Annual Report
2019
2020

SARSEF
Our mission is creating Arizona’s future critical thinkers and problem solvers through science and engineering. Our values are innovation, equity, and engagement.

This year, we've directly impacted 90,887 students through our programming.

In 2020, COVID-19 created new challenges to overcome in delivering services to students and the adults in their lives. In order to continue providing our assistance to the state, SARSEF converted all programs to run virtually. We did what we teach our students to do—problem solve. And as a result, SARSEF is entering a whole new era.
Dear SARSEF Supporter,

As SARSEF started its 65th year, there was no way that we could have predicted what the year would bring. While there were many exciting developments in providing opportunity for Arizona students to think critically and solve problems through science and engineering, we also felt the gravity and loss that came with the COVID-19 pandemic.

Both the increase in our programming and the pandemic have challenged us to think critically and solve problems just as we ask students to do in their own work. As a result, we are seeing how virtual options expand and limit access for families and schools, and we will bring those lessons into future years.

At the start of SARSEF Fair Week 2020, the pandemic was just starting to make its presence known in Arizona. We made the hard call to completely transition the Fair to a hybrid event. We felt strongly that the 7,494 students who entered the fair needed to be celebrated and rewarded but also had to put the safety of our students, parents, teachers, volunteers, and judges first. SARSEF staff and volunteers worked tirelessly to strike this balance, and I am so proud of all that they accomplished.

So what will the new year hold? Whatever that may be, I know that it will be lifted by the incredible imaginations and ingenuity of SARSEF students who persevere to pursue science, knowing its importance is only growing. And SARSEF will be there to support them through it.

Liz Bowman
CEO, SARSEF
At any grade level, Pre-Kindergarten through high school, students can enter the SARSEF Science and Engineering Fair, including through classroom projects. To ensure they are supported in doing their own research, students can participate in In-School Experiences that give them the opportunity to brainstorm and answer their own scientific questions. Their teachers gain confidence, skills, and supplies for teaching science and engineering through our hands-on Teacher Professional Development.

With SARSEF, students, teachers, and parents receive education and support at no cost. Students can participate in SARSEF programs starting in any grade level or stay involved from pre-kindergarten through their senior year of high school. Recruitment and targeted programming ensure low-income families and groups underrepresented in the sciences are at the center of our work. Research has shown that children can sort "girl jobs" from "boy jobs" before attending elementary school. That means we need an early start to prepare students to recognize themselves as scientists and engineers.

During In-School Experiences, students are encouraged to ask questions about the world around them and to make simple observations. At Roadmap to a Rockin' Project workshops, students and parents work together to identify an idea and are guided through developing their own science or engineering research project. Parents have the opportunity to recognize their supporting role in developing their child's science identity.
Elementary School

At the Elementary School level, students are encouraged in our In-School Experiences to start asking more of their own questions - not only about the world immediately around them, but about problems they want to see solved for themselves, their families, their communities, and their world. Parents continue to receive guidance through Roadmap to a Rockin’ Project workshops.

Middle School

Middle school is when many students develop a stronger STEM identity, making it a pivotal time for them to connect with science and engineering in a meaningful way. Along with continued support for students and parents through In-School Experiences and Roadmap to a Rockin’ Project, additional programs allow for more exposure to STEM colleges and careers.

At ACES Camp, middle school girls from Sunnyside Unified School District attend summer camp to explore exciting careers and academic opportunities in STEM. Arizona STEM Adventure provides opportunity for 1,000 4-8th grade students to explore the wide world of STEM and to meet professionals and college students in related fields.

High School

In high school, students have the opportunity to take on more complex research and to build strong mentor relationships that prepare them for college and the workforce.

SARSEF’s Out of School Programs offer the tools students need to pursue research projects they care about. S.T.A.R. Labs give students access to university-level lab space and supplies as well as one-on-one mentorship. In Racing the Sun, teams of students gain engineering skills and professional development through designing, building and racing solar-powered go-karts under the mentorship of local professionals.
This was a year of firsts.

- *First year* as host of the Racing the Sun program, challenging high school students to design, build, and race solar-powered go-karts as teams with the help of community mentors.

- *First cohort* of high school students taking part in S.T.A.R. Labs, a collaboration with the University of Arizona’s Department of Molecular and Cellular Biology, which provides the lab space, supplies, and mentorship that high school students need to complete their own science projects.

- *First program* run entirely on a virtual platform.

- *First time* the SARSEF Science and Engineering Fair included the work of over 7,000 students. In five years, the number of students displaying their work has increased by 31%.

Meanwhile, we saw the impact of our programs and events grow and adapt to the changing needs of schools and families.

**July 2019 through June 2020, 90,887 students participated in a SARSEF program, an increase of 30% from the previous year.**
Strong Support for Families and Schools

11,416 students were directly taught by SARSEF Staff

Staff drove 5,919 miles to ensure that 116 schools received SARSEF’s highest level of direct support and service. Of those, 73% are Title I (low income schools) and 51% are in rural areas.

To ensure students continued to have the support they needed to do their own science and engineering, 980 teachers received professional development and 1,022 parents received coaching on their role in their children’s science projects.

Opportunity for Southern Arizona Students to Connect with and Excel at Science and Engineering

7,494 students displayed their projects at the SARSEF Fair.

26,786 students completed projects at their schools in the SARSEF Science and Engineering Fair region. The top 15% of those projects were invited to participate in the SARSEF Fair.

96% of students say completing their project encouraged them to ask more questions or solve more problems in the future; 84% said it encouraged them to think about a STEM major or career. 98% of teachers were able to integrate state standards for math and science as students worked on their research projects.

734 teachers and fair directors from 171 schools entered their students into the SARSEF Fair. 2,220 projects by 7,494 students were entered into the 2020 Fair. Of those students, 73% are from Title I (low income) schools. 53% are female, 53% are non-white, and 28% are from rural areas.

126 businesses, organizations, and individuals provided sponsored awards to kids of all ages. 644 grand awards were given out. In total, 1,164 checks were given out to students of all ages for a total of $110,055 in scholarships and award money.
SARSEF can’t make this kind of impact alone. In fact, 116 organizations partner with SARSEF to make our work possible. 1,145 individuals volunteered 10,797 hours to be volunteers, mentors, exhibitors, or judges.

314 individuals and 90 organizations supported SARSEF’s financial goals.

For the fifth year in a row, schools that participate in SARSEF programs perform better on the AIMS Science test at all three grade levels when the test is taken. When looking at participants in the SARSEF Fair, the difference is even more pronounced.

*A score of 500 is the lowest that meets the performance level for the grade.
To ensure the safety of SARSEF participants and to address the changing needs of families and schools during the pandemic, SARSEF reimagined our mechanisms for fulfilling our mission. While what our programs look like may have changed, our goal of encouraging students to use science and engineering to think critically and problem solve stayed the same.

The fair occurred as cases of COVID-19 were first appearing in the state. In a matter of hours, the SARSEF Science and Engineering Fair was transformed into a hybrid fair with virtual options for high school interviews and online award ceremonies.

At the end of the 2019 - 2020 school year, many schools were no longer in session and students (PreK through high school) were getting restless for not only the chance to learn, but a way for them to understand how the world around them was changing due to COVID-19.
Thank you to our 2019-2020 Sponsors!

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- BAYER
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- BROOKE MINER
- BURTON FAMILY FOUNDATION
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- CATHERINE AND CHRIS LANGHAM
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- UNIVERSITY OF ARIZONA
- WYANT COLLEGE OF OPTICAL SCIENCES
- RESEARCH, INNOVATION, & IMPACT &BIO5 INSTITUTE
- COLLEGE OF AGRICULTURE AND LIFE SCIENCES
- COLLEGE OF EDUCATION
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- WALLACE RESEARCH FOUNDATION
- WALMART
- WELLS FARGO FOUNDATION
- WILLIAM AND ELIZABETH IGNATOFF
- WM SYMPOSIUM, INC.
**SARSEF**

**Income and Expenses**

**2019 - 2020**

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### Operating Income

**Total:** $990,865

- **Grants:** $530,285
- **Corporate & Organization Contributions:** $209,300
- **Individuals:** $98,058
- **In-Kind Contributions:** $87,258
- **Program Income:** $69,344
- **Investment Income:** $3,380

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### Operating Expenses

**Total:** $949,285

- **Program Services:** $661,267
- **Management and General:** $98,241
- **Fundraising:** $189,777
SARSEF According to Board Members
Betsy Bolding, Chair
Retired, Tucson Electric Power

Liz Bowman, CEO
SARSEF

Mary Fosdick, Secretary
Tucson Electric Power

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High School Students Talk about Science Fairs
HIGH SCHOOL SENIORS

While some students participate in SARSEF programs once or twice throughout their academic career, others participate every year they can. No matter their journey through SARSEF, we are always excited for the graduating seniors who have participated. They have an exciting road ahead of them, and we can’t wait to hear back on how they’re using science and engineering in their career path or daily lives!

And students who participate in SARSEF during high school do great work in college, too!

<table>
<thead>
<tr>
<th>Subject</th>
<th>Percent of SARSEF Alumni at University of Arizona Studying that Subject</th>
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<tbody>
<tr>
<td>Science</td>
<td>36.20%</td>
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<tr>
<td>Engineering</td>
<td>13.80%</td>
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<tr>
<td>Agriculture and Life Science</td>
<td>12.90%</td>
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<td>Social &amp; Behavioral Science</td>
<td>11.10%</td>
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<tr>
<td>Eller College of Business</td>
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<tr>
<td>Medicine</td>
<td>6.30%</td>
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<tr>
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<td>3%</td>
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<td>Nursing</td>
<td>2.70%</td>
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<tr>
<td>Architecture</td>
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Some SARSEF alumni stay involved by mentoring high school students on doing their own research!

“SARSEF fosters not only problem solving and critical thinking skills, but also instills an appreciation for giving back and mentorship. It creates a community of young scientists. That has always been my goal, and is SARSEF’s goal as well.” - Margaret Wilch, Director of Research, SARSEF
For more information
Contact Julie Euber, COO
julie@sarsef.org
(812) 340-8663
Visit our website
sarsef.org
Visit the SARSEF Office
4574 E, Broadway Blvd
Tucson, AZ 85711