With the incredible support of mentors, educators, volunteers, sponsors, donors, and alumni, FIRST® inspires young people to go on to better our world. That inspiration comes from our community ethos of Gracious Professionalism® and Coopertition® and the FIRST Core Values of discovery, innovation, impact, inclusion, teamwork, and fun.

As part of FIRST, we’re building a culture around the Sport for the Mind™. We know that when we participate in any sport, we use our creativity, imagination, and critical thinking as much as we use our muscles. We create inspiration when we champion the strengths of every person who plays the game and gives us a reason to cheer.

During our game-changing year, we adapted our evidence-based robotics and innovation challenges to meet our youth participants where they needed us – whether in person or in remote learning environments. As we cheered them on from the virtual bleachers, we were also inspired by the game-changing ways they innovated and impacted their own communities.

Together, we are FIRST GAME CHANGERS.
SUSTAINING OUR MISSION
Leadership Letter

Since FIRST was founded in 1989, we’ve reached more than 2.5 million young people with our programs through their schools and communities around the world.

During the first year of the COVID-19 pandemic, 1 in 7 children globally lost more than three-quarters of their in-person learning. This had unavoidable impacts on student access to programs like FIRST that are interwoven into the school experience in classrooms and after school.

For the 2020-2021 season, we needed to do everything in our power to sustain our community and mission during this challenging period, one that’s shown just how important scientists and innovators are to building a better future.

Our season theme, FIRST™ GAME CHANGERS℠ powered by Star Wars: Force for Change, was selected before the pandemic hit, but it foreshadowed what our focus would be throughout the season: changing the game so as many participants as possible could still get in the game (see page 18).

We rolled out program modifications, new remote-only activities, remote and hybrid event solutions, and supporting tools and services. This year, we also focused on expanding our equity, diversity, and inclusion (ED&I) capacity by adding an ED&I director to the executive leadership team, facilitating monthly staff trainings, bolstering our volunteer resources, and expanding our partnerships.

Our season theme and this report celebrate our inspiring “FIRST game changers” – the individuals and teams who innovate to make an impact in their communities. They supported needs from personal protective equipment (PPE) shortages to science, technology, engineering, and math (STEM) education access (see page 14).

To our organization, the most inspiring FIRST game changers were our supporters. We are overwhelmingly grateful for the incredible support and collaboration we received from our sponsors, donors, volunteers, mentors, educators, alumni, parents, and others new and returning to the FIRST community.

Together, despite the challenges, we continued to make exciting progress this year in growing our ability to deliver our mission.

+ Our FIRST LEGO League Discover division for young learners ages 4-6, piloted in 2019, continued to experience growth, and in our year 3 evaluation, teachers noted positive student outcomes in core program areas including teamwork, STEM literacy, and social-emotional learning (see page 12).

+ Seven years into our cross-program longitudinal impact study, FIRST participants and alumni continue to show lasting impact in STEM outcomes, with girls in FIRST reporting the largest difference in outcomes compared to their peers (see page 8).

+ The 2021 Christa McAuliffe Silver Dollar, a U.S. coin recognizing a STEM education hero advocated for by the FIRST community, was issued featuring the FIRST logo.

+ We expanded our leadership bench to continue growing our global movement, adding to our Board of Directors (including a FIRST alum, see page 16), hiring Dr. Janell N. Catlin as ED&I Director, and creating new Chief Executive Officer (see sidebar) and Chief Operating Officer roles on the FIRST leadership team (see page 38).

We also express our sincere gratitude to retiring FIRST Board of Directors members Bob Tuttle and Walt Havenstein for their decades of leadership and service to our mission (see page 24).

As part of this FIRST community, your support enabled us to adapt aggressively to meet our community’s pressing needs while preserving our infrastructure – putting FIRST on strong footing to move into the recovery ahead and beyond to making our programs available in every school and community and accessible for every student. Thank you.

CHRIS RAKE
Executive VP and Chief Operating Officer, FIRST

KELLY ORTBerg
Co-Chair, FIRST Board of Directors

DEAN KAMEN
Founder, FIRST

*Iunicef.org article, March 2, 2021

Introducing FIRST CEO Chris Moore

Chris Moore joined FIRST in November 2021 as chief executive officer (CEO), bringing visionary leadership, extensive advocacy and field-engagement experience, as well as deep experience in youth development and a passion for building programs that serve youth, families, and communities. Before joining FIRST, Chris served as CEO of Positive Coaching Alliance and the United States Youth Soccer Association, where he increased youth participation in recreational and competitive soccer programs nationwide.

“I’m honored to join an organization with such an impressive legacy of changing lives. FIRST is a Sport for the Mind, and today, it is more relevant than ever. We are poised to be the solution to challenges facing communities around the world.” – Chris Moore, FIRST CEO

2021 Annual Impact Report 5
Research shows FIRST® drives STEM engagement and outcomes

Research from a multi-year longitudinal study shows FIRST is advancing its mission to increase the number of students interested in STEM — and that interest is influencing their educational and career choices. Detailed information can be found at www.firstinspires.org/impact

FIRST students are prepared for greater success in the classroom and workforce.

At FIRST, we understand that interest, rather than academic proficiency, is a greater predictor of children pursuing studies and careers in STEM fields. Our evidence-based programs use strategies known to increase student interest and engagement in science, technology, engineering, and math (STEM), including:

- Hands-on learning
- Working as a team on real-life problems
- Exposure to careers and adult mentors
- Emphasis on FIRST core values
- Culminating celebration where students can showcase what they created and learned

Gains in Workforce Skills
FIRST participants show significant gains in workforce skills such as teamwork, communication, and problem-solving.

“FIRST has given me life skills and tools to work well with others and be a team player and always do my personal best with Gracious Professionalism®. These are skills I will use in my daily life and beyond!”
— Longitudinal study participant
Research highlights

**Benefits of FIRST**
FIRST students are two times more likely to show an increase in STEM-related attitudes and interests than comparison group students. Positive impacts are evident for all FIRST students regardless of race, gender, income, or community type.

**FIRST students are significantly more likely to show gains in STEM outcomes than comparison students**

<table>
<thead>
<tr>
<th>Outcome</th>
<th>FIRST Students</th>
<th>Comparison Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>STEM Interest</td>
<td>2x</td>
<td></td>
</tr>
<tr>
<td>STEM Career Interest</td>
<td></td>
<td></td>
</tr>
<tr>
<td>STEM Knowledge</td>
<td></td>
<td></td>
</tr>
<tr>
<td>STEM Activity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>STEM Identity</td>
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</tbody>
</table>

**FIRST Alumni**
By their fourth year of college, FIRST alumni are more likely to be majoring in STEM fields and taking STEM courses than comparison group peers.

**Declare a major in STEM**

<table>
<thead>
<tr>
<th></th>
<th>FIRST Alumni</th>
<th>Comparison Group</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>81%</td>
<td>58%</td>
</tr>
</tbody>
</table>

**More likely to take courses in engineering or computer science**
FIRST students are 2.5 times more likely to take engineering courses and 3.2 times more likely to take computer science courses their fourth year of college than the comparison group.

<table>
<thead>
<tr>
<th></th>
<th>FIRST Alumni</th>
<th>Comparison Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Computer Science</td>
<td>3.2x</td>
<td></td>
</tr>
<tr>
<td>Engineering</td>
<td>2.5x</td>
<td></td>
</tr>
</tbody>
</table>

"x" = times as likely
Research shows FIRST has a lasting impact on girls and young women

Women are critical to the advancement of STEM – but a significant gender gap remains within STEM careers. At FIRST, we are actively developing ways to address barriers to access and participation, particularly in managing and allocating resources, programs, and educational opportunities fairly to all genders. We are committed to creating a diverse, inclusive, and equitable community for all participants.

Girls in FIRST see amazing impacts. All FIRST participants are significantly more likely to have stronger STEM outcomes compared to their classmates, as evidenced by the FIRST Longitudinal Study. However, girls in FIRST report the largest differences in STEM outcomes over time when compared to their female peers, and higher than boys.

Women in FIRST

Young women in FIRST have significant gains in all STEM areas — including STEM interest, career interest, activity, knowledge, and identity — compared to young women in the comparison group.

**DECLARE A MAJOR IN ENGINEERING OR COMPUTER SCIENCE**

**FEMALE FIRST ALUMNI**

\[51\%\]

**FEMALE COMPARISON GROUP**

\[16\%\]

**MORE LIKELY TO TAKE COURSES IN ENGINEERING OR COMPUTER SCIENCE**

**Computer Science**

\[3.4x\]

**Engineering**

\[2.6x\]

**STEM Outcomes**

Female FIRST participants are 2.2 times more likely to have significantly stronger STEM interest than comparison group peers, and:

**MORE LIKELY TO HAVE SIGNIFICANTLY STRONGER OUTCOMES IN STEM ATTITUDES, KNOWLEDGE, AND INTERESTS COMPARED TO THEIR PEERS**

**STEM Activity**

\[3.2x\]

**STEM Interest**

\[2.2x\]

**STEM Knowledge**

\[2.1x\]

**STEM Identity**

\[1.4x\]

**STEM Careers**

\[1.9x\]

"x" = times as likely
Declar STEM Majors

More female FIRST alumni declare majors in Engineering and Computer Science compared to young women in the comparison group.

% OF ENGINEERING MAJORS

- **FEMALE FIRST ALUMNI**
  - YEAR 1: 21%
  - YEAR 2: 36%
  - YEAR 3: 53%
  - YEAR 4: 51%

- **FEMALE COMPARISON GROUP**
  - YEAR 1: 4%
  - YEAR 2: 9%
  - YEAR 3: 13%
  - YEAR 4: 14%

% OF COMPUTER SCIENCE MAJORS

- **FEMALE FIRST ALUMNI**
  - YEAR 1: 9%
  - YEAR 2: 18%
  - YEAR 3: 28%
  - YEAR 4: 26%

- **FEMALE COMPARISON GROUP**
  - YEAR 1: 5%
  - YEAR 2: 10%
  - YEAR 3: 12%
  - YEAR 4: 10%

Take STEM Coursework

Female FIRST alumni are more likely to take coursework in Engineering or Computer Science each of the four years of college compared to their peers.

% OF ENGINEERING COURSEWORK

- **FEMALE FIRST ALUMNI**
  - YEAR 1: 28%
  - YEAR 2: 34%
  - YEAR 3: 35%
  - YEAR 4: 38%

- **FEMALE COMPARISON GROUP**
  - YEAR 1: 7%
  - YEAR 2: 9%
  - YEAR 3: 9%
  - YEAR 4: 8%

% OF COMPUTER SCIENCE COURSEWORK

- **FEMALE FIRST ALUMNI**
  - YEAR 1: 24%
  - YEAR 2: 32%
  - YEAR 3: 33%
  - YEAR 4: 34%

- **FEMALE COMPARISON GROUP**
  - YEAR 1: 18%
  - YEAR 2: 15%
  - YEAR 3: 11%
  - YEAR 4: 9%

“FIRST has made such a large impact on my life that I don’t know where or who I would be without it. I have been involved with FIRST for seven years, and the experiences that I have had have given me public speaking skills, confidence in my abilities, and life-long friendships. FIRST also has given me the opportunity to inspire others in STEAM fields.”

— Longitudinal study participant

Detailed information can be found at [www.firstinspires.org/impact](http://www.firstinspires.org/impact)

SOURCE: FIRST Longitudinal Study: Findings at 84-Month Follow-Up, Brandeis University, March, 2021. *Differences statistically significant, p < .05

The study included 922 FIRST students and 451 comparison group students. The comparison group included students who did not participate in FIRST programs, but were enrolled in science and math classes at the same schools. All students received a baseline survey and follow-up surveys each year. Overall, 74% of students remained in the study at year seven.
**FIRST Progression of Programs**

A Suite of Hands-On, STEM Learning Programs

**FIRST** combines the rigor of STEM learning with the fun and excitement of traditional sports and the inspiration that comes from community through a progression of programs that have a proven impact on learning, interest, and skill-building inside and outside of the classroom.

“I would like to thank the **FIRST** organization. You’ve played a vital role in helping shape the outstandingly positive direction of [my son’s] path. **FIRST**’s mission, vision, and Core Values have bolstered the development of my son’s character and, accordingly, exponentially increased his opportunities. Thank you to all the beautiful volunteers who help make **FIRST** a powerfully impactful opportunity for many young people like my son.” – **FIRST** parent and donor

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**FIRST** combines the rigor of STEM learning with the fun and excitement of traditional sports and the inspiration that comes from community through a progression of programs that have a proven impact on learning, interest, and skill-building inside and outside of the classroom.

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### **FIRST LEGO® League Divisions**

**FIRST** LEGO® League guides youth through STEM learning and exploration at an early age. From Discover to Explore and then to Challenge, students will understand the basics of STEM and apply their skills in an exciting competition while gaining productive learning habits, confidence, and teamwork skills along the way.

<table>
<thead>
<tr>
<th><strong>FIRST LEGO LEAGUE DISCOVER</strong></th>
<th><strong>AGES</strong></th>
<th><strong>GRADES</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>4-6</td>
<td>PreK-1</td>
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</tbody>
</table>

**FIRST** LEGO LEAGUE DISCOVER

This playful introductory STEM program ignites children’s natural curiosity and builds their habits of learning with hands-on activities in the classroom and at home using LEGO® DUPLO® bricks.

<table>
<thead>
<tr>
<th><strong>FIRST LEGO LEAGUE EXPLORE</strong></th>
<th><strong>AGES</strong></th>
<th><strong>GRADES</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>6-10</td>
<td>2-4</td>
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</tbody>
</table>

**FIRST** LEGO LEAGUE EXPLORE

Teams of students focus on the fundamentals of engineering as they explore real-world problems, learn to design and code, and create unique solutions made with LEGO bricks and powered by LEGO® Education SPIKE™ Essential or WeDo 2.0.

<table>
<thead>
<tr>
<th><strong>FIRST LEGO LEAGUE CHALLENGE</strong></th>
<th><strong>AGES</strong></th>
<th><strong>GRADES</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>9-16’</td>
<td>4-8</td>
</tr>
</tbody>
</table>

**FIRST** LEGO LEAGUE CHALLENGE

Teams of students engage in research, problem solving, coding, and engineering – building and programming a LEGO® Education SPIKE™ Prime or LEGO® MINDSTORMS® robot that navigates the missions of a robot game. They also participate in the Innovation Project to identify and solve a relevant real-world problem.

*Ages vary by country*
**THE CHALLENGE**

Through a guided, global robotics program, students are introduced to STEM learning and exploration at an early age. Children can begin with Discover (ages 4-6) and progress through Explore (ages 6-10) and Challenge (ages 9-16*), or join at any division based on their age or grade level.

**THE JOURNEY**

Young children are introduced to STEM concepts and develop habits of learning through engaging, fun challenges using LEGO Education materials, with opportunities to show their skills through festivals and competitions.

**THE OUTCOME**

Students gain real-world problem-solving experiences that inspire them to experiment and grow their critical thinking, coding, and design skills while building confidence, growing their knowledge, and developing habits of learning.

*Ages vary by division and country

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**Grades 7-12 · Ages 12-18**

**FIRST TECH CHALLENGE**

**THE CHALLENGE**

Teams of students design, build, program, and operate Android-smartphone-controlled robots to compete head-to-head in an alliance format. Students are encouraged to create a team identity and be an ambassador for FIRST and STEM in their communities.

**THE JOURNEY**

Teams compete at local and regional events, qualifying up to the FIRST Championship. They earn awards based on their teamwork, creativity, innovation, and the engineering design process.

**THE OUTCOME**

While developing their STEM skills and mastering engineering principles, students learn the value of persistence, innovation, teamwork, and the engineering design process. Current and past participants can apply for scholarships from FIRST Scholarship Providers and participate in additional career discovery opportunities.

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**Grades 9-12 · Ages 14-18**

**FIRST ROBOTICS COMPETITION**

**THE CHALLENGE**

Under strict rules, with limited time and resources, high school teams use sophisticated technology to build and program industrial-size robots for a challenging field game. Each team creates a team identity, raises funds to meet its goals, and works to promote STEM in the local community.

**THE JOURNEY**

At district and regional events, cheering crowds root for qualifying teams as students compete with their robots for prestigious awards and a coveted spot at the FIRST Championship.

**THE OUTCOME**

As students learn real-world engineering concepts, they build their confidence and workforce skills and connect with professional team mentors and sponsors who can help them succeed. Current and past participants can apply for scholarships from FIRST Scholarship Providers and participate in additional career discovery opportunities.
Discover Ignites Early Childhood STEM Engagement and Builds Habits of Learning

Building habits of learning in children early is critical to developing lifelong interest in STEM learning. With development support from the LEGO Foundation, FIRST piloted a new FIRST LEGO League division in 2019 and officially launched FIRST LEGO League Discover in 2020, expanding FIRST programming to reach children as young as 4.

The FIRST LEGO League divisions (see page 10) guide young children through STEM learning and exploration at an early age. Designed for children ages 4-6, Discover ignites their natural curiosity and builds their habits of learning with hands-on activities in the classroom and at home using LEGO® DUPLO® bricks, including the LEGO Education STEAM Park Set, to grow their understanding of gears, motion, measurement, and solving problems together, and themed Discover Sets that help children explore how STEM relates to their world.

Discover is implemented through FIRST Class Packs, which provide facilitators with the tools and resources to lead early learners through 10 sessions and a culminating event celebration as they explore STEM through creative play. Children record what they learn in an Engineering Notebook and take home Discover More Family Engagement Sets to extend and reinforce their habits of learning with family at home.

Discover Impact: Key Findings

Since Discover launched, a global pandemic interrupted access to STEM learning, and yet Discover experienced continued global growth and demand among early childhood education programs. Through generous sponsorship from the LEGO Foundation, FIRST reached 32,107 youth world-wide between 2018-2021.

A three-year evaluation* of FIRST LEGO League Discover conducted by WestEd shows strong findings from teachers and facilitators, who note positive student outcomes in core FIRST program areas including STEM literacy and social-emotional learning:

- Almost all teachers reported that Discover meets the needs of students academically, socially, and emotionally.
- Teachers noted positive student outcomes in social-emotional learning, including gains in self-awareness, self-regulation, cooperation, positive interactions with peers, responsibility, and empathy.
- 92% of teachers reported that students had gains in STEM literacy, use of STEM vocabulary, and emerging understanding of the engineering design process.
- Teachers noted that Discover meets the diverse needs of their students. Students with learning differences were engaged and had positive outcomes. Hands-on learning with little reliance on written words makes Discover accessible to those with language needs.
- Teachers reported gains in their ability to effectively teach STEM to young learners, including recognizing the importance of hands-on learning and feeling more confident to teach STEM by the end of Discover.

When FIRST asked leaders from RobotiX, the FIRST LEGO League partner for México, to help pilot its new early childhood STEM program, they eagerly agreed. "We were so enthusiastic about the potential to impact children at early learning ages," Roberto Saint Martin S., director of RobotiX, said.

Three years of Discover grant funding from the LEGO Foundation has enabled RobotiX to reach more than 12,500 students, mostly ages 5-6 and 50% girls, across several states in México through preschools and childcare centers, focusing on vulnerable sites that reach children in difficult economic situations or with disabilities. Roberto says teachers are impressed by how much their students’ vocabularies grow through Discover’s real-world theme and sessions, and observed the young children becoming more tolerant with each other and able to work as a team. Discover’s impact has been noticed by parents too; often those without access pressure the schools to increase Discover enrollment. Many sites have been able to share the materials to reach more children, with RobotiX providing best practices on how to ensure every child gets the whole Discover experience. “Resources are scarce in México, so when they get these opportunities, schools want every child to have it because it’s so enriching,” Roberto said.

Demand from families and schools has grown each year, even as the pandemic closed many of México’s public schools to in-class learning. "It’s great proof that Discover is an incredibly scalable program that could have greater impacts for education," Roberto said, crediting the multi-year grant funding for making it possible to track program impact and develop strategies for sustainability. "With this grant, we’re able to pilot these programs and show it’s possible to invest in them, and we’re seeing more change coming through the schools as a result."

Discover in Action in México

"The community to which our students belong has serious economic problems, so the implementation of the program was a great opportunity for the children and their families. [Discover] has contributed a lot to the family union, to the development of cognitive skills and creativity of the students. Through the sessions, we saw all the learning that the students developed."

– Discover grant recipient, Jardín de Niños El Barquito, Sonora, México
Inspired by FIRST: Meet These Community Game Changers

Amidst an ongoing global pandemic, our community not only upheld the FIRST Core Values (see below), but also continued to innovate and change the game to make an impact in their backyards and on a global scale. These stories of FIRST students and alumni are just a sample of the thousands in our community worldwide that exemplify what it means to be a game changer.

**FIRST Core Values**  We express the FIRST philosophies of Gracious Professionalism® and Coopetition® through our Core Values:

- **DISCOVERY** We explore new skills and ideas.
- **INNOVATION** We use creativity and persistence to solve problems.
- **IMPACT** We apply what we learn to improve our world.
- **INCLUSION** We respect each other and embrace our differences.
- **TEAMWORK** We are stronger when we work together.
- **FUN** We enjoy and celebrate what we do!
**FIRST Students Rise to the PPE Challenge**

When the COVID pandemic began and the 2019-2020 season came to a halt, the FIRST community immediately leapt into action. Students switched gears from robot building to personal protective equipment (PPE) production and community outreach. The FIRST in Michigan community swiftly began the “1 Million PPE Challenge” to assist healthcare professionals and first responders in getting the proper protection needed to fight COVID-19. Students across the United States banded together (virtually) from their homes and team workshops to produce and donate over 2.2 million pieces of PPE, including face shields, face masks and accessories, and safety glasses.

One of the students who contributed, Angelica Whitney, a FIRST Tech Challenge participant from New Hampshire, created more than 7,000 pieces of PPE for healthcare facilities, nursing homes, and others, using her team’s 3-D printers and the fundraising skills she honed over seven years in FIRST. “I really wanted to make a difference in my community,” she said.

As the pandemic lingers, FIRST teams across all programs are continuing to use their resources to meet the needs of their local communities and proving their infallible resilience as they navigate these challenging times as a collective community.

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**Affinity Group “LGBTQ+ of FIRST” Fosters Inclusive Community**

As part of celebrating 2021 Pride Month (see page 19), FIRST teamed up with a student-run affinity group to amplify the voices and experiences of lesbian, gay, bisexual, transgender, and queer (LGBTQ+) members within our community. LGBTQ+ of FIRST seeks to create a safe and educated space for students, mentors, and volunteers through outreach events and educational resources. Their stories, told through a blog series, helped us highlight important LGBTQ+ topics during Pride Month, including how to support FIRST students coming out, how to be a positive ally, and advice for LGBTQ+ students dealing with resistance towards acceptance.

Eva, a FIRST alum from Indiana who has participated in and mentored seven FIRST teams, wrote about finding her identity while founding Neurodivergent of FIRST and joining LGBTQ+ of FIRST. “My lifeline through this time was FIRST, including LGBTQ+ of FIRST. It was somewhere to be myself without fear. It was somewhere to meet people like me who also shared my love of robots. It was somewhere safe,” she said.

Through Pride Month discussions and ongoing inclusion efforts, LGBTQ+ of FIRST works within the FIRST community to express the importance of listening to varying perspectives from LGBTQ+ people, working to understand different identities, and advocating for LGBTQ+ rights.
In 2009, FIRST LEGO League team “NXTreme” from Mont Vernon, N.H., addressed transportation problems within their community as part of their Innovation Project during the SMART MOVE season. Twelve years later, that project is now known as PickUp Patrol: a school dismissal app that is used in three countries, 36 states, and countless schools, helping educators and parents coordinate dismissals.

FIRST alum Tony Edvalson (second from left), an original member of the elementary school team behind the groundbreaking app, now works full time for PickUp Patrol as a software engineer. “Working at PickUp Patrol has been incredibly rewarding,” said Edvalson. “Developing an idea from scratch and seeing it succeed has taught me a lot about how to build a product and manage it.”

PickUp Patrol’s core product is still intact today, with additional features to address the changing needs of schools during the ongoing COVID pandemic.

“Learning about innovation at a young age has had a huge impact on my life,” Edvalson continued. “It has given me the confidence to come up with new ideas and share them with others.”

**FIRST Alum Elected to Board of Directors**

Dr. Melissa Smith, FIRST alum and staff user experience researcher at Google/YouTube, knows a thing or two about changing the game. She is the first FIRST alum on the FIRST Board of Directors, having participated as a student and actively volunteered in various roles for over 20 years. Outside of her career at Google, where she is leading research to improve the artist and industry experience across YouTube’s various surfaces, she continues to pay the FIRST mission forward: Melissa volunteers her time as a head referee and on the Greater San Francisco Region Planning Committee. “I think it’s important for FIRST alumni to give back to FIRST, however they can, as we can all attest to the positive impact this program had on our lives and our journeys,” said Smith. “Helping to ensure FIRST can be there for the next generation of students is part of the journey.”
“LAUNCH TEAM 6352” Helps Make STEM More Accessible

FIRST Robotics Competition team “LAUNCH TEAM 6352” has engaged over 100 students in their community using FIRST @ Home activities. Within the FIRST @ Home offerings, there are activities for every age group, and LAUNCH TEAM appreciated having this breadth of materials so that every student who wanted the experience could participate remotely. “We really wanted to make sure that the kids were having fun, and they were encouraged to use their creativity,” said LAUNCH TEAM president Noel Robertson. “We didn’t want it to feel like homework.”

After seeing the impact they made in their own community, LAUNCH TEAM hopes to inspire others to host similar projects in their communities. To make resources available to even more students, LAUNCH TEAM worked with the FIRST Education team to create Google Classroom lessons for the FIRST LEGO League RePLAY™ season.

All-Girls Libyan Teams Promote Gender Equality

Team “LYBOTICS Change” – the first all-girls FIRST Tech Challenge team in Libya – is changing perceptions and breaking down barriers for women and girls. Amidst staggering civil unrest in Libya, the broader LYBOTICS organization has created a safe place for children of all ages to learn and have fun. Even more game changing, the LYBOTICS organization, which became a FIRST Tech Challenge partner in 2021, supports two all-girl robotics teams and several mixed gender teams – 10 years after the Libyan revolution in 2011, and during a time when Libyan women continue to fight for gender equality against very real threats to their lives.

Understandably, the girls’ families were initially reluctant to let them join the robotics team, as their participation defies the social norms of Libya’s deeply fragmented society. But with bravery and perseverance, the teams formed and have since empowered these young women to hone their skills and confidence as STEM leaders. For the first time, they can receive support from mentors and others they would not normally have access to and pursue higher education and careers in STEM fields. The girls are making waves of positive change in Libya, garnering support in their regions and on social media, and helping to evolve girls’ and women’s rights across the country.
FIRST® GAME CHANGERS™ powered by Star Wars: Force for Change

The FIRST GAME CHANGERS powered by Star Wars: Force for Change season theme challenged us to revolutionize the traditional world of sports and fitness and be game changers. Across our programs, we celebrated the evolution of our sports and activities that make us physically and mentally strong.

A Season in Numbers

318,000+ students impacted in 90 countries
139,000+ mentor, coach, judge, and volunteer roles
9.8+ million volunteer hours served
GET IN THE GAME

With the global COVID-19 pandemic continuing throughout the 2020-2021 season, we set out to ensure that as many FIRST participants as possible could “get in the game” across learning environments through core program elements:

GAME PLAY
Fun, thematic robot game challenges to enhance engineering and teamwork skills

INNOVATION PROJECT
Real-world innovation projects designed to test problem-solving skills and make a community impact

CAREERS
Career exploration, mentorship, and scholarship opportunities for fostering personal and professional development

COMMUNITY
Young people, and the adults who mentor and support them, are part of our thriving, inclusive global robotics community

RECOGNITION
Opportunities to celebrate and be recognized for achievements

SEASON HIGHLIGHTS

The 2021 Christa McAuliffe Silver Dollar, a U.S. Mint coin commemorating the first teacher selected to go to space and featuring the FIRST logo, was presented to Dr. Jill Biden, First Lady of the United States and an educator, who called it “a tribute to all educators.”

FIRST, with our sponsors, hosted virtual career discovery events for students and alumni on topics such as advancing equity and STEM in the sports industry, how robotics is being used across industries, and how to make the most of their FIRST experience.

The FIRST Mentor Network presented by NI launched with an interactive platform allowing teams and interested mentors to find each other.

FIRST partnered with Qualcomm to launch the 2021 FIRST Innovation Challenge presented by Qualcomm, which gave FIRST Tech Challenge and FIRST Robotics Competition teams a pathway to join FIRST LEGO League teams in advancing to the 2021 Global Innovation Awards presented by Star Wars: Force for Change. Cheddar News featured some of the teams and their health and fitness solutions in its “Young Innovators” series.

FIRST joined the Human Rights Campaign’s Project THRIVE to reinforce our commitment to inclusion and the importance of allyship to support LGBTQ+ colleagues, mentors, volunteers, and student participants.

FIRST made free PreK-12 STEM engagement activities available for educators and parents on FIRST @ Home to support remote and hybrid learning environments.
Teams worked together to research and invent new ways and places for people of all abilities to play, move, and stay active. In PLAYMAKERS, Discover and Explore students designed new obstacle courses and play structures, built a LEGO model, and tracked what they learned in an Engineering Notebook. Explore teams brought their model to life using LEGO Education WeDo 2.0. In RePLAY, Challenge teams identified and researched a problem related to people not being active enough, then designed a new piece of technology or improved an existing one to help solve it. They also built and programmed an autonomous LEGO robot to solve play and fitness-themed missions on a competition field. Teams competed and shared what they learned at remote, hybrid, and in-person events.

*Ages vary by division and country

FIGLOVE is an innovative strip with an ultrasonic sensor placed in the palm of the hand that reduces pain during exercise – especially beneficial to people with fibromyalgia. SESI Big Bang is a FIRST LEGO League Challenge team of six students and two coaches hoping to make the world a better place through scientific and innovative solutions.
Teams challenged themselves to exceed their personal and team potentials and redefine the game. Students programmed their robots to compete in three minutes of game play with autonomous and driver-controlled sections through remote, hybrid, and in-person events. This exciting, fast-paced game incorporated tasks including delivering wobble goals to the correct randomized target zone, parking their robot on top of the launch line, and collecting and launching rings to score in various goals. This year, teams also had the opportunity to participate in the remote FIRST Innovation Challenge presented by Qualcomm.

**FIRST Tech Challenge Global Innovation Award Winner**

**2021 WINNER** Team 14725 “Java the Hutts,” Fort Meyers, Florida

**FIRST INNOVATION CHALLENGE SOLUTION** PATHWAYS

Java the Hutt’s PATHWAYS mobility tool is an ultra-wideband (UWB) detector device with an integrated vibration motor module that attaches to the cane of a visually impaired user and forms a safe path. The small, hard-working team aims to build engineering skills and spread awareness of robotics and get more students involved with FIRST.
FIRST Robotics Competition introduced three new team challenge opportunities with remote judging for students to develop skills from engineering design to business development this season, in lieu of the program’s typical large in-person competitions: In INFINITE RECHARGE℠ at Home, teams demonstrated their robot’s technical skills in a competition based on the 2020 INFINITE RECHARGE field game. The Game Design Challenge invited teams to design an original robotics game and compete for judged awards. The FIRST Innovation Challenge presented by Qualcomm challenged teams to explore the invention process by designing a health and fitness-themed innovation, creating a business model, and pitching their idea.

52,340 students in 30 countries unlocked real-world engineering concepts, self-confidence, and workforce skills, supported by professional team mentors and sponsors.

FIRST Robotics Competition

Global Innovation Award Winner

2021 WINNER Team 5553 “Robo’Lyon,” Rhone, France

FIRST INNOVATION CHALLENGE SOLUTION WALK ASSISTANT

Robo’Lyon, a FIRST Robotics Competition team of seven students, was inspired by their personal experiences with Parkinson’s disease to create the Walk Assistant, a hands-free solution for patients with the nervous system disorder who develop a “freezing” symptom, a sudden inability to move that can lead to dangerous situations. The team uses the iterative Scrum method to make progress on their project.

3,079 individual teams

125 rookie teams
Sponsors and Contributors

Through FIRST programs, kids of all ages and backgrounds are building pathways for their futures. As a nonprofit more than three decades into our mission, we know we would not have this impact without the support of our sponsors, suppliers, donors, and other financial contributors. Their partnership, acknowledged in part on these pages, enables our participants to have the tools they need to succeed and build a better world.

Together, we are changing the game.
Thank you to our Retiring Long-Time Board Members

Robert M. Tuttle
Served 2002-2021 on Board of Directors

Bob Tuttle is one of our organization’s earliest and most passionate supporters, willing to step in wherever his service is needed and instrumental to our growth. He has been a volunteer for FIRST since its early development more than 30 years ago, including 16 years as FIRST Board of Directors treasurer and eight years as co-chair, and he even served as interim president in 2005 and 2013.

Bob is a General Partner of 1848 Associates, a commercial real estate development entity. Prior to that, he held several executive positions for over 20 years in the aerospace industry before joining FIRST founder Dean Kamen as executive vice president of DEKA Research & Development Corporation.

FIRST extends our deepest thanks and appreciation for his visionary guidance, exceptional leadership, and unconditional commitment to FIRST.

Walter P. Havenstein
Served 2006-2021 on Board of Directors

For 15 years, Walt Havenstein brought his leadership experience and engineering passion to the FIRST Board of Directors, including three years as Board chair and eight years as chair of its Audit Committee. Understanding the value of FIRST to industry, Walt originated the idea that FIRST is “the only sport where every kid can turn pro.”

Walt is the retired chief executive officer of Science Applications International Corporation (SAIC). Prior to SAIC, Walt was president and chief executive officer of BAE Systems Inc., a FIRST Strategic Partner, and had a long career in the defense industry and in the U.S. Marine Corps.

FIRST shares our deepest thanks and appreciation for his invaluable leadership, outstanding dedication, and extraordinary service.
2020-2021 FIRST CONTRIBUTORS

CORPORATIONS AND FOUNDATIONS

$1,000,000+
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Apple
The Argosy Foundation
The Boeing Company
DuPont
The LEGO Foundation
National Aeronautics and Space Administration (NASA)
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Abbott Fund
ABB Inc.

“As a participant, FIRST taught me to be confident and bold. As an alum, FIRST has taught me to be humble. FIRST has made my life what it is today, and I will be forever grateful. I hope to help many students experience the same impact as I have. Here’s to decades more of FIRST opportunity, impact, influence, and inspiration. Here’s to a brighter future.”

– Madde Burris, FIRST alum, donor, and volunteer

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“The real world is about uncertainty and making tradeoffs. When the algorithms you learned in school don’t cut it, or your plans don’t work, or your information in a given domain is incomplete, that changes the way you think about problems and react to failures. Having that real-world experience so young, through FIRST, was huge.”

— Ajay Penmatcha, FIRST alum & donor
“We are thrilled to collaborate with FIRST again this year and engage young people in STEM learning. Educating our youth and providing access to FIRST programs for students of all backgrounds has never been so important as it is right now.”

– Kathleen Kennedy, president, Lucasfilm, FIRST sponsor
“This program is by far the best inspirational program I have ever experienced with our youth. The impact FIRST makes on students challenges them on the education they receive in class and makes it the most rewarding... experience of their lives. I feel fortunate that three of my parent and donor

First parent and donor

Kevin Meier
Sarah Mendi
Stephen Melamed
Sara Melo-Perera
Marlene Meredith
Theresa Merino
Frank & Deb Merrick
Janice Mersi-Rossi
Joseph Metzger
Pam Meyers
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In honor of David Kaplan
Marian & Brian Murphy
Sean Murphy
Seann Murphy
Stephen Murphy
Victoria Murray
Sowmya Murty
Bret Musser
Ravikiran Nagavarapu
“With advancing innovation at the heart of everything we do at Qualcomm, we are thrilled to collaborate with FIRST to expand opportunities for students from all backgrounds to discover, innovate, and be inspired to become the next generation of inventors.”

~ Angela Baker, senior director of corporate responsibility, Qualcomm Incorporated, FIRST sponsor
“FIRST gave me so much as a student, introducing me to STEM study, electrical and software work, and applying engineering concepts outside the classroom. Volunteering helps me give back and give those same experiences to students and future engineers.”

– Jason Cheng, FIRST alum and volunteer and software developer for Amazon Logistics, FIRST sponsor
Top Team Sponsors (10 or more teams in 2020-2021)
Sponsors in this section are listed in descending order starting with the sponsor of the highest number of teams.

FIRST LEGO League Explore
DoD STEM
Apple
John Deere
The Boeing Company
Tennessee Valley Authority
Amazon Future Engineer
Bosch
Dow
Rockwell Automation, Inc.
Qualcomm Incorporated
TE Connectivity

FIRST LEGO League Challenge
DoD STEM
Amazon Future Engineer
John Deere
Apple
The Boeing Company
Caterpillar, Inc.
Rockwell Automation, Inc.
Bosch
Tennessee Valley Authority
Qualcomm Incorporated
BAE Systems
TE Connectivity
Overstock Family Foundation
Google
Collins Aerospace
Raytheon Technologies
Dow
Bayer Corporation
Bechtel Group Foundation
Motorola Solutions Foundation
Leidos, Inc.
Picatinny Arsenal
Patt & Whitney
Aptiv Foundation

2020-2021 SEASON
FIRST TECH CHALLENGE SPONSORS
Season Presenting Sponsor
Qualcomm

Program Sponsor
Collins Aerospace

Key Sponsor
ptc

Top Team Sponsors (10 or more teams in 2020-2021)
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DoD STEM
Arconic Foundation
John Deere
Apple
The Boeing Company
Lockheed Martin Corporation
Amazon Future Engineer
Bayer Corporation
PTC, Inc.
TE Connectivity
Caterpillar, Inc.
Qualcomm Incorporated
Pacitnary Arsenal
Google
Rockwell Automation, Inc.
Collins Aerospace
DEKA Foundation
Motorola Solutions Foundation
Schneider Electric North America Foundation
BAE Systems
Dow
Intuitive Foundation
Leidos, Inc.
Raytheon Technologies
Tennessee Valley Authority
Bechtel Group Foundation
Bosch

2020-2021 SEASON
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PTC, Inc.
REV Robotics
Rockwell Automation, Inc.
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Underwriters Laboratories, Inc. (UL)
The Walt Disney Company
Diamond Suppliers
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SolidProfessor
Tableau Software
Wago

Other Contributors
Banebots, LLC
Bimba Manufacturing
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Diamond Technologies
DNR Laboratories, LLC
Eaton’s Bussmann Division
ECAD – Electronic Components
Industry Association
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HPE Automation
Hydro Extrusion North America
Idle Loop Software
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Nason
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Robot Extrusions
ScreenSteps
The Siemon Company
Snap Action, Inc.
Sports Awards
Sullins Connector Solutions
Techplex Labs
Triangle Manufacturing Company
TurnOne Graphics LLC,
TurnOneGraphics.com
Upverter Education
WestCoast Products
Xilinx

Top Team Sponsors (20 or more teams in 2021)
Sponsors in this section are listed in descending order starting with the sponsor of the highest number of teams.
National Aeronautics and Space Administration (NASA)
DoD STEM
The Boeing Company
Lockheed Martin Corporation
Intuitive Foundation
Apple

“Thank you for all you do to make this incredible program available to kids. It has made an immeasurable difference opening STEM doors for my daughter and igniting a passion in her.”
– FIRST parent and donor

Other Contributors
Banebots, LLC
Bimba Manufacturing
Charmad Labs
Diamond Technologies
DNR Laboratories, LLC
Eaton’s Bussmann Division
ECAD – Electronic Components
Industry Association
Haydenkirk Motion Solutions
HPE Automation
Hydro Extrusion North America
Idle Loop Software
IMI Precision Engineering
Kettering University
MISUMI
Nason
Piedmont Plastics, Inc.
Robot Extrusions
ScreenSteps
The Siemon Company
Snap Action, Inc.
Sports Awards
Sullins Connector Solutions
Techplex Labs
Triangle Manufacturing Company
TurnOne Graphics LLC,
TurnOneGraphics.com
Upverter Education
WestCoast Products
Xilinx

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National Aeronautics and Space Administration (NASA)
DoD STEM
The Boeing Company
Lockheed Martin Corporation
Intuitive Foundation
Apple
FIRST Scholarship Program

We partner with colleges, universities, technical schools, and other organizations that make available scholarship opportunities specifically for FIRST participants and alumni. In FY2021, more than 200 FIRST Scholarship Providers made available exclusive scholarship opportunities to FIRST participants and alumni. Learn more at www.firstinspires.org/scholarships.

Thank you to the following organizations for supporting FIRST alumni in continuing their educations:

**PLATINUM PROVIDER ($500,000+)**
- Bahçeşehir University
- Boston University
- Capitol Technology University
- Clarkson University
- Florida Institute of Technology
- Illinois Institute of Technology
- Instituto Tecnológico Autónomo de México (ITAM)
- Johnson & Wales University
- Kettering University
- Lawrence Technological University
- Milwaukee School of Engineering
- Olin College of Engineering
- Rensselaer Polytechnic Institute
- Rochester Institute of Technology
- Stevens Institute of Technology
- Syracuse University College of Engineering and Computer Science
- Tulane University
- University of Advancing Technology
- University of Rochester
- Webb Institute
- Williamson College of the Trades
- Worcester Polytechnic Institute
- Yale University

**GOLD PROVIDER ($100,000 – $499,999)**
- College of the Atlantic
- Dr. Bart Kamen Memorial FIRST Scholarship Fund
- ECPI University
- Embry-Riddle Aeronautical University
- Embry-Riddle Aeronautical University – FL
- George Washington University
- Hampshire College
- Indiana University Bloomington
- McMaster University
- Merrimack College
- Michigan Tech University
- North Central College
- Northeastern University
- Quinnipiac University
- Rose-Hulman Institute of Technology
- Trinity University
- University of Cincinnati – College of Engineering and Applied Science
- University of Evansville
- University of Minnesota – Twin Cities/PTC
- University of New Orleans
- University of Northern Iowa
- University of Portland
- University of Southern California
- Viterbi School of Engineering
- University of Texas Arlington
- University of Texas at Austin
- Valparaiso University
- Woodie Flowers Memorial Grant

**SILVER PROVIDER ($40,000 – $99,999)**
- American Society of Mechanical Engineers (ASME) Auxiliary
- BAE Systems
- Bay Atlantic University
- Bosch
- Bradley University
- Case Western Reserve University
- College for Creative Studies
- Grand Valley State University
- Hallmark University
- Hanover College
- Harvey Mudd College
- Macquarie University
- Marquette University
- McKendree University
- Missouri University of Science and Technology
- National Fluid Power Association (NFPA)
- New England College
- Northwest Nazarene University Engineering
- Nuts, Bolts and Thingamajigs Foundation
- Pacific University
- Raytheon Technologies
- Rice University
- Roanoke College
- St. Clair College
- SUNY Polytechnic Institute
- Tecnológico de Monterrey
- University of Detroit Mercy
- University of Hartford College of Engineering, Technology, and Architecture
- University of Minnesota
- University of New Orleans
- University of Northern Iowa
- University of Portland
- University of Texas at Austin
- Valparaiso University
- Woodie Flowers Memorial Grant

**BRONZE PROVIDER ($20,000 – $39,999)**
- Adelphi University
- Anoka Technical College
- Bay Atlantic University
- Campbell University
- Dunwoody College of Technology
- Hofstra University
- Iowa State University
- Make School
- NextEra Energy/Florida Power and Light Company
- Nipping University
- Northwestern University
- The Ohio State University
- Oklahoma State University College of Engineering, Architecture and Technology
- Rutgers University
- Saint Martin’s University
- Texas Tech University
- University of Alaska – Anchorage
- University of Maryland, A. James Clark School of Engineering
- University of Massachusetts Lowell Engineering
- University of Missouri
- University of New Hampshire
- Manchester University
- University of North Alabama
- Vermont Technical College
- Whitworth University
- Xavier University

**BRASS PROVIDER (UP TO $19,999)**
- Actobotics/ServoCity
- BANFI
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- Canadore College
- Cleveland State University
- College of the St. Scholastica
- Colorado Mesa University
- Columbia University
- DePaul University
- Elbit Systems
- EWCP, Inc.
- FIRST Alumni and Mentors Network at Michigan (FAMNM)
- FIRST Canada
- FIRST Chesapeak
- First Updates Now
- Gates Corporation
- George Fox University
- Georgia Institute of Technology
- Grand Canyon University
- Green Girls STEM Foundation
- Indiana University-Purdue University Indianapolis (IUPUI)
- Kansas State University College of Engineering
- Lake Superior State University
- Louisiana State University
- Maryville University
- Mercer University
- Microchip Technology, Inc.
- Mineral Area College
- Minerva Schools at KGI
- Molloy College
- New York Institute of Technology
- NH Governor’s Cup Individual Scholarship Award
- North Carolina Agricultural and Technical University
- North Carolina State University
- NYU Tandon School of Engineering
- Oral Roberts University
- Oregon Institute of Technology
- Pace University
- Seidenberg School of Computer Science and Information Systems
- Pennsylvania State University, College of Engineering
- Phil Clancy Memorial Scholarship
- Plymouth State University
- Queen’s University
- Rice University
- The Rainbow STEM Alliance
- Robert Morris University
- St. Louis Community College
- SME Education Foundation
- Society for the Advancement of Young Scientists (SAY)
- Society of Women Engineers (SWE) – Houston
- South Dakota School of Mines & Technology
- Southeast Missouri State University
- Southwestern Michigan College
- Sweet Briar College
- TKS The Knowledge Society
- Triangle Fraternity
- University of Akron
- University of Connecticut
- University of Dayton
- University of Illinois at Urbana-Champaign – Grainger College of Engineering
- University of Kansas
- University of Massachusetts Amherst/PTC
- University of Mississippi
- University of Nevada Las Vegas
- University of Southern Maine
- University of Tennessee, College of Engineering
- University of Texas at San Antonio
- University of Waterloo
- University of Windsor
- University of Wisconsin, Madison
- University of Wisconsin Plateville
- Viterbo University
- Weber State University
- Western Carolina University
- Western Michigan University
- Western Technical College
- Western University
- York University

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“After we became a Scholarship Provider, a group of FIRST alumni formed a new student club on campus – FIRST at Rice. The club is looking to build on the university’s longstanding commitment to EDI by focusing their activities on equitable engagement of students from traditionally marginalized identities. We look forward to our continued partnership with FIRST to create pathways for more students from diverse backgrounds to pursue STEM degrees and careers.”

— Yvette E. Pearson, Ph.D., associate dean of engineering, Rice University
**Program Delivery Partners**

*FIRST* is the vehicle by which young people of all backgrounds can discover a love of learning, hone their creativity, and unlock their full amazing potential. Our Program Delivery Partners work tirelessly to bring programs that keep STEM exciting and accessible to communities and classrooms around the world. This season was an unprecedented challenge for our partners, and they rose to meet it. The following key organizations in the field implement *FIRST* programs in their respective regions.

**ALBANIA**
EDUAct ●

**ALGERIA**
Robot Éducatif Algérie* ●

**ANDORRA**
Fundación Scientia ●

**ARGENTINA**
Playbots S.A.* ●

**AUSTRALIA**
Macquarie University ●●●

**AUSTRIA**
HANDS on TECHNOLOGY e.V. ●

**AZERBAIJAN**
Mars Academy* ●●

**BELGIUM**
Stichting Techniekpromotie ●●

**BOTSWANA**
Tswane University of Technology/FIRST South Africa ●

**BRAZIL**
Positivo ●
SESİ ●●

**CANADA**
ALBERTA
FIRST Robotics Society ● ● ●

**BRITISH COLUMBIA**
FIRST Robotics British Columbia ● ●●
Society for the Advancement of Young Scientists ●

**NEW BRUNSWICK**
Rothesay Netherwood School ●

**NEWFOUNDLAND AND LABRADOR**
FIRST Robotics Newfoundland and Labrador ●●

**NOVA SCOTIA**
Acadia University ●

**ONTARIO**
FIRST Robotics Canada ● ● ● ●

**QUEBEC**
Robotique *FIRST* Québec ●

**CHILE**
Fundación SparkTalents ●●

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**CHINESE TAIPEI**
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**COLOMBIA**
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**COLOMBIA**
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**COSTA RICA**
Zavod Super Glavce ●

**CYPRUS**
EDUAct ●
Epiteugma Training Center ●

**DENMARK**
FIRST Scandinavia ●

**DOMINICAN REPUBLIC**
Fundación para el Desarrollo de las Ciencias y la Tecnología ●●

**ECUADOR**
Centro Campus* ●●

**EGYPT**
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**ESTONIA**
MTÜ Robotika ●●

**ETSWATINI**
Tswane University of Technology/FIRST South Africa ●●

**ECUADOR**
Fundación Avanzada S.A.*

**FINLAND**
Robotiikka ●

**FRANCE**
West Side Robot Lab ●
Educabot ●

**GERMANY**
HANDS on TECHNOLOGY e.V. ●●

**GHANA**
CODERINA ●●●

**GREECE**
EDUAct ●

**GUATEMALA**
Computation Avanzada S.A.*

**HONG KONG, CHINA**
Semia Limited ●●●

**HUNGRY**
HANDS on TECHNOLOGY e.V. ●●

**ICELAND**
FIRST LEGO League á Íslandi ●

**INDIA**
InfinityX ●

**INDIA – NORTH**
India STEM Foundation ●●

**INDIA – SOUTH**
Edutech India Private Ltd. ●●

**INDIA – WEST**
Duck Learning ●●

*Local Partner Representative
FIRST LEGO League Explore ●
FIRST LEGO League Challenge ●
FIRST Tech Challenge ●
FIRST Robotics Competition ●
THANK YOU, FIRST VOLUNTEERS!

For over 30 years, FIRST volunteers have championed the game by cheering on our players, encouraging innovation and collaboration, and preparing them for the future. This season brought unprecedented challenges, and FIRST volunteers answered the call. They learned new systems, adapted to virtual events, and expanded their skillsets to deliver on the mission of FIRST and prepare the next generation of game changers.

We are proud to honor the 2020-2021 FIRST Volunteer of the Year Award recipients:

FIRST LEGO LEAGUE EXPLORE
Rick Ramhap (Long Island, NY), who partnered with School-Business Partnerships of Long Island to bring FIRST LEGO League Explore to Long Island.

Stephen Swartzentruber (Ontario, Canada), who was instrumental in training and recruiting volunteers, communicating with teams, and producing online events.

FIRST LEGO LEAGUE CHALLENGE
David Baran (Maryland), who ensured the virtual environment for competitions was optimized for the FIRST community to have the quality experiences they have at in-person events.

Sofia Ben Souda (Morocco), who was national head referee and translated many community resources and shared them with teams in her area.

FIRST TECH CHALLENGE
Thomas Barnette and Trey Woodlief (North Carolina), FIRST alumni who developed FIRST Tech Challenge Live, the official scoring software used at traditional and hybrid events, along with other resources for event management in collaboration with fellow volunteer developers.

FIRST ROBOTICS COMPETITION
David Greenley (Pennsylvania), who managed judges in conducting over 6,000 individual and team interviews and gave continued support to the judging process.

Peter Johnson (California), who has been a major contributor to WPILib, the software library provided for teams to write code for their robots.

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**INDONESIA**
PT Edukasi Kreatifitas Anak/CK Education

**IRELAND**
The Institution of Engineering and Technology (The IET)
FIRST Tech Challenge UK

**ISRAEL**
FIRST Israel & Technion

**ITALY**
Fondazione Museo Civico di Rovereto

**JAMAICA**
Jamaica College Foundation

**JAPAN**
FIRST Japan

**JORDAN**
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**KAZAKHSTAN**
USTEM Robotics Kazakhstan/Central Asia Robotics Development Foundation*

**KENYA**
CODERINA

**LATVIA**
MTÜ Robototika

**LEBANON**
Education and Technology Center

**LEBANON**
Tshwane University of Technology/FIRST South Africa

**LUXEMBOURG**
Stichting Techniekpromotie

**MALAYSIA**
Sasbadi Sdn Bhd

**MÉXICO**
RobotIX

**MONGOLIA**
Mongolia Robot Education Association

**MOROCCO**
Play Academy

**NETHERLANDS**
Stichting Techniekpromotie

**NEW ZEALAND**
FIRST New Zealand Trust

**NIGERIA**
CODERINA

**NORWAY**
FIRST Scandinavia

**OMAN**
ATLAB

**PAKISTAN**
STARIALL Foundation

**PARAGUAY**
Espacios de Ser S.A.*

**PHILIPPINES**
FELTA Multi-Media, Inc.

**POLAND**
ALE Nauczanie Foundation

**PORTUGAL**
Evoluir21

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*Local Partner Representative
FIRST LEGO League Explore • FIRST LEGO League Challenge • FIRST Tech Challenge • FIRST Robotics Competition
### National Partners

**Qatar**
- ATLAB
- Texas A&M University Qatar

**Korea**
- FEST (Federation for Education of Creative Science and Technology)
  - Local Partner Representative: Zavod Super Glavce

**United Arab Emirates**
- ATLAB
- ATLAB and AUS

**South Africa**
- Tshwane University of Technology/FIRST South Africa

**Spain**
- Fundación Scientia

**Sweden**
- FIRST Scandinavia

**Switzerland**
- HANDS on TECHNOLOGY e.V.

**Thailand**
- GAMMAACO
- The Prince Royal’s College

**Trinidad and Tobago**
- NIHERST

**Tunisia**
- Edurobot Tunisia

**Turkey**
- Bilim Kahramanlari Bulusuoyr (BKD)
- Fikret Yuksel Foundation

**Ukraine**
- Innovative Education Solutions

**United Arab Emirates**
- United Arab Emirates

**United Kingdom**
- The Institution of Engineering and Technology (The IET)
- FIRST Tech Challenge UK

**United States**
- ADVENTIST ROBOTICS LEAGUE
- Adventist Robotics League
- DODEA – EUROPE
- DoDEA – Europe
- NATIONAL SOCIETY OF BLACK ENGINEERS
- National Society of Black Engineers
- ALABAMA
  - FIRST in Alabama
- ALASKA
  - Juneau Economic Development Council
- FIRST Washington
- ARIZONA
  - Arizona State University
  - Coconuts Robotics
- ARKANSAS
  - Science and Technology Group Inc.
- CALIFORNIA – CENTRAL
  - Clovis Unified School District
- CALIFORNIA – LOS ANGELES
  - ALT-NEXT
- LA Robotics
  - Southern California Robotics League
- CALIFORNIA – NORTHERN
  - Playing at Learning
- CALIFORNIA – SAN DIEGO
  - Matt Nilsen
- CALIFORNIA – SOUTHERN
  - Southern California Robotics League
- COLORADO
  - Colorado FIRST
- CONNECTICUT
  - NE FIRST
- DELAWARE
  - Delaware State University
  - First State Robotics
  - FIRST Mid-Atlantic
- DISTRICT OF COLUMBIA
  - FIRST Chesapeake
  - James Madison University
- FLORIDA
  - Tampa Bay Robotics
- FLORIDA – CENTRAL
  - Renaissance Jax, Inc.
- FLORIDA – NORTHEAST
  - Renaissance Jax, Inc.
- FLORIDA – NORTHWEST
  - DEFENSEWERX
  - Inc.
- FLORIDA – SOUTH
  - Green Mouse Academy
- FLORIDA – WEST COAST
  - Hillsborough Community College
- GEORGIA
  - Georgia FIRST
  - Georgia Institute of Technology
- GUAM
  - SIFA
- HAWAII
  - Hawaii FIRST Robotics
  - Idaho
  - Regents of the University of Idaho
- ILLINOIS
  - Illinois FIRST Robotics
- INDIANA
  - Indiana FIRST, Inc.
  - Purdue Fort Wayne (PFW)
- IOWA
  - Iowa State University
  - University of Iowa
- KANSAS
  - FIRST in Missouri
- KANSAS – CENTRAL
  - Oklahoma Science and Engineering Foundation (OKSEF)
- KANSAS – KANSAS CITY REGION
  - KC STEM Alliance
- KANSAS – SOUTHWEST
  - Mid-America Air Museum/City of Liberal
- KENTUCKY
  - Northern Kentucky University
  - FTC in Kentucky, Inc.
- LOUISIANA
  - FIRST Louisiana- Mississippi
- MAINE
  - Robotics Institute of Maine
  - NE FIRST
- MARYLAND
  - FIRST Chesapeake
  - Rockville Robotics, Inc.
  - University of Maryland
  - Baltimore County
- MASSACHUSETTS
  - NE FIRST
  - WPI Robotics Resource Center
- NEVADA
  - FIRST Nevada
- NEW HAMPSHIRE
  - NE FIRST
- NEW JERSEY
  - FIRST Tech Challenge New Jersey
  - FIRST Mid-Atlantic
- MINNESOTA
  - High Tech Kids
  - Robotics Alliance of Minnesota
  - Center for Mathematics and Science Education/The University of Minnesota
- MISSISSIPPI
  - FIRST in Mississippi
- MISSOURI
  - FIRST in Missouri
- MISSOURI – EAST
  - St. Louis Community College
  - Florissant Valley
  - FIRST in Missouri
- MISSOURI – KANSAS CITY
  - KC STEM Alliance
- MONTANA
  - College of Engineering, Montana State University
  - Ed Huth
- NEBRASKA
  - University of Nebraska
  - Lincoln 4-H Youth Development
- NEVADA
  - FIRST Nevada
- NEW HAMPSHIRE
  - NE FIRST
- NEW JERSEY
  - FIRST Tech Challenge New Jersey
  - FIRST Mid-Atlantic
- MICHIGAN
  - FIRST in Michigan
  - Marygrove College
  - Science Olympiad of Michigan
Matt Fagen, Mentor, FIRST Robotics Competition Team 4253 “Raid Zero,” Taipei

Dr. William Murphy founded The Woodie Flowers Award (WFA) in 1996 to recognize mentors who lead, inspire, and empower using excellent communication skills – starting with Dr. Woodie Flowers, FIRST Distinguished Advisor, who defined what it means to be a mentor and an effective communicator in the art and science of engineering and design. Following in Woodie’s footsteps, WFA winners serve as valued advisors to FIRST.

The 2021 WFA was awarded to Matt Fagen, director of robotics at Taipei American School and mentor to FIRST Robotics Competition Team 4253 “Raid Zero” from Taipei. He has mentored the team to success for a decade, and also established a STEM center there. With a degree in physics and another in music composition, Matt is the consummate communicator with words, music, and actions. The students from Raid Zero describe their mentor as “the conductor that breathes life into our orchestra ... made of innovators, thinkers, designers, programmers, engineers, and dreamers.”
In FY2020, the COVID-19 pandemic caused the suspension of our season and cancellation of FIRST Championship, which significantly decreased our revenues, leading to an operating deficit for the first time in over 17 years.

In FY2021, we focused our financial efforts on sustaining our community and participation in our programs through investments in key program modifications, remote activities, hybrid event solutions, and supporting tools and services. Unfortunately, reduced participation resulting from delayed pandemic recovery and lingering impacts did cause us to incur a financial loss for the year. Similar to FY2020, we were able to continue to strategically manage our expense footprint while simultaneously pivoting and investing in needed program modifications, as well as several key initiatives such as our Youth Protection Program, Information Technology, Program Evaluations, Diversity & Inclusion Program, and Education Initiative.

Support from generous contributors remained strong, as many individuals, small businesses, corporations – including over 200 of the Fortune 500 companies – and foundations maintained or increased their support. In addition, many of our contributors also provided significant support in the way of unrestricted donations, providing FIRST with important flexibility to manage the pandemic impacts and address our most important business needs. This contributed support continued to provide meaningful experiences to hundreds of thousands of youth engaged worldwide in the FIRST progression of programs.

As noted in the pie chart below, and in keeping with long-time practices, FIRST continues to apply the maximum percentage of funds possible to directly benefit FIRST participants. Despite disciplined cost controls, we experienced a slight increase in G&A expenses over previous years due to reduced program participation. Included within the modest G&A expenses are several significant investments in infrastructure enhancements, including those noted.

See Financial Statements, page 38.
### Statements of Activities

<table>
<thead>
<tr>
<th>Revenues and other support:</th>
<th>JUNE 30, 2021</th>
<th>JUNE 30, 2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Program registration fees</td>
<td>5,789,688</td>
<td>15,091,513</td>
</tr>
<tr>
<td>Contributions and grants</td>
<td>4,343,936</td>
<td>11,896,431</td>
</tr>
<tr>
<td>Other income</td>
<td>596,476</td>
<td>1,017,589</td>
</tr>
<tr>
<td>Special event income, net of expenses</td>
<td>-</td>
<td>424,659</td>
</tr>
<tr>
<td>Net assets released from restrictions</td>
<td>36,703,128</td>
<td>39,856,978</td>
</tr>
<tr>
<td><strong>Total revenues (losses) and other support</strong></td>
<td>$47,433,228</td>
<td>$68,287,170</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Expenses:</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>FIRST Program Expenses</td>
<td>38,807,648</td>
<td>57,950,115</td>
</tr>
<tr>
<td>Net cost of building space occupied by unrelated not-for-profit organizations</td>
<td>245,537</td>
<td>320,651</td>
</tr>
<tr>
<td>General, administrative, and supporting services</td>
<td>6,926,858</td>
<td>8,330,803</td>
</tr>
<tr>
<td>Fundraising and Development</td>
<td>2,090,659</td>
<td>2,400,224</td>
</tr>
<tr>
<td><strong>Total expenses</strong></td>
<td>$48,070,702</td>
<td>$69,001,793</td>
</tr>
<tr>
<td><strong>Operating surplus (deficit)</strong></td>
<td>(637,474)</td>
<td>(714,623)</td>
</tr>
</tbody>
</table>

### Statements of Financial Position

<table>
<thead>
<tr>
<th>Assets:</th>
<th>JUNE 30, 2021</th>
<th>JUNE 30, 2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash and cash equivalents*</td>
<td>35,631,704</td>
<td>42,609,063</td>
</tr>
<tr>
<td>Short-term investments*</td>
<td>16,500,000</td>
<td>8,250,000</td>
</tr>
<tr>
<td>Pledges, receivables, program supply inventory, and other assets</td>
<td>11,416,654</td>
<td>15,932,819</td>
</tr>
<tr>
<td>Net property, plant, and equipment</td>
<td>4,517,153</td>
<td>5,221,972</td>
</tr>
<tr>
<td><strong>Total assets, end of year</strong></td>
<td>$68,065,511</td>
<td>$72,013,854</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Liabilities and net assets:</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Total liabilities, end of year</td>
<td>$8,544,094</td>
<td>$9,133,145</td>
</tr>
<tr>
<td>Net assets:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unrestricted</td>
<td>28,040,103</td>
<td>28,677,577</td>
</tr>
<tr>
<td>Temporarily restricted</td>
<td>31,481,314</td>
<td>34,203,135</td>
</tr>
<tr>
<td><strong>Total net assets, end of year</strong></td>
<td>$59,521,417</td>
<td>$62,880,712</td>
</tr>
<tr>
<td>Total liabilities and net assets, end of year</td>
<td>$68,065,511</td>
<td>$72,013,857</td>
</tr>
</tbody>
</table>

For each of the two fiscal years summarized above, FIRST received unmodified (unqualified) opinions from its independent auditor, BerryDunn.

NOTE: The cash and short-term investments are comprised of both unrestricted funds and donor temporarily restricted funds. The increase in restricted funds includes pre-payments of future restricted sponsorships from certain grantors. The total liquid assets balance available to FIRST for operating purposes, at June 30, 2021, is equivalent to approximately seven months of FIRST operating expenses.

The financial information presented here is condensed and does not include the value of all donated services and materials. Audited Financial Statements (AFS) are readily available on our website at www.firstinspires.org under “About/Annual Report & Financials.”

### Leadership

**BOARD OF DIRECTORS**

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Former Chairman & CEO, Rockwell Collins and CEO, Collins Aerospace

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Technology Venture Partners, General Partner

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Former Chief Executive Officer & President, NXP Semiconductors

Dr. Laurie Leshin **VICE CHAIR**  
President, Worcester Polytechnic Institute

Dr. Vincent Wilczynski **TREASURER**  
Deputy Dean, Yale School of Engineering & Applied Science & James S. Tyler Director of the Center for Engineering Innovation & Design, Yale University

Dean Kamen **FOUNDER**  
President, DEKA Research & Development Corporation

John E. Abele  
Founding Chairman, Retired, Boston Scientific Corporation

Ursula Burns  
Senior Advisor, Teneo Ltd.

Leanne G. Caret  
President & Chief Executive Officer, Boeing Defense, Space & Security

Dr. Robin N. Coger  
Dean, College of Engineering, North Carolina Agricultural and Technical State University (A&T)

Karen Horting  
Executive Director & CEO, Society of Women Engineers

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Chairman & Chief Executive Officer, XCOM Labs, Inc.

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Former Executive Vice President & Chief Strategy Officer, Genworth Financial

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Chairman & CEO, Rockwell Automation

David Siegel  
Co-Chairman, Two Sigma

Dr. Melissa Smith  
Staff User Experience Researcher, Google/YouTube

Raj Subramaniam  
President, Chief Operating Officer and Director, FedEx Corp.

Listing current as of December 1, 2021
LEADERSHIP CONTINUED

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Executive Vice President, Retired, Chrysler Corporation

L. John Doerr III  
Chairman, Kleiner Perkins Caufield & Byers

Gary L. Tooker  
Chairman of the Board, Retired, Motorola, Inc.

James R. Utaski  
FIRST CHAIRMAN: 2000-2002  
Corporate Mergers & Acquisitions Officer, Retired, Johnson & Johnson

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President, Rensselaer Polytechnic Institute

Kjeld Kirk Kristiansen  
Deputy Chairman of the Board, LEGO Foundation & KIRKBI A/S

Dr. William P. Murphy, Jr.  
Founder, Cordis Corporation

Steve Sanghi  
Chairman of the Board, President & Chief Executive Officer, Microchip Technology, Inc.

The Honorable Jeanne Shaheen  
United States Senator, New Hampshire

Josh S. Weston  
Honorary Chairman, Automatic Data Processing, Inc.

EXECUTIVE ADVISORY BOARD

Dr. Woodie Flowers (1943-2019)  
EAB CHAIR EMERITUS & DISTINGUISHED ADVISOR

Kevin Ross  
CO-CHAIR  
Founder, FIRST Washington

Heidi Sipe  
CO-CHAIR  
Superintendent, Umatilla Public Schools

Charlie Ackerman  
Senior Vice President – Human Resources North America, Robert Bosch LLC

Ray Almgren  
Chief Operating Officer, Swift Sensors, Inc.

Gail Alpert  
President, FIRST in Michigan

Susie Armstrong  
Senior Vice President of Engineering, Qualcomm

Mark Bredner  
Co-Founder and Former President, FIRST Canada

Cosima (Connie) Crawford, P.E.  
Director of P3 Rail, Itineris Infrastructures and Concessions

Greg Hale  
Vice President & Chief Safety Officer, Walt Disney Parks & Resorts

Luan Heimlich  
Manager, Technology-based Outreach, Department of Engineering, Macquarie University

Jahmy J. Hindman  
Chief Technology Officer, Deere & Company

James E. Heppelmann  
President & Chief Executive Officer, PTC

Kent H. Hughes  
Public Policy Scholar, Woodrow Wilson International Center for Scholars

Esben Stærk Jørgensen  
President, LEGO® Education

David Lavery  
Program Executive for Solar System Exploration, NASA

Ceci Neumann  
Independent Law Practice Professional

Chuck Harris  
Senior Director, IT and Software Development

Learn more about FIRST Leadership at firstinspires.org/about/leadership
**FIRST® is a robotics community preparing young people for the future.**

**VISION**

“To transform our culture by creating a world where science and technology are celebrated and where young people dream of becoming science and technology leaders.”

– Dean Kamen, FIRST Founder

**MISSION**

To inspire young people to be science and technology leaders and innovators, by engaging them in exciting mentor-based programs that build science, engineering, and technology skills, that inspire innovation, and that foster well-rounded life capabilities including self-confidence, communication, and leadership.

**IMPACT**

For three decades, FIRST participants have developed self-confidence in STEM, meaningful friendships, and valuable, real-world skills that open pathways and help young people build a better future. FIRST programs are proven to encourage students to pursue education and careers in STEM-related fields, but they also inspire kids to become leaders and innovators in any industry.