SCITECH INSTITUTE

2022/23 Season

COMMUNITY REPORT

SCITECH INSTITUTE
22/23 COMMUNITY REPORT

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CHIEF SCIENCE OFFICERS

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The Chief Science Officers program is a collaborative initiative of: ARIZONA COMMERCE AUTHORITY   ARIZONA TECHNOLOGY COUNCIL a place to connect and grow

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KACI FANKHAUSER AND CLAIRE CONWAY
SciTech Institute STEM Ecosystem Co-Directors

This past year has been one of opportunity and collaboration, starting with us combining forces as SciTech's STEM Ecosystem Co-Directors! This development has better allowed us to take the concept of the Ecosystem and nurture exciting new growth!

Speaking of growth, we'd like to highlight our new partners who help make access to STEM in Arizona and beyond possible. A special thanks to the Arizona Community Educators group, Arizona Western College, Digital Equity, PULSE Summit, PEAC, Next Education Workforce, and the Arizona STEM Acceleration Project (ASAP). Together, we have worked to activate the AZ STEM Ecosystem network as a united team to effect positive change.

While there are many projects and programs that fall under the STEM Ecosystem, we'd love to share some of our favorites from this past season:

- Formed new connections in southern Arizona through community-driven events like the *Professionals and Educators Around Cochise* and the *Principals Understanding Leadership in Science Education* summit.
- Hosted three hybrid professional development sessions for AZ STEM Acceleration Project (ASAP) fellows across the state.
- Developing a charter so SciTech Institute and regional STEM leader organizations can collaboratively identify state priorities and roll out related initiatives locally, allocate resources from the state level to "on the ground" organizations, and align efforts statewide.
- Engaged Workforce Boards in conversations about STEM pathways - especially for K12.
- Launched STEM Hubs and statewide Working Groups to connect STEM partners around the state, and four new STEM Hub Coordinators added in Coconino, Pima, Pinal, and Yavapai Counties!
- SciTech Festival partnered with Valley of the Sun YMCA to launch a new signature event at 10 YMCA locations in the Phoenix area and a YMCA in Flagstaff. These "SciTech Adventures" also introduced a new way for school events to be recognized as part of the Festival.

While there is much to love about what we do, one of the best parts is watching these communities continue to create, grow, and thrive through the magic of STEM. We can't wait to see what doors it continues to open.

Sincerely,
Kaci Fankhauser and Claire Conway
SciTech Institute STEM Ecosystem Co-Directors

JEREMY BABENDURE
Executive Director,
SciTech Institute

While nothing is impossible, it's still hard to believe this is my 13th year with SciTech Institute. Looking at where we started to where we are, I'm proud of what we've built and the supporters who brought us here.

Thank you to our sponsors who financially supported our work this past year. A special thanks to the Festival's Presenting Sponsor - Cox Communications, Platinum Sponsor - Arizona Commerce Authority, and Gold Sponsors - Arizona Board of Regents, KEO Marketing, MAC6, and AccountabilIT.

We're excited to support Arizona's STEM workforce and announce two new platinum sponsors. The Office of Economic Opportunity and USAA are helping us better connect with workforce boards and the computer science education community, respectively. Additionally, Arizona Community Foundation's continued support of the Arizona SciTech Ecosystem has helped us grow regional STEM Hubs and Working Groups statewide. Thanks to AVNET for supporting our STEM Little Free Libraries and Infosys for championing our Digital STEM Career Days.

In addition, our ongoing Platinum Sponsor AVNET also supports Chief Science Officer program expansion while the Arizona Department of Education sustains our work through ESSER funding at the platinum level. State Farm and Arizona Board of Regents provide generous support for CSOs at the Gold level. Thanks to our organizational supporters - Arizona Technology Council, Arizona Commerce Authority, ASU School for the Future of Science in Society, AccountabilIT, MAC6, and Fennemore Craig.

From our SciTech Festival organizers, exhibitors, and volunteers supporting events, to CSO advisors, parents, cabinet leads, and the Arizona Ecosystem STEM organizations & professionals, you have elevated the importance of STEM for all. The Arizona SciTech Festival and CSOs together impacted over 200,000 people this year! Also, thanks to our SciTech Institute team for their efforts to share their passion for STEM statewide.

Lastly, I'm thankful to our Board for their diligence and encouragement. Through their efforts, SciTech Institute leads one of the nation's largest Science Festivals, hosts a national Rural STEM "ecosphere," and spearheads the international Chief Science Officers Initiative. They too understand the draw to this work is that it's ever-evolving and never boring—now that would be impossible!

With gratitude,
Dr. Jeremy Babendure
Executive Director
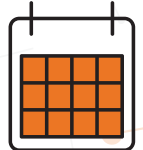
SCITECH INSTITUTE SNAPSHOT

80 sponsors

50+ Arizona SciTech Festival **SIGNATURE EVENTS**

200,000+ **IMPACTED BY CSO ACTION PLANS**

479 **STEM ECOSYSTEM MEMBERS STATEWIDE**

REPRESENTING BUSINESS, INDUSTRY, NONPROFIT ORGANIZATION, AND EDUCATION

Number of U.S. states with CSOs **15**

Number of countries with CSOs **6**

2,000+ STUDENTS and **53 CLASSROOMS** engaged in **DIGITAL CAREER DAYS**

14,414 vetted **event & resource** listings

CONNECTING THE STEM COMMUNITY

Arizona STEM Ecosystem

The Arizona STEM Ecosystem is a collaborative grassroots network of over 900 partners across the state. It engages all aspects of our communities – educational institutions from preschool through college, libraries and community centers, science centers and museums, local businesses, city and town governments, and more – harnessing the unique contributions of each sector in symbiosis to support a rich array of STEM opportunities for learners of all ages.

" As we've all learned in biology class, living things thrive in a healthy ecosystem. The same is true for learning, especially for STEM learning. For Arizona students to thrive, they need a robust STEM ecosystem, abundant with the most advanced curriculum and instructional materials, teaching practices, and deep experiential opportunities drawn from the best schools, classrooms, science and technology enterprises, engineering and research labs, and universities across the state. Arizona is rich with STEM resources, and knowing that, SciTech Institute is building, strengthening and nourishing this ecosystem so we can offer world-class STEM education across every community in our state. No one is as well-positioned to do this as SciTech Institute. "

— STEVE SELEZNOW, PRESIDENT & CEO, ARIZONA COMMUNITY FOUNDATION

2022/23 ARIZONA SCITECH ECOSYSTEM SPONSORS

Platinum Sponsor

ARIZONA COMMUNITY FOUNDATION

Gold Sponsor

USAA®

Silver Sponsors

PICOR

GALACTIC

2022 STEM & INNOVATION SUMMIT

As the annual convening of the Arizona STEM Ecosystem, the STEM & Innovation Summit provides a unique opportunity to explore the incredible STEM opportunities in our state. This year the 12th annual STEM & Innovation Summit welcomed hundreds of guests from education, industry, government, and community organizations to the Arizona Science Center to connect, collaborate, and celebrate with the STEM leaders of today and the future.

HIGHLIGHTS

- **41** In-person & workshops
- **4** Online sessions
- **86** Presenters
- **67** Exhibitors
- **850** Attendees

SESSION HIGHLIGHTS

- **Arizona's Expanding Workforce**
- **Mayor STEM Roundtable** (hybrid)
- **Reflections on Taking Up Space & Mentoring**
- **Expanding Access in Arizona and Beyond**
- **Everyone Can Be a Scientist Panel**

SPONSORS

PREMIERE Cox, 7x24 Exchange

GOLD Office of the Maricopa County Superintendent Steve Watson, ASU College of Global Futures, Messner Reeves LLP

SILVER GM, Arizona Telemedicine Program, AVNET, ASU Center for Innovation in Informal STEM Learning

NETWORKING AVENT, ASU STEM Acceleration Project, Garmin

ARIZONA'S STEM ECOSYSTEM DEVELOPMENT

The Arizona STEM Ecosystem is organized into regional STEM hubs and statewide Working Groups that connect communities, share resources, align STEM efforts, and ultimately build Arizona's future STEM workforce. As the Ecosystem's backbone organization, SciTech Institute fosters community leadership, coordinates Hub and Working Group engagement, connects partner organizations, and develops key resources to guide STEM efforts in Arizona.

22/23 KEY DEVELOPMENTS

- Onboarding 4 part-time Hub Coordinators in Coconino, Yavapai, Pima, and Pinal Counties

- Development of an Arizona STEM Ecosystem Charter to align efforts and boost collaboration among AZ STEM leaders around the state

- Launch of the first West Valley STEM Hub Steering Committee

- Participation in our first 2 statewide Hub projects – implemented locally through the support of the hub coordinators

- Development of 5 adaptable Hub models to fit local goals and strategies
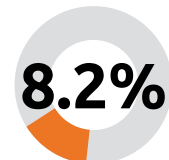
GET INVOLVED: bit.ly/stemecointerest

ARIZONA COMMUNITY FOUNDATION

296 ORGANIZATIONS
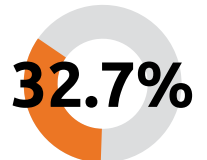Represented by Hub and Working Group members

5 WORKING GROUPS

As a result of participating, ecosystem members have reported the following outcomes (N61):
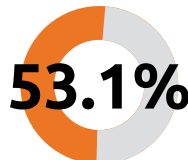
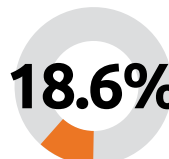**53.1%**
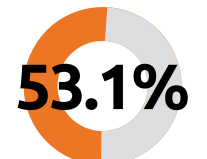Saw an increase in collaboration

8.2%
Increase in student participants

32.7%
Learned about new funding

30.6%
Participated in professional development

18.6%
Procured new equipment of materials

53.1%
Partnered with other ecosystem members

STEM Ecosystem Hubs

The SciTech team is working to engage STEM organizations and community members across the state in 14 Regional Hubs. Hubs allow ecosystem members to focus on their local needs and assets, connect local resources and dive deeper into community-based opportunities and goals. They encourage creative cross-collaboration between sectors and highlight non-traditional STEM spaces and opportunities.

6 HUBS : 344 MEMBERS : 4 STEM HUB COORDINATORS
facilitating local STEM connection

PIMA

- Follow up to the June 2022 Principals Understanding Leadership in Science Education summit held at Pima Community College focused on developing and implementing both lateral and longitudinal assessment metrics for the participants.

- Meeting with the Arizona Science Center to discuss plans for expanding this Summit to a statewide level.

- Actively distributing the Digital Equity surveys to as many stakeholders as possible.

- Began cultivating a community educator hub in the county by introducing dedicated community educator organizations and subject matter experts to teachers and classrooms.

- Initiated planning for a fall 2024 STEM Workforce & Student Engagement summit that will bring together 8th and 9th grade students, college STEM majors, and STEM workforce professionals for career identification, career development, and professional networking.

- Expansion of the STEM ecosystem in Coconino, Yavapai, and Pinal counties.

WEST VALLEY

In 2022, the West Valley STEM Hub was the first to launch an official Steering Committee, a team of dedicated leaders from education, industry, workforce, and community organizations that works together to support STEM in the West Valley. The committee is currently developing an open directory of partners to connect STEM resource seekers and resource providers in the community.

PINAL

The Pinal County Hub is beginning to take shape. SciTech Institute, ARIZONA@WORK, Central Arizona Community College, and CAVIT are in the preliminary stages of planning a Workforce Pathways Summit. There are initial discussions about a future Pinal County World Fair event in Casa Grande as well.

YAVAPAI

Over the summer, Yavapai County residents took part in river cleanups, beautiful hikes, and our world-famous rodeo. This Ecosystem Hub is slowly growing and will see its first hub-wide meeting this Fall, as well as new projects developing in the Prescott and Verde Valley areas.

COCONINO

This quarter, SciTech in Coconino County has continued to make connections and connect other organizations within the Flagstaff Area. The regular classes at Tynkertopia have continued to support STEM education to kids in the local neighborhood. CSO recruitment was also a focus with the Upward Bound Math & Science Program (students from Northern Arizona) and to students from the Flagstaff area.

EAST VALLEY

The East Valley STEM Alliance (EVSA) was co-chaired by the Arizona Educational Foundation and held 10 meetings in the 2022-2023 season. Four of the 10 meetings were hosted in-person by fabulous EVSA member organizations: Chandler Unified School District, East Valley Institute of Technology – Power Campus, Porter Elementary (Mesa Public Schools), and Apache Junction Public Library. The group continues to grow, with over 170 members on the mailing list. About 35% of the members are from business and industry, 20% from PK12, 20% from nonprofit, and 25% from a mix of government, higher education, and community volunteers.

WORKING GROUPS

Statewide STEM Ecosystem Working Groups foster conversation and collaboration across regional boundaries around specific topics. Working Group members meet quarterly or monthly to collaborate on opportunities such as professional development, resource sharing, and grant and sponsorship proposals. The Arizona STEM Ecosystem currently supports Working Groups on the topics of Diversity, Equity, & Inclusion in STEM; Sustainability Education & Outreach; STEM Workforce; STEM in Libraries; and Pre-College STEM Programs.

Diversity, Equity, & Inclusion in STEM

113 MEMBERS

- Resource swaps and discussion topics on: Black/African American and gender minorities in STEM

- Cultivation of a quarterly calendar focusing on minority groups, including the LGBTQ+, & disability communities, and national heritage months

Sustainability Working Group

74 MEMBERS

- Three professional development workshops offered in conjunction with ASU Sustainability Teachers Academies

- Arizona's Energy Future (November) at the ASTA annual conference

- **Waste Not Arizona (January) at FABRIC - Fashion and Business Resource Innovation Center**

- Water (February) at Watershed Management Group

Pre-College STEM Program Working Group

24 MEMBERS

- Launched through the National Science Foundation

- Includes' STEM Push project. SciTech has been invited to take on an even greater role with the STEM PUSH network

- A college admissions survey that included follow-up discussions identified that high school counselors have high work stress and need more resources to dedicate to college/postsecondary counseling

STEM in Libraries Working Group

63 MEMBERS

- Co-chaired with the Arizona State Library

- Increasing focus on AZ librarian-led professional development in 2023 with topics covering collaboration with STEM professionals, Outdoor STEM, summer programing, and AI

Workforce Working Group

77 MEMBERS

- Quarterly meetings featuring several guest speakers including a high school work-study program, WESTMARC, the Arizona Educational Foundation, and GenTech

ARIZONA SCITECH festival

The Arizona SciTech Festival is a statewide celebration of STEM that aims to inform, engage, and inspire all Arizonans. Held in the spring every year, the Festival advances STEM awareness and highlights its economic importance by offering participants a variety of events and hands-on experiences delivered through Arizona STEM Ecosystem collaborators. Festival events also provide a grassroots strategy for business, education, community and government organizations within hubs and working groups to share the importance of STEM with the public.

I LOVE SCIENCE DAY

INFORMAL ED

- I Love Science Day
- Expedition Days
- Ancient Technology Day: Prehistoric & Historic
- BGCS Makers Fair
- Jacks N Snacks: The Science of Exercise and Nutrition
- 8th Annual Hands On STEM Fair
- Earth Day 2023
- MESA Day STEM Expo
- (Lake Havasu) Working Together Wednesday w/ PBS

EVENTS FROM THE 2022/2023 SEASON

GILA VALLEY HEALTH AND STEAM FESTIVAL

POSTSECONDARY

- ASU Open Door - All Campuses
- STEMtacular Signature SciTech Event w/ Planetarium
- Gila Valley Health and STEAM Festival Midwestern University Health Sciences Career Day
- Science City at the Tucson Festival of Books
- Gila County STEM Fest
- AmFam STEM Event at ASU Downtown (Thunderbird)
- GCC STEM Spring Fling
- Girls in STEM Day

ARIZONA RENAISSANCE FESTIVAL

SNEAKY SCIENCE

- El Mirage Public Safety Day
- Arizona Renaissance Festival - Time Traveler Weekend
- Arizona Renaissance Festival - Wizards & Wonder Weekend
- Verde Valley Comic Expo

SCITECH INSTITUTE

K12

- STEM Night
- Math and Science Night
- Desert Harbor Elementary STEAM Night
- Sequoia Pathfinder Academy STEAM Night
- Wilson K-8 School STEAM Night
- EVIT Expo 2023
- Laguna Elementary STEAM Night
- Benson Primary School STEAM Night 2023
- ACP High School STEAM Knight
- Black Mountain Elementary School Science Night
- Agua Fria Union STEMCon
- Union Park School STEAM & Stars Night
- Sunland STEAM Academy STEAM Night
- The Super Cool Kenilworth School STEAM Exhibition
- Copperwood Elementary STEAM Night
- Zaharis STEAM Showcase
- Sahuarita SciTech Festival
- Canyon Ridge Annual STEM Festival
- Desert Sunset Spring Carnival
- STEAM Festival - Advance U Preschool and Elementary

- Legend Springs STEAM Night 2023
- Mountain Trail Earth Day Festival
- STEAM Night at Porter Elementary
- Desert Meadows Science Fair
- Red Mountain STEM Institute Design Showcase
- Canyon Springs Family STEM Night FREE
- Rio Vista Starry STEAM Night
- Sierra Verde STEAM Night 2023
- Día De Los Ninos
- Asante Preparatory Academy STEM Night
- Heritage STEAM Elementary - Spring Family STEAM Night
- Western Peaks Elementary Innovation Showcase Night
- Dove Mountain CSTEM K8
- (Lake Havasu) Smoketree Elementary School Science Night
- Broadmor STEM Night
- Palm Lane STEAM Night
- Madison Camelview STEM Night

CITY / COMMUNITY EVENTS

- Family SCIFest
- Buckeye Air Fair
- Chandler Innovation Fair
- Regional SciTech FestPrescott
- World Water Day Festival

BUCKEYE AIR FAIR

> **State Farm is proud to sponsor the SciTech Institute. With each volunteer opportunity, employees see first-hand the impact SciTech is making in the community. Students can send postcards to a space station, learn the fundamentals of physics with inexpensive cardstock marble runs and flying birds, and build coding skills through robotics activities. No matter their location, socioeconomic status, or learning ability, the SciTech Institute removes barriers, so all students have access to STEAM activities.**
>
> **– STACIE WYLIE**
> Corporate Responsibility Analyst

NUMBER OF PEOPLE REACHED THROUGH EVENTS

235,000+

50+ signature events

18 online signature events

50+ Arizona cities, towns and communities
hosted or planned to host STEM-related events this season

28 sponsors

Number of host collaborators **38**

Visitors that recommend Arizona SciTech Festival events

100%

> **As a long-standing sponsor of the Arizona SciTech Festival, Cox Communications understands the importance of furthering the growth of our STEM culture in Arizona and encourages STEM-based education for students of all ages. By investing in efforts like the SciTech Festival, we can inspire students to explore STEM careers, and help create a brighter future for our communities.**

– SUSAN ANABLE, VICE PRESIDENT OF PUBLIC AND GOVERNMENT AFFAIRS, COX COMMUNICATIONS

SCITECH INSTITUTE

VISITOR DATA

VISITOR LEARNING AT EVENTS

Learned something new **100%**
Felt inspired by something they did **95%**
More aware of the types of careers related to STEM **95%**

VISITOR EXPERIENCE

Recommended **100%**
Had fun with STEM **100%**
Met expectations **100%**

AS A RESULT OF ATTENDING VISITORS...

Talked about the event with others **94%**
Did activities related to a festival topic **79%**
Looked for more info about a festival topic **61%**
Followed up with an org they met at the event **48%**

COLLABORATOR DATA

COLLABORATORS' EXPERIENCE THIS SEASON

Grew their relationship with SciTech this season **100%**
Same or better **96%**
Felt objectives were met **95%**
Intend to participate next year **95%**

AS A RESULT OF ATTENDING COLLABORATORS

Increased our organization's confidence in
interacting with public audiences **87%**
Follow-up phone calls **82%**
Opportunities for new partnerships with local
academic, civic, cultural or private partners................. **69%**
Follow-up visits.. **53%**

PRIMARY VALUE OF PARTICIPATION

Increased awareness **65%**
Increased collaboration **60%**
Increase attendance **55%**
Increased engagement **50%**

PRIMARY VALUE OF THE FESTIVAL

Encouraging STEM in Arizona **85%**
Networking **45%**
Exposure for my company **45%**
Working towards a common vision **40%**

100% of returning visitors said this year was the same or better

42% said this was their first event attending

OF EVENTS ATTENDED BY VISITORS

61% **31%** **8%** +

VISITOR RACE

51% White
24% Hispanic or Latino
21% Asian
12% Prefer not to answer
9% Black
3% American Indian or Alaskan Native
3% Pacific Islander

VISITOR EDUCATION

64% Post-secondary
18% High school
9% Associate/Technical
9% Some K-12

VISITOR GENDER

76% Female
21% Male
3% Prefer not to answer

ORGANIZATIONS REPRESENTED

44% School system
19% Community-based
11% Business
11% University or Community College
7% Unknown
4% Cultural organization
4% Municipality

BROADENING STEM IN ARIZONA

The SciTech Ecosystem works to increase access to STEM learning and engagement opportunities for all Arizonans with an emphasis on undeserved students and rural communities.

2022/2023 Season Highlights of RAIN Regional Innovation Councils (RIC)

RAIN — rural activation and innovation network

The RAIN Project has successfully transitioned from the National Science Foundation-supported program to local organizations and leaders with support from Arizona Science Center and Project Manager Kal Mannis.

- In **Cochise County**, Bisbee Science Lab provides quality STEAM programming for all ages, such as Science Fridays, a Robotics Club, and a Tinkerspace. Its Ski Island STEAM Express mobile lab has visited 25 Southern Arizona schools and engaged more than 11,000 students. Next up is a community learning space.

- The Eastern Arizona STEM Alliance (EASI) in **Graham/Greenlee Counties** engages Eastern Arizona youth in two summer science camps. The Chauncey Ranch STEM Camp hosts 7th-10th graders for four days and three nights. The EASI Summer Science @ EAC Discovery Park provides three days of hands-on STEM activities.

- The White Mountain Nature Center inspires **Apache** and **Navajo County** residents through nature-based events. Events include an ongoing Raptor Show, interactive exhibits, and numerous nature hikes. The center also supports local events such as the White Mountains Balloon Festival and Concert, White Mountain Spring Carnival, and many other community & family-focused events.

- Science Vortex, **Verde Valley**'s STEAM center, offers families, schools, and tourists MakerSpace Family Nights, Little Learners Lab and Weekly STEM activities, an Augmented Reality Topographic Sandbox, a Rocket Launcher station, and a Rube Goldberg Corner, among others.

Supporting STEM workforce training for hard hit communities

Through the CSO and other SciTech Institute programs, Science for All, LLC (SFA) is fostering development of diverse, high-tech talent through STEM events, career interest, awareness and engagement opportunities. These experiences enable youth to gain critical workforce employability skills and the experience necessary to help them become not only STEM professionals but engaged citizens well into the future.

As an Arizona Qualifying Charitable Organization, SFA provides Arizona donors a full state tax credit ($400 single / $800 married).


SCIENCE FOR ALL

$48,000

TOTAL DOLLARS RAISED FOR THE 22/23 FISCAL YEAR.

# AZ HACS (Arizona Hubs Advancing Computer Science)

This National Science Foundation-supported program is strengthening computer science / computational thinking (CS/CT) in Arizona's rural K-8 schools. The project, funded through June 2023, focused on integrating CS/CT initiatives in three participating partner schools and sustaining the project beyond NSF support. Ongoing efforts include:

NSF AWARD #2031527
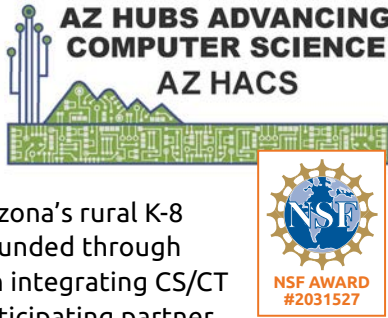
- Teams establishing ongoing CS/CT professional development (PD), including using Minecraft™ and other technology tools across the curriculum

- Pomerene Elementary hiring a dedicated K5 Technology Teacher

- Stanfield Elementary creating a dedicated technology learning time for K-8 students through its library

- Sequoia Village School participants advocating for the administration to implement an identity shift from a back-to-basics school to a STEM school. They will be the first STEM campus in their region beginning in the 2023-2024 academic year.

Building Capacity

This National Science Foundation-supported project has offered diversity, equity, inclusion, and accessibility (DEIA) training for Arizona Museum of Natural History, Arizona Science Center, I.D.E.A. Museum, and Pueblo Grande Museum staff, as well as helped the organizations establish more inclusive exhibits and programs for visitors on the Autism Spectrum.
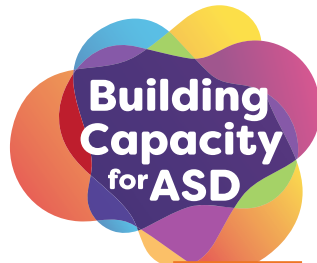
Lessons learned include:

Building Capacity for ASD

NSF AWARD #2005901

- DEIA training supports more inclusive environments and staff that provide a more pleasant experience for all patrons

- Supportive, interactive staff and accommodations promote inclusion

- Many autistic adolescents appreciate and learn the most from hands-on exhibits

- Autism-only nights, negative interactions with staff, poor signage, and negative impressions from other patrons do not promote inclusion and can alienate neurodiverse patrons

- Negative staff experiences were most often related to the lack of interaction or failure to accommodate the participant

- Importantly, this project has demonstrated supporting individuals with differing abilities in public places creates a positive model for their peers and promotes tolerance and acceptance

STEM Little Free Libraries (LFLs)

Little Free Libraries (LFLs) are petite, community-driven book exchange hubs that promote the "take a book, return a book" ethos. This year, through a collaboration between SciTech Institute, AVNET, and the Literary Society of the Southwest, LFLs across Arizona got STEMified with monthly, free take-home STEM kits. Kits were distributed to 12 LFLs across various counties, including Mohave, Navajo, Graham, Yavapai, Maricopa, and Coconino. Furthermore, 25 kits were delivered to five schools in Apache, Coconino, and Navajo Counties throughout the school year. Over 3,000 kits were distributed this past year, and 250-300 kits continue to be distributed across the state every month thanks to our partnership with AVNET.

DIGITAL ENGAGEMENT AND COMMUNICATIONS

The Institute continues to support connections within the STEM Ecosystem through media partnerships and innovative digital communication strategies.

Digital STEM Career Day

SciTech Institute piloted school-wide virtual STEM career days with Arizona Title I, K-8 schools. Digital STEM Career Days were structured so classrooms could join multiple sessions, each with breakout options ranging from medicine, technology, bioengineering, biology, oceanography, biotech, and the environment. Although simple in design, the virtual experience offers the community an interactive, feasible, and scalable strategy to connect hundreds of classrooms and thousands of students with STEM professionals. This virtual format also reduces barriers that have historically impeded engagement, such as traveling to a school or fear of interacting with students face-to-face.

2,000+ STUDENTS REACHED

53 CLASSROOMS ENGAGED

Teachers who recommend Digital Career Days to their colleagues:	**88%**
Teachers who say presentations complemented STEM learning in their classrooms:	**85%**
Students who better understand STEM subjects' connection to future careers:	**74%**

STEM Resource Directory

SciTech Institute posts thousands of events and resources for parents, students, and educators online. Back-end systems are optimized to facilitate searches for opportunities based on interest, age, location, and format.

7,412 vetted resources

14,414 vetted events

STEM Fridays

SciTech Institute reached approximately 3,351 elementary school students through the STEM Friday program. Next year's aim is to expand to include an additional school, two military youth center after-school programs, and extend to more grade levels at two participating elementary schools. This would bring about 1,000-1,500 more students to this STEM K-12 educational program!

CHIEF SCIENCE OFFICERS - INTERNATIONAL

Chief Science Officers (CSOs) are 6-12th grade students, elected by their peers, to serve as STEM leaders and ambassadors in their schools and communities. A core goal of the program is to place youth squarely at the center of STEM awareness, promotion, experience, and community action.

The CSO Program Works to:

- Create a global network of diverse youth STEM leaders
- Foster communication and collaboration among CSOs
- Enrich STEM culture and career awareness
- Amplify student voice in community STEM conversations

CSO EXPERIENCE:

The season kicks off with a leadership training institute where students learn program basics and begin to develop their action plans. These Action Plans meaningfully engage their peers and communities in STEM. During the year, CSOs are supported through cabinet meetings, advisors, and the CSO team. CSOs also have opportunities to continue their development through various advisement opportunities.

ADVANCEMENT OPPORTUNITIES
- Levels 2, 3 and 4 training
- Local, regional & international Leadership Councils
- CSO Alumni Association

LEADERSHIP TRAINING
- Action plan development
- G-suite tools
- Communications
- Teambuilding & networking
- STEMonstrations
- Data collection & reporting

ENGAGEMENT
- Action plans
- Community meetings
- CSO events
- Presentations to decision makers

Each CSO works to create an Action Plan focused on making an impact in their school or community.

Peer Feedback at CSO School Events

94.4% CSO rated the event good, very good, excellent

48.1% indicated it was their first STEM event or had not attended one for over a year.

95.7% said the event was the same or better than a prior event.

83.5% said the event increased their interest in the topic.

97.5% said the event was good, very good or excellent.

66.7% said the activity had a focus on STEM in their local area.

CSO Braeden and CSO Preston, Michigan
COMMUNITY FLIGHT NIGHTS

CSOs Braedon and Preston hosted two Community Flight Nights. The events successfully engaged hundreds of elementary students, parents, and community members in hands-on aviation activities at a local airport. "Flight Night is an aviation-themed event that is held in the spring and fall at Barstow Airport in Midland Michigan. There are usually about 100+ kids and parents who attend this event so that they can learn about airplanes and the science behind them," shared CSO Braeden. They offered several stations designed to introduce the STEM curriculum of whichever school they host the event for. Examples of stations include Bernoulli's Principle, compass headings, and an interactive flight simulator the kids can play around with.

70.1% of CSOs indicated their action plan was a new school activity

The average CSO Action Plan was reported to impact **120+ people.**

CSO Valentina, Mexico
STEM CAREER DAY

CSO Valentina hosted a Digital STEM Career Day at her School for her Action Plan. With one in-person speaker and two joining via zoom, over 30 students at her school learned about different STEM Career opportunities. CSOs from Colombia also joined the Zoom call to talk about LatinX representation in STEM.

CSO Jasmin, Georgia
EWMA GARDEN CLUB

CSO Jasmin created a gardening club at her school. "The EWMA Garden Club had the objective of improving and maintaining the garden of our school. Students learned practical skills about self-sufficiency and farming by engaging in activities such as research, construction, planting, and taking care of the garden beds," said Jasmin. 21 club members came together weekly to collaborate in developing and establishing the garden. This club was the only one at the school led by students, and it drew a lot of attention from both students and staff. Throughout the school year, they organized numerous events for the club and the whole school, including a plant-a-thon, foster-a-plant, and they gave away 80 seed starting kits that the members designed during the spring festival. The garden was in a courtyard, making it visible to almost 800 students every day. By the end of the year, the garden had become an essential part of not just the club but the entire school.


Additional Action Plans

- **CSOs Niraj and Joanna (Texas):** CSOs Niraj and Joanna created meaningful experiences that exposed younger students to science. They introduced a 5th-grade class to the concepts behind an Enzyme-Linked Immunosorbent Assay and led a lab activity with the students

- **CSOs Anjali, Ford, and Isabella (Pennsylvania):** Provided hands-on science investigations to students in their high school's Life Skills Chemistry class. Their goal was to ensure all students, no matter their ability, had access to hands-on science learning opportunities

- **CSOs Faye, Ivy, MaKenna (Idaho):** The Lunch Time Science Club spearheaded by these CSOs met every Wednesday during lunch for three months. There were 20 students who regularly participated from grades 2-3. They covered a variety of topics including volcanoes, the plant cycle, rock cycles, and tectonic plates

- **CSOs Ram, Shourya, Shreyansh (Kenya):** These CSOs participated in a co-curricular exhibition to promote STEM awareness. They shared their STEM Awareness Action Plan with over 300 hundred visitors

- **CSO Brayan (Mexico):** Developed a schoolwide survey on reading to gauge students' interest in literature and reading. He used his findings to promote literature and reading in his school

- **CSO Jesus (California):** Taught a 5th grade class how to make elephant's toothpaste to show them how fun STEM can be
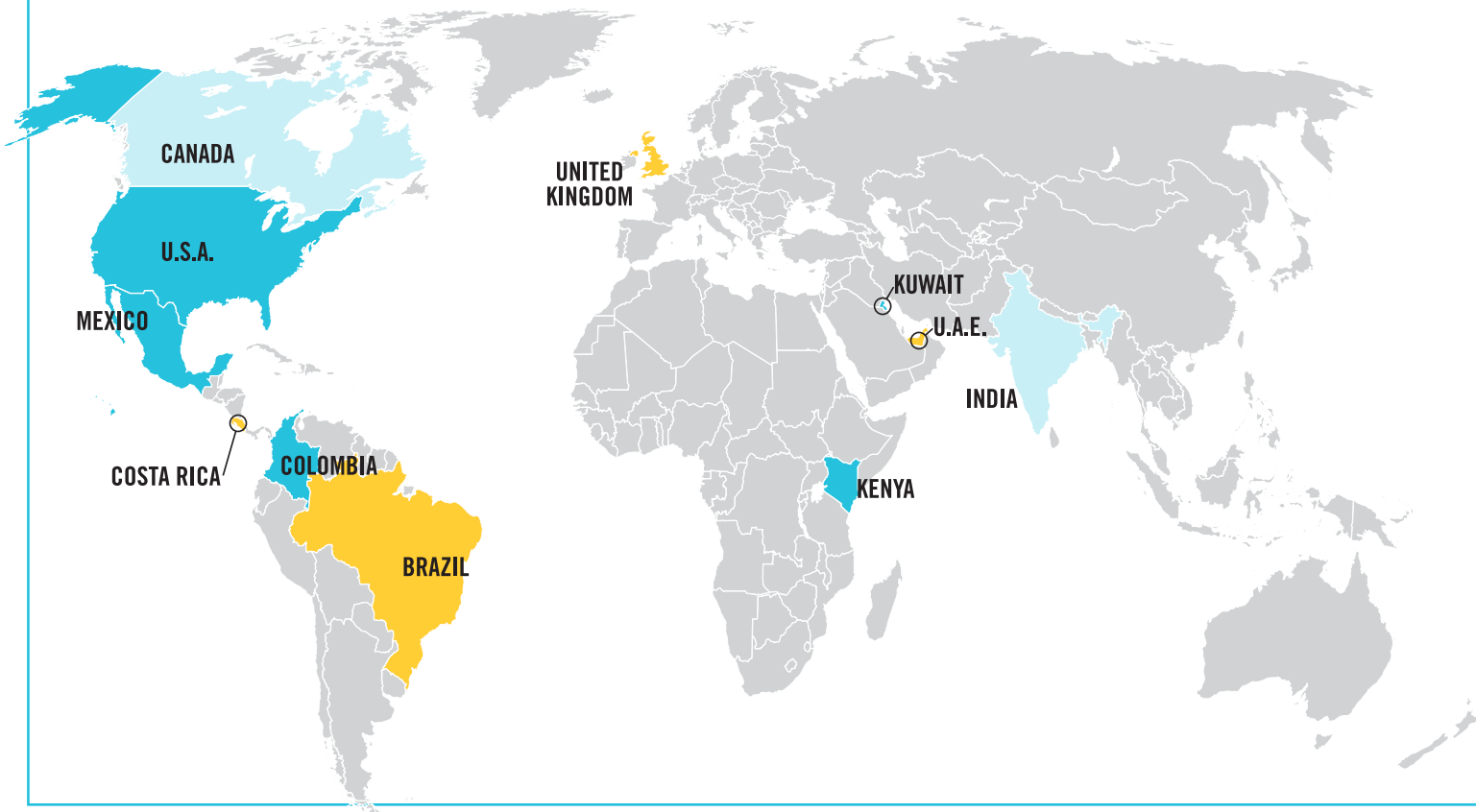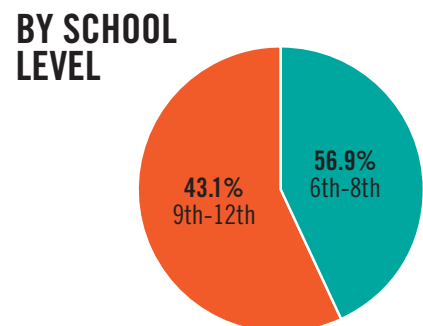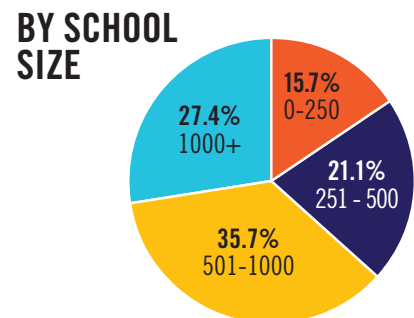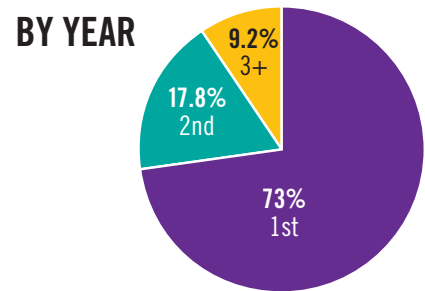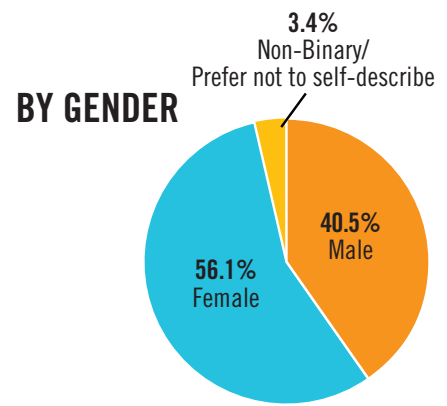
GLOBAL REACH

The 22/23 CSO class saw continued expansion across the country and globe, with students in 15 U.S. states and 6 countries. The program collectively reached 200,000+ people this season. Student demographics indicate progress towards gender and racial equity.
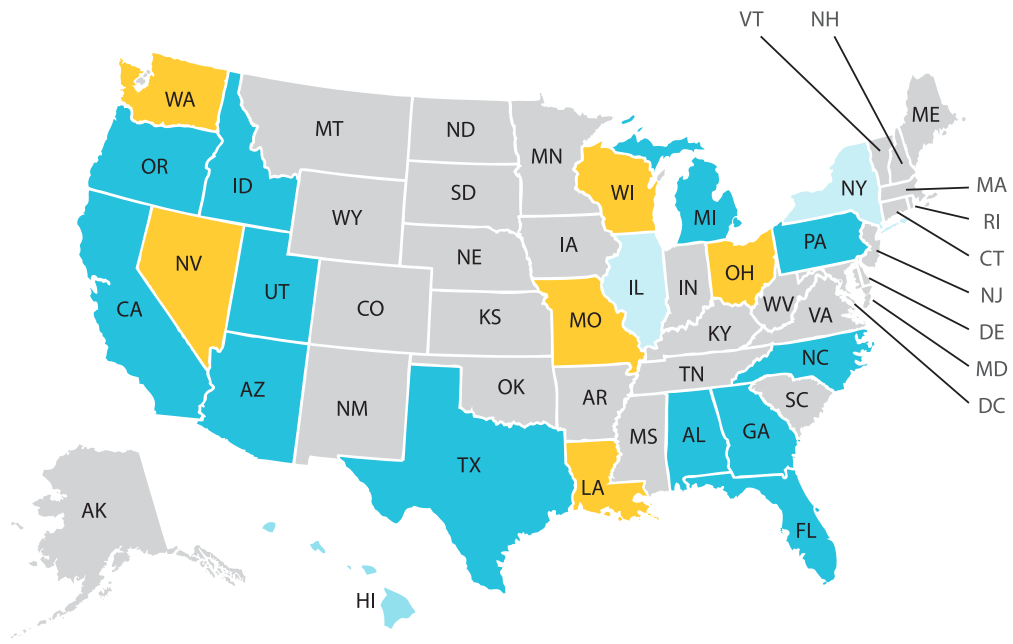
■ 22/23 REGION   ■ EMERGING REGIONS   ■ EXPANSION DISCUSSIONS

> The Chief Science Officers Program helps students develop lifelong skills that they use to meaningfully impact their schools and communities. The program develops CSOs to be leaders and advocates for change right now. They need not wait until they are older or persuade an adult to advocate for them. Chief Science Officers are change makers and the voices of the future."

— EILEEN HEALY CSO INTERNATIONAL PROGRAM MANAGER

BY GENDER

- 3.4% Non-Binary/ Prefer not to self-describe
- 40.5% Male
- 56.1% Female

BY YEAR

- 9.2% 3+
- 17.8% 2nd
- 73% 1st

BY SCHOOL SIZE

- 15.7% 0-250
- 21.1% 251 - 500
- 35.7% 501-1000
- 27.4% 1000+

BY SCHOOL LEVEL

- 56.9% 6th-8th
- 43.1% 9th-12th

RACIAL DIVERSITY

- Asian 11.2%
- Black or African American 9%
- Latinx 28%
- Indigenous* 4.1%
- White 52.7%
- Indian/Middle Eastern 7.2%

* Includes American Indian, Pacific Islander, and Native Hawaiian

39.7% CSOs
QUALIFY FOR FREE & REDUCED LUNCH

CSOs ensure student voice is part of the community STEM conversation by serving as ambassadors. Roles this season included:

- **Planning committees**
- **Board and conference presentations**
- **Television commercials & podcasts**
- **Meetings with elected officials**
- **NSF program director meetings**
- **Community STEM events & projects**

## CSO networking & community engagement

	PRIOR TO JOINING	POST SEASON
Never met with elected official	**48%**	**14%**
Never met with principal	**58%**	**7.48%**

Collaborator feedback

90% of adults who interacted with CSOs rated these interactions as **very good** or **excellent**.

75% said they intended to **share information about the program with their associates.**

"The CSO organization has played a significant role in helping me learn how to advocate for STEM in my community and has tremendously enhanced my skills as a student leader in STEM. Through the program, I have also had the opportunity to explore and learn from experts in diverse STEM fields, including interacting with an expert in sustainability and plastics packaging." — CSO DAYLIA, GEORGIA
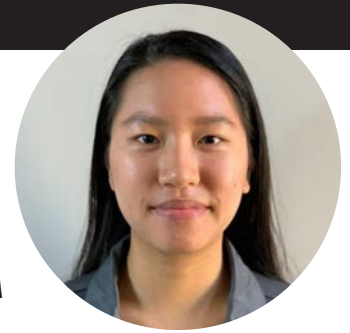
STEM Ecosystems Convening

STEM Learning Ecosystems at the SLECoP Convening in Jacksonville, Florida, hosted over 40 CSOs from around the world who networked and brought their voices to an international conversation with over 700 STEM professional attendees. The CSOs had the chance to participate in sessions and workshops all focused around STEM. They were even able to build drones! CSOs utilized this opportunity to demonstrate why they are leadership material - when they spoke, their thoughts and opinions were heard.

CSOs have gained the attention of prominent national and global organizations.

3M • Almac group • Argo, Research Sailing Vessel • Arizona Cardinals • Arizona Coyotes • All in Education • Bell Textron • Bear Essential News • Blue Origin • Boeing • BootUp • C21 Education • CGEST • Chevron • CISCO Foundation • Cox Communications • Defense Intelligence Agency • Dell Boomi • Discovery Ed • Dow Chemical • Fluxspace • Freeport-McMoRan • General Motors • Intel • IBM • KFAS • Microsoft • Montgomery County Community College • M&S Centerless Grinding • NASA • National Science Foundation • Nexteer • Office of Science & Technology Policy • PBS • Shift 7 • Siemens • Skill Struck • State Farm • STEM Ecosystems STEMology • Temple University Ambler • UPS • Urban Farming Education • USDA • Viasat • Verizon • Whataburger • Your Prime Suspect

CSOs gained extensive skills in their leadership, communication, event planning and management.
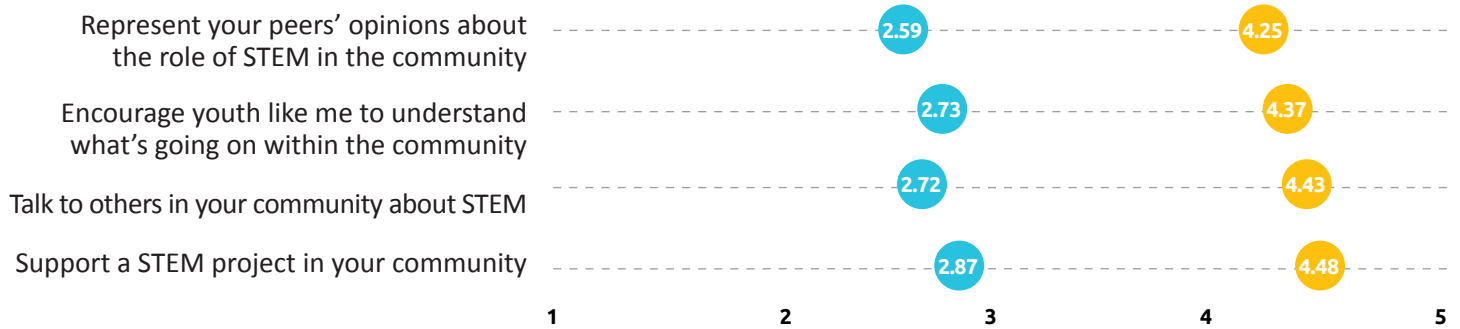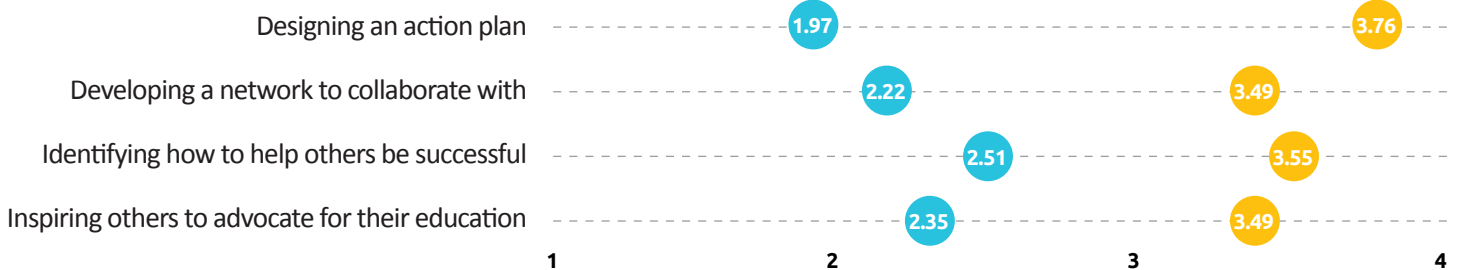
BEFORE BEING A CSO **AFTER BEING A CSO**

STEM and STEM Related Careers

	Before	After
Awareness of STEM and STEM-related career opportunities	3.19	4.44
Interest in STEM and STEM-related careers	3.53	4.35
Understanding how STEM and workforce skills impact your future success	3.17	4.25
Confidence in applying STEM knowledge and workforce skills	3.09	4.28

Scale: 1 — 2 — 3 — 4 — 5

School and Community Engagement

	Before	After
Represent your peers' opinions about the role of STEM in the community	2.59	4.25
Encourage youth like me to understand what's going on within the community	2.73	4.37
Talk to others in your community about STEM	2.72	4.43
Support a STEM project in your community	2.87	4.48

Scale: 1 — 2 — 3 — 4 — 5

Communication and Leadership Skills

	Before	After
Designing an action plan	1.97	3.76
Developing a network to collaborate with	2.22	3.49
Identifying how to help others be successful	2.51	3.55
Inspiring others to advocate for their education	2.35	3.49

Scale: 1 — 2 — 3 — 4

Leadership Confidence

	Before	After
My opinion is important because it could someday make a difference in my community or school	2.93	3.73
There are plenty of ways for youth like me to have a say in what our community or school does	2.71	3.59
It is important to me that I actively participate in local teen issues	2.67	3.50
Most community or school leaders would listen to me	2.67	3.50

Scale: 1 — 2 — 3 — 4

Arizona CSOs continue to make a profound impact in the state with each student impacting an average of 632 people.

Example CSO Arizona Action Plans

- **CSO Madeleine (Tucson)** created a website that shared STEM resources and events happening in her region.

- **CSO Chiara (East Valley)** led many STEMonstrations for elementary students throughout the school year.

- **CSO Nikhil (Central Valley)** ran a STEM club at his school that impacted his community and environment.

- **CSO Mia (West Valley)** planned a Starry Night STEM event at her school that all of the families were able to participate in.

- **CSO Mariana (Mesa)** created a STEM podcast to share with others.

- **CSO Mica (Verde Valley)** made and delivered STEM kits to students and hosted a STEM Kids Night Out.
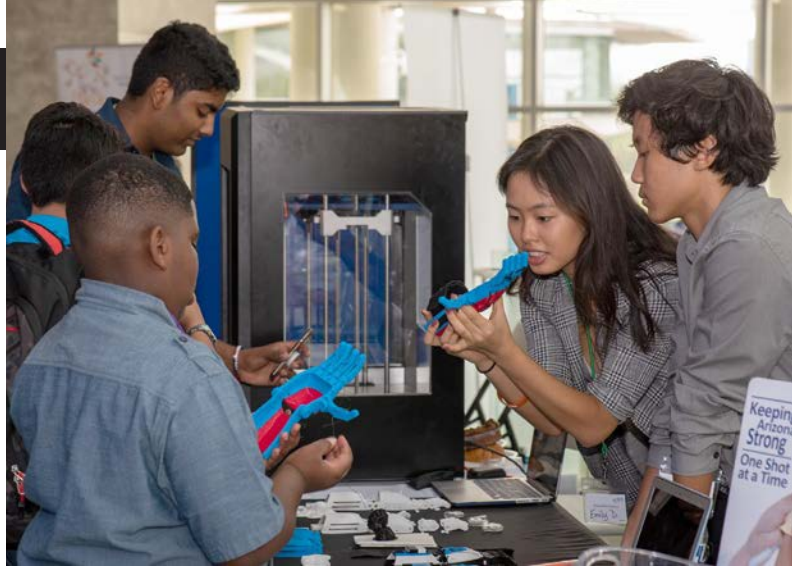
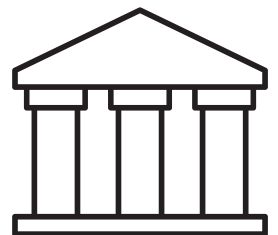## 10 Arizona Cabinets

- **East Valley**
- **Mesa**
- **West Valley**
- **Central Valley**
- **North Valley**
- **Tucson**
- **Southeast Arizona**
- **Northern Arizona**
- **Pinal County**
- **Mojave**

324 Arizona CSOs

73 Schools

SCITECH INSTITUTE

Arizona organizations involved:

7x24 Exchange • Board of Regents • Arizona Cardinals • Arizona Coyotes • Arizona Commerce Authority • Arizona Community Foundation • Arizona State Libraries • Univision – Arizona Contigo • Arizona Sonoran Desert Museum • Arizona Science Center • Arizona State University • Arizona Technology Council • Banner Health • Biosphere2 • Business Radio X • Cox Communications • Embry Riddle Aeronautical University • Kartchner Caverns • LabCorp • Lowell Observatory • Luke Air Force Base • Maricopa Community Colleges • Maricopa County Air Quality • MAC6 • Microsoft • Midwestern University • Northrop Gruman • Olsson • ON Semiconductor • Phoenix Herpetological Society • PADT • Palo Verde Generating Station • Salt River Project • Science Vortex • State Farm • United Way • University of Advancing Technology • University of Arizona • Verizon • Viasat

94.5%
of CSOs

rated their overall experience with the program as **good**, **very good** or **excellent**.
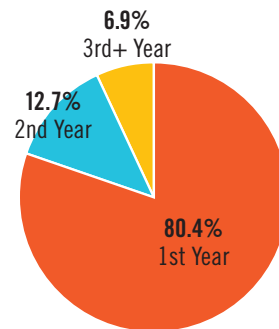
We celebrate and thank **CSO Ben** for being a part of the Arizona CSO program since 2016. We are honored to have shared seven years of his leadership journey and look forward to remaining connected with him as a CSO alum when he transitions to Azusa Pacific University.

> The Chief Science Officers program gives students the opportunity to grow in their leadership skills and connect with STEM enthusiasts from around the world. This student-led program provides the groundwork for CSOs to put together an action plan that impacts their school and community. CSOs don't just hope it happens, they make it happen.

— SARAH CUNDIFF, CSO INTERNATIONAL PROGRAM COORDINATOR

AZ CSOs BY YEAR

- 6.9% 3rd+ Year
- 12.7% 2nd Year
- 80.4% 1st Year

AZ CSOS BY RACE

- 3.0% Indian/Middle Eastern
- 13.7% Asian
- 14.4% Black or African American
- 42.2% Latinx
- 39.9% White
- 3.6% Indigenous, Native Hawaiian, Pacific Islander, Other Indigenous
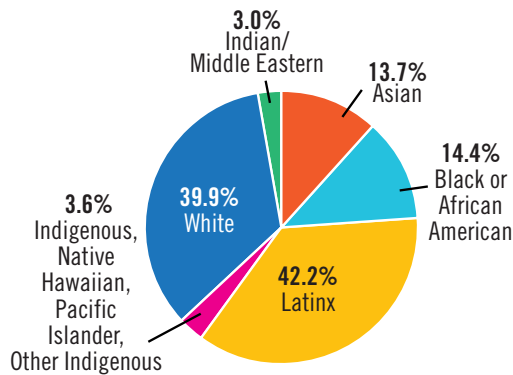
73%
of schools are Title I

2022/23 SCITECH INSTITUTE TEAM

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Finance Administrator

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Ristuccia Lisa
Festival STREET Team Member

Darrol Robinson
Community Engagment Specialist

Antonio Salazar
Communications Coordinator

Brittany Sweeney-Lawson
Marketing & Communications Manager

Ciara Ware
Office Support Specialist

Thomas Wilson
Pima County STEM Hub Coordinator

OTHER MEMBERS

Nova The Gecko
Community Outreach Mascot

Murphie
Office Mascot

Rolo the Robot
STEM Engagement Specialist

> **SciTech Institute is known as a leader in STEM education awareness, but part of what makes the organization great is its commitment to access and equity in ensuring that STEM is available for everyone, regardless of their background or zip code. The organization continues to be steadfast in this commitment and will lead the way for other organizations that want to provide education enrichment with an equity lens.**
>
> – LORENZO CHAVEZ, EXECUTIVE DIRECTOR, EDUCATION & SCHOLARSHIPS, ARIZONA COMMUNITY FOUNDATION

MASCOTS ON THE MOVE

Nova, SciTech Institute's Mascot

In January 2020, SciTech Institute's famous gecko came to life in the form of Nova, our reptilian mascot! Nova was designed as a physical representation of what we do – connecting people with the fun and excitement of STEM. We know how popular mascots are at events, and Nova helps bring the fun with her in a STEM-y way. She even has a variety of outfits to ensure she's ready for any occasion.

Now at 3 years old, Nova has attended hundreds of Arizona STEM events and appeared in thousands of photos.
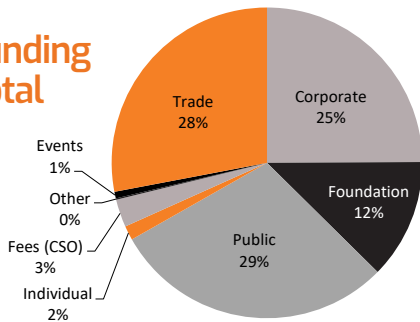

Rolo the Robot

The idea behind Rolo the Robot was born when its creator, Scott Rose, was only eight years old! After reading a *Popular Science* article about the surprisingly ancient history of automatons and their creators, Scott knew his goal was to build robots himself. Even though his dad didn't believe in his dream or that he could accomplish such a feat, Scott became more determined than ever. In 2017, after the death of his mother, the power wheelchair she had used became the inspiration for SUNI, his very first robot, that took him nine-months to build. His daughter was so impressed with SUNI, she told him, "You can't keep this for yourself, Dad-you have to share this with the world!"
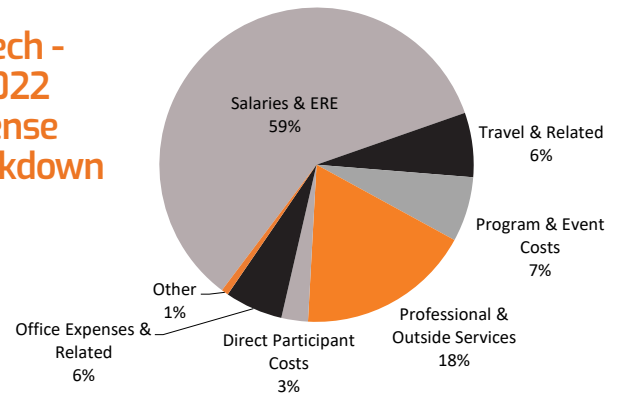
So they did. Rolo the Robot was created with the sole intent of SciTech Institute utilizing him as a teaching and learning tool to inspire young minds through the magic of STEM. Scott hopes Rolo will provide enjoyment, fascination, and engagement for everyone for years to come!
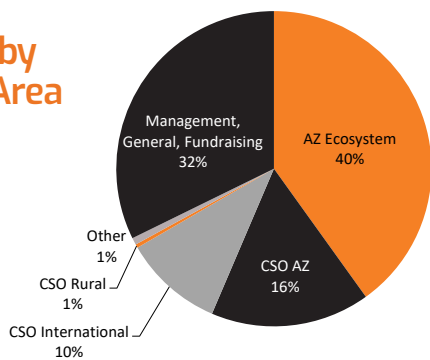
SCITECH INSTITUTE DETAILS

FY2022 Funding Sources Total Revenue - $1.8m

- Trade 28%
- Corporate 25%
- Foundation 12%
- Public 29%
- Individual 2%
- Fees (CSO) 3%
- Other 0%
- Events 1%

SciTech - FY2022 Expense Breakdown

- Salaries & ERE 59%
- Travel & Related 6%
- Program & Event Costs 7%
- Professional & Outside Services 18%
- Direct Participant Costs 3%
- Office Expenses & Related 6%
- Other 1%

FY2022 Expenses by Program Area

- Management, General, Fundraising 32%
- AZ Ecosystem 40%
- CSO AZ 16%
- CSO International 10%
- CSO Rural 1%
- Other 1%

Net Income by Fiscal Year - FY18-FY22

Income / Expenses — FY23 Estimate, FY22, FY21, FY20, FY19

TIMELINE

2002 — Arizona Technology Council established

2004 — Arizona Technology Council Foundation established

2007 — Middle School Science Bowl housed at Foundation

2009 — **Project Lead the Way** and **Arizona Science & Engineering Fair** housed at Foundation

2010 — Dr. Babendure recruited to AZ to build a **statewide STEM festival**

2012 — Arizona SciTech Festival launched

2015 — Chief Science Officers (CSO) program launched

Arizona SciTech Ecosystem inducted into the national STEM Learning Ecosystems Community of Practice's 1st Cohort.

High School Science Bowl housed at Foundation

SCITECH INSTITUTE

SciTech Institute is a nonprofit organization dedicated to supporting and strengthening science, technology, engineering and mathematics (STEM) by enhancing and promoting STEM awareness and engagement in Arizona and beyond. The Institute strives to connect the STEM community and inspire individuals to engage in STEM and pursue STEM-related educational and career pathways. Strong connections with civic and community organizations, business and industry and K-16 educational institutions allow SciTech Institute to serve as a catalyst for building a world-class STEM workforce.
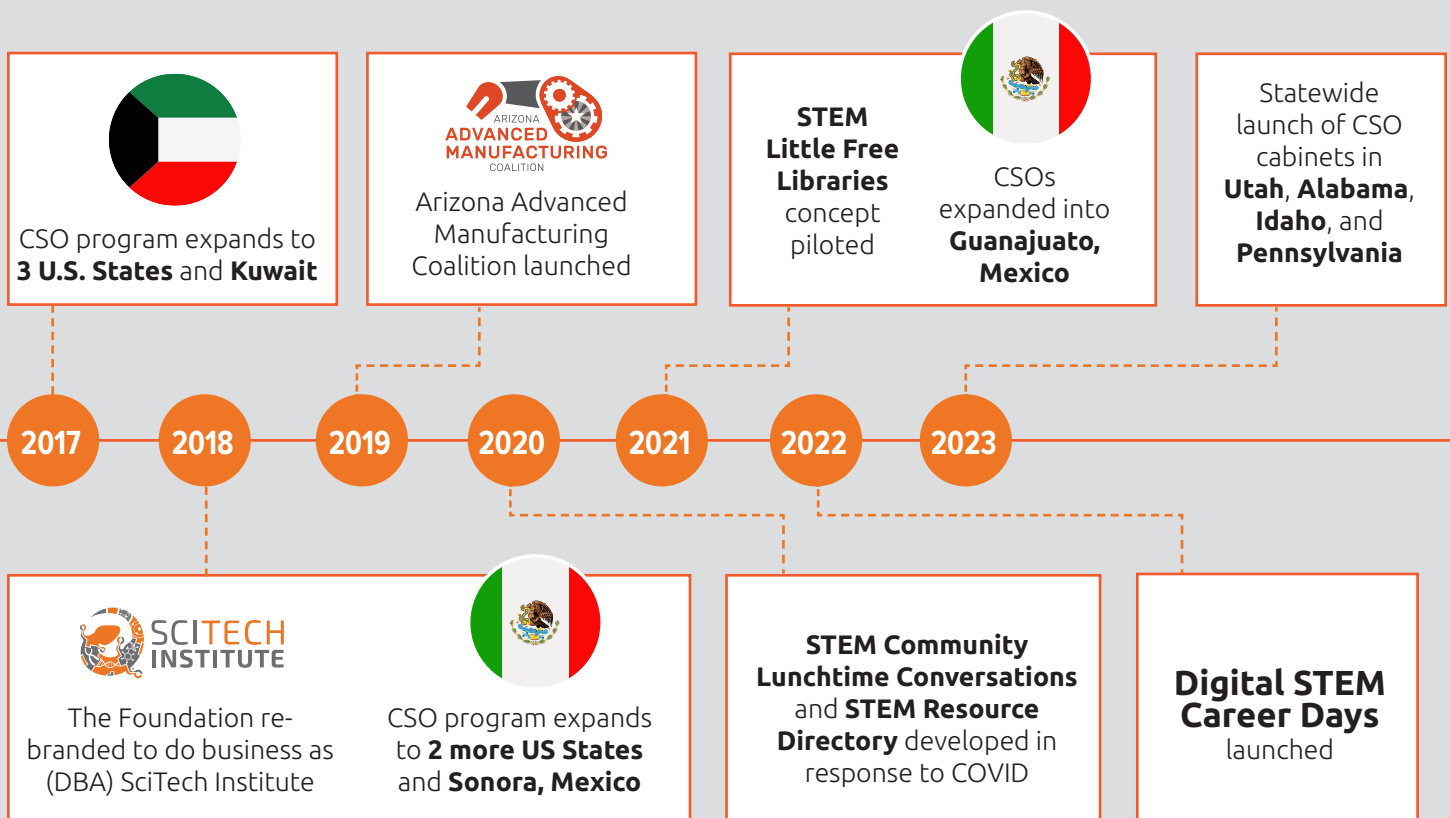
MISSION

Connecting business, industry, civic, and community leaders to transform lives by providing access to the world of possibilities in science, technology, engineering, and mathematics (STEM).

VISION

To establish a prosperous and equitable world where STEM is within reach of every human.

VALUES

- **Collaborative (approachable/accessible)**
- **Positive**
- **Compassionate**
- **Honest**
- **Do what it takes – to achieve positive results**
- **Passionate – about making a global impact**
- **Adaptable**
- **Inclusive (diversity, equity)**

2017 — CSO program expands to **3 U.S. States** and **Kuwait**

2018 — The Foundation re-branded to do business as (DBA) SciTech Institute; CSO program expands to **2 more US States** and **Sonora, Mexico**

2019 — Arizona Advanced Manufacturing Coalition launched

2020 — STEM Community Lunchtime Conversations and **STEM Resource Directory** developed in response to COVID

2021 — **STEM Little Free Libraries** concept piloted

2022 — CSOs expanded into **Guanajuato, Mexico**; Digital STEM Career Days launched

2023 — Statewide launch of CSO cabinets in **Utah**, **Alabama**, **Idaho**, and **Pennsylvania**

SCI**TECH**
INSTITUTE

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Tempe, AZ 85282

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a place to connect and grow

ASU School for the Future of Innovation in Society
Arizona State University

ARIZONA
COMMERCE AUTHORITY

CORE SUPPORT

MAC⁶

FENNEMORE CRAIG
ATTORNEYS

Accountabil IT