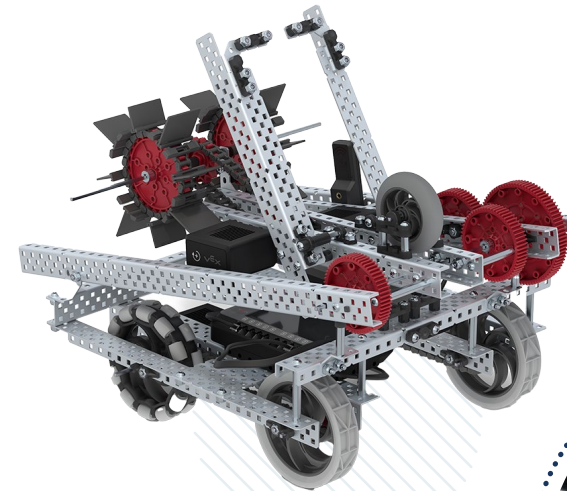
MIDDLE SCHOOL

GRADES 5-8



AERIAL DRONE COMPETITION

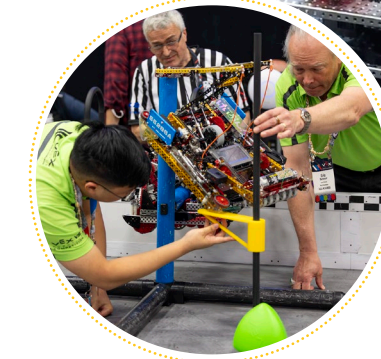
VEX V5 ROBOTICS COMPETITION



HIGH SCHOOL

GRADES 9-12

- VEX V5 Robotics Competition
- Technology Student Association
- SkillsUSA
- JROTC Robotics Competition
- Aerial Drone Competition
- Factory Automation Competition
- VEX AI Robotics Competition
- Industry Certifications



- VEX U Robotics Competition
- Factory Automation Competition
- VEX AI Robotics Competition

POST-SECONDARY

COLLEGIATE



FACTORY AUTOMATION COMPETITION

▶ MERGING NATIVE CULTURE AND STEM WITH INDIGENOUS ROBOTICS



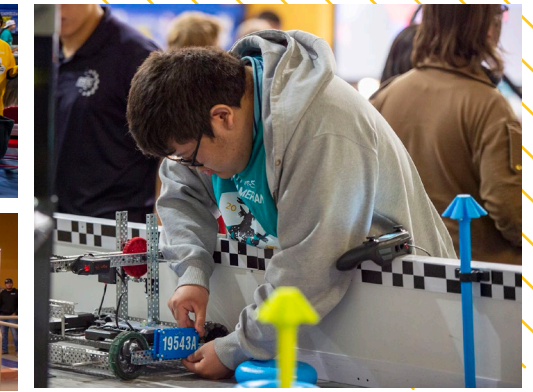
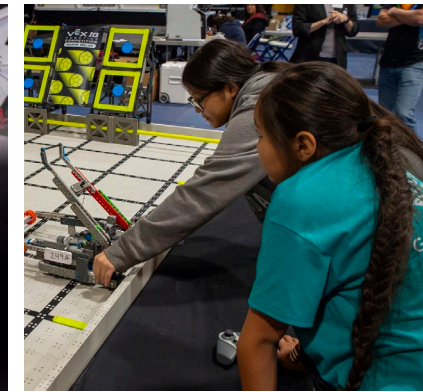
On the remote Fort Apache Reservation, high in the mountains above Phoenix, native students worked on their robots.

The Arizona White Mountains peeked over the Chief Alchesay Activity Center, where dozens of robotics teams from Arizona, New Mexico, and Oklahoma gathered to compete. Some were familiar with the space, a gym usually reserved for the local basketball team. Others wiped the sleep from their eyes, having traveled as much as 14 hours in an attempt to snag a coveted spot at the VEX Robotics World Championship. Native students from three states fidgeted with intricately beaded necklaces and headgear as they stepped up to the playfield with controllers in hand.

The Southwest Native American Showcase had arrived.

The night before, these same students had gathered in a cafeteria for an opening banquet, where their culture was fully celebrated. Dinner began with the White Mountain Apache Crown Dancers, a ceremonial group that dance to honor the Apache peoples' traditions and ancestors. Beneath a full moon, they weaved back and forth to the chants of accompanying drummers, a powerful testament to a culture still thriving after hundreds of years. When Kasey Velasquez, Chairman of the hosting White Mountain Apache Tribe, spoke to the students as they munched on meals of turkey and stuffing, his message was simple:

"You are the future."



Now in its fifth year, the tournament has grown to be a much anticipated celebration of native tradition and STEM, with 75 VEX IQ and VEX V5 Robotics Competition teams in attendance. Trish Miller, one of the event's organizers who lives and works in the Whiteriver community, stressed the necessity of bringing events such as this one to the reservation. "It's important that the students come together and get to know each other culturally, but it's even more than that. Our students don't have a lot of chances to go out and have fun, and so this event allows them to do that, and they can even win a spot at the World Championship while learning about one another."

Still, life is not always easy for many of those who reside on the reservation where the Showcase occurs. Suzanne DePoe, a grants manager for the Robotics Education and Competition Foundation and elder of the Confederated Tribes of Siletz Oregon, Tututni, Southern Cheyenne, and Ojibway, described the challenges many of these students face, living far away from urban resources so many others enjoy. "The issues faced are endless,

even down to things that many of us take for granted, like having a car to get places," she said. "Say a student needs to travel to school for a robotics class. Their family may not have adequate transportation to travel the long distance to get there, so they may miss out on that opportunity."

Today, however, students were at the event, and they were ready to compete. When asked why one would travel so many miles to participate in a robotics tournament, Jay Lively, a coach from Claremore Public Schools, put it like this: "We are from Native Land. We represent the Cherokee Nation, so something that is important to us is upholding those values and representing our tribe, and this is a great place to do it. Also, it's just been a longstanding tradition for Claremore to come to this competition. So we just keep on with the tradition."

By the end of the event, that tradition bore fruit as students from Claremore High School took the top spot at the Showcase and secured

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their place at the 2025 VEX Robotics World Championship. Isaac, a member of the winning Claremore Robotics team, explained that while winning is fun at an event like this, it is hardly the end goal. For these teams, community is paramount. "Robotics just opens up more academic opportunities in the future and the showcase is just a really fun competition," he continued. "As a whole it just gives you more fellowship with people than lots of other sports. We're all a team."

Learn more about the RECF's efforts to support Indigenous peoples at our website, indigenourobotics.com.



▶ **MEET YASMEEN:
FROM THE RECF
STUDENT ADVISORY
BOARD TO THE
IVY LEAGUE**

Yasmeen fell in love with robotics through the VEX Robotics IQ Robotics Competition. In eighth grade she joined a team in her hometown of Prospect, CT and never looked back, competing in the VEX Robotics V5 Robotics Competition through high school. Initially interested in notebooking, VEX Robotics V5 further solidified her passion for STEM through ample opportunities to code autonomous sequences. For Yasmeen, however, it wasn't just the engineering aspects of VEX Robotics competitions that led to her acceptance at Harvard, it was the "soft" skills as well.

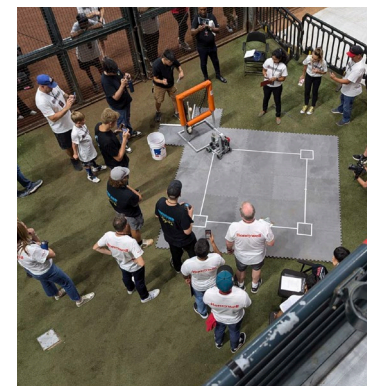
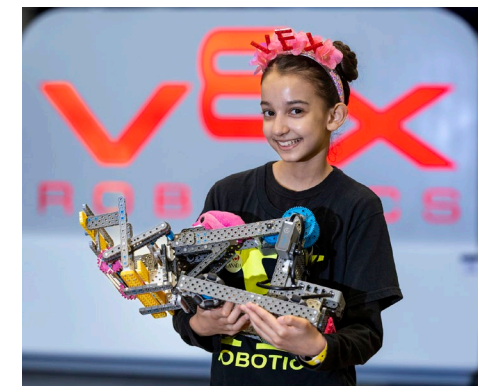
"I would say communication and teamwork were a huge skill that I developed through VEX Robotics. I think there were, of course, going to be disagreements on the team and being able to work through those is a skill that I will definitely be using not just in college, but my whole life," she said. "In addition to that, I think working under pressure or problem solving in very high stress situations is really the most important skill that I'll be carrying over with me into college."

Just as VEX Robotics competitions led Yasmeen to pursue a computer science degree, her love for advocacy work drew her to the RECF Student Advisory Board, and later a double major in Government. She told us that, "I saw that there was an opportunity to be on a board where I could take my experiences with robotics and apply them to help other students and to make potential changes in how the RECF approaches robotics. And that was just a really exciting way to combine my passion for student government and other organizations where I get to be a voice for students."

And her advocacy work did not stop at the RECF. Yasmeen also served on the Connecticut Board of Education, where her responsibilities included serving as a voice for 500,000 students attending school in the state at state board meetings. There, she would give input on legislation before it was enacted. It was there that she discovered how entwined computer science and the machinations of government truly were. Yasmeen felt that lawmakers often had little understanding of the technology that they were legislating for, and she now sees possibility in a "tech translator" role.

"I do see myself working with a tech company potentially and helping them develop their technology, but then also explaining to policymakers how that technology works, because I think a big issue is making sure policymakers understand how technology works," she said. "A lot of policymakers who I've talked to say I'm too old for this, and I don't understand how this works. And so I'm hoping to be one of those people who helps develop it, but then also helps explain it so that they can properly make policies around it."

“I do see myself working with a tech company potentially and helping them develop their technology, but then also explaining to policymakers how that technology works, because I think a big issue is making sure policymakers understand how technology works.”



During the 2023-2024 competition season, the Robotics Education & Competition Foundation saw its highest participation in the VEX IQ Robotics Competition (Elementary & Middle School) and VEX V5 Robotics Competition (Middle School & High School). Welcoming over 30,000 teams, these programs truly have an impact on students around the world.

These core competition programs are the foundation of the continuum of robotics offerings that we provide for students and educators in science, technology, engineering, and mathematics (STEM).

This tremendous impact is not possible without the support of our many partners and sponsors in the community. In 2023-2024, we were able to continue our partnership with the Arizona Diamondbacks and Honeywell Futureshaper Robotics Program through both funding and mentorship for VEX V5 Robotics Competition teams in Arizona. The partnership also included the 3rd annual FutureShaper Robotics Competition, in which 150 students from schools across Arizona competed on the iconic Chase Field.

THE REC BY THE NUMBERS

▶ PARTICIPATION AROUND THE GLOBE

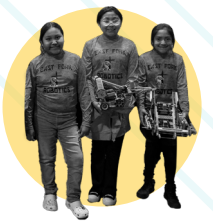
55,659
TOTAL TEAMS



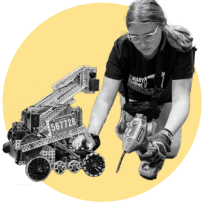
321,241
STUDENTS



▶ TEAMS BY GRADE



27,947
ELEMENTARY SCHOOL TEAMS
(VEX IQ Robotics Competition / VEX GO Robotics Competition)



13,106
MIDDLE SCHOOL TEAMS



14,328
HIGH SCHOOL TEAMS



278
COLLEGE TEAMS



3,300
EVENTS HELD
(2023-2024 SEASON)



109
COUNTRIES/NATIVE NATIONS PARTICIPATED



99 Girl**⚡**Powered
WORKSHOPS | OCTOBER



LOOKING AHEAD

Exciting things are in store for the entire Robotics Education & Competition Foundation community in the coming year!

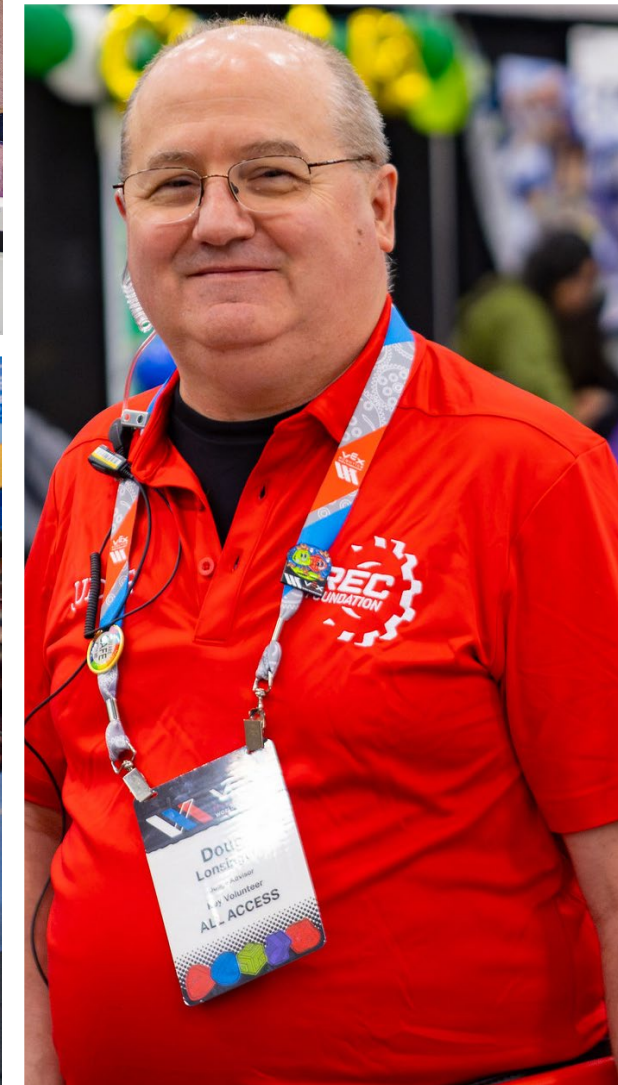
2025 will be the VEX Robotic World Championship's last year in Dallas. We thank the city of Dallas for hosting this event for the past five years. Get ready for an all new location for the VEX Robotics World Championship in 2026!

We are excited to celebrate the five year anniversary of the Aerial Drone Competition, a program that has impacted the lives of thousands of students. Whether they learned to pilot a drone in a perfect figure 8 or mastered the most optimal autonomous route through a challenge field by tweaking their code, these students now have the abilities to pursue jobs that require not only the technical skills to work with drones, but the confidence to meet the rigors of the next generation workforce. We look forward to celebrating this incredible milestone all season long.

After successfully piloting the first season of the wildly popular Pits & Parts series with the FUN Robotics Network, the RECF expanded its partnership to include even more events. Look for FUN at a tournament near you, and be sure to check out Pits & Parts interviews on YouTube.

Signature Events are getting bigger and better. For those looking for an elevated VEX Robotics competition experience, Signature Events can be the perfect way to challenge any team looking to compete in style. Visit signature-events.recf.org to check out what's happening!

For more information on our programs and impact, visit us online at recf.org



FINANCES

2023-2024

REVENUE AND SUPPORT	TOTALS
Contributions and Grants	\$10,612,859
Event Income	\$16,815,861
Other Income	\$358,229
TOTAL INCOME	\$27,786,949
Deferred Income	\$2,336,400
Adjusted Income	\$25,450,549

EXPENSES	TOTALS
Employee Costs	\$5,505,760
Advertising	\$452,365
Travel	\$1,926,328
Insurance	\$724,338
Facility	\$60,996
Direct Event Support	\$15,547,993
Office Expense	\$665,095
TOTAL EXPENSES	\$24,882,875

NET INCOME \$567,674



Discover what the Robotics Education & Competition Foundation can do for your community.

GET INVOLVED

Get connected and learn more about our impact online at recf.org.

CONTACT US

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