

Appendix C

Examples of CSOs' School-Based and Community STEM Events

Project/Event Name	Description	CSOs' Involvement	Demographics	CSO Skills Used	Outcomes
Casa Grande School District SciTech Festival	Annual science fair	CSOs organized and facilitated the event.	CSOs: 2 Student volunteers: 20+ Student presenters: 300+ Potential participants: - 2800+ students - 50+ administrators and educators	- event planning and coordination - collaboration with peers - leadership	- Peers had access to student-led, hands-on STEM activities. - Presenters showcased projects on STEM topics that interested them.
Hamilton Invitational Science and Engineering Festival (HISEF)	Festival for winners of local science fairs to display their research and projects	CSOs collaborated with their Orbital ATK mentors to include rocket launch demonstrations at the festival.	CSOs: 3 Community partners: 10+ Potential participants: - 6000+ students	- collaboration with peers and mentors - presentation and public speaking	- The addition of rocket launch demonstrations increased peer interest in and attendance at the festival.
C.O. Greenfield Elementary School SciTech STAR Party	Annual school-wide celebration of science and space	CSOs organized the event, arranged displays, and added a technology component showcasing their new virtual reality lab.	CSOs: 2 Potential participants: - 400+ students and their families - 15+ administrators and educators Other facilitators/partners - local astronomy club members	- event planning and coordination - collaboration with teachers and administrators - leadership	- The involvement of local astronomers, technology vendors, and students' families strengthened community relationships. - Working with community partners outside the school district creates the potential for more and better STEM projects and demonstrations in the future.

Liberty District
Freedom
Elementary School
community garden

Financing and
constructing a
community garden

CSOs came up with
the idea to build the
garden and fund it by
getting donations from
local businesses.

CSOs: 2
Teachers: 1
Other facilitators/partners
- community garden
advocates (parents and
administrators)
Potential participants:
- 350+ students and their
families

- leadership
- fundraising
- building community
partnerships
- program planning
- effective
communication

- Students learned about
nutrition, sustainable
food sources, and the
science of gardening.
- Each grade at the
school was in charge of a
section of the garden,
giving students the
opportunity to exercise
responsibility.
- Crops were sent home
to families in need.

Kyrene Del Pueblo
Middle School
Science Fact
challenge

Science knowledge
competition

CSOs hosted a
competition via the
school's morning
announcements,
challenging their peers
to with thought-
provoking, open-ended
questions for students
to research and
explain.

CSOs: 3
Other facilitators/partners:
- school science teachers
Potential participants:
- 550+ students
- 45+ administrators and
educators

- creative thinking
- analytic reasoning
- collaboration
- effective
communication

- Students engaged in
inquiry-based learning
about STEM topics.
- Weekly winner
announcements and
prizes motivated peers to
participate.

<p>MetroTech High School STEAM Spirit Week</p>	<p>STEAM-themed school spirit week</p>	<p>CSOs helped plan the event and recruited teachers to set up interactive displays about STEAM subjects. Science department teachers and clubs brought catapults and drones for student interactions; tech, engineering, and culinary teachers brought Arduino boards and Science of cooking activities; CSOs repeated the StateFarm PB&J Coding lesson from Fall Institute; math department brought robots to demonstrate math concepts in areas such as wheel torque and velocity.</p>	<p>CSOs: 2 Other facilitators/partners: - teachers and administrators Potential participants: - 1200+ students - 8+ administrators and educators</p>	<p>- event planning - presentation and public speaking - collaboration</p>	<p>- Students had increased exposure to STEAM subjects. - Student-led STEAM-related activities create more peer interest and promote a STEAM-positive school culture.</p>
<p>Trip to Washington D.C.</p>	<p>Presenting to government officials and legislators about STEM-related subjects and issues</p>	<p>CSOs prepared presentations to give to state senators and members of Congress and the White House Office of Science and Technology Policy.</p>	<p>CSOs: 6 Other facilitators/partners: - Project Team was accompanied by Grand Canyon University sponsor and Phoenix Union High School District teacher.</p>	<p>- leadership - presentation and public speaking - effective communication</p>	<p>- Civic leaders learned about student concerns and ideas for promoting STEM subjects in schools. - Student voices were heard at the national level.</p>

East Valley Tech Alliance Meeting

Presentations to representatives of local businesses

CSOs presented about their experiences as CSOs and the opportunities they'd like to have with the help of local companies and businesses.

CSOs:
Other facilitators/partners:
- 6+ companies representing 10,000+ employees including Intel, Microchip, Garmin, and State Farm.

- leadership
- problem solving
- presentation and public speaking
- collaboration
- effective communication

- CSOs learned about government policymaking, legislation, and civic engagement.

- CSOs gave students a voice in STEM-related workforce conversations.
- Corporate leaders learned of student concerns and ideas for overcoming barriers to having careers in STEM.
- Students gained insight into real-world applications of their STEM knowledge and skills.

Arizona State
University Block
Party

Worked with
college students
majoring in STEM
topics

CSOs shared a booth
with ASU Science Is
Fun interns at the
Homecoming Block
Party, where they
performed SciTech
explorations.
Demonstrations in the
Physical Sciences Tent
along side ASU
interns.

CSOs: 3
Other facilitators/partners:
- ASU Science Is Fun
interns
- Parents and CSO Project
Team
Potential participants:
- 10,000+ community
members, 100+
collaborating ASU
departments including
undergraduate and
graduate students,
postdoctoral fellows,
faculty, and staff.

- leadership
- problem solving
- program planning
- presentation and
public speaking
- effective
communication

- CSOs interacted with
students at the college
level and gained insight
into what it's like to
pursue STEM learning in
higher education.
- The CSO program
gained visibility with
leaders and students in
higher education.