### Appendix C

#### Examples of CSOs’ School-Based and Community STEM Events

<table>
<thead>
<tr>
<th>Project/Event Name</th>
<th>Description</th>
<th>CSOs' Involvement</th>
<th>Demographics</th>
<th>CSO Skills Used</th>
<th>Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Casa Grande School District SciTech Festival</td>
<td>Annual science fair</td>
<td>CSOs organized and facilitated the event.</td>
<td>CSOs: 2</td>
<td>- event planning and coordination</td>
<td>- Peers had access to student-led, hands-on STEM activities.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Student volunteers: 20+</td>
<td>- collaboration with peers</td>
<td>- Presenters showcased projects on STEM topics that interested them.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Student presenters: 300+</td>
<td>- leadership</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- 2800+ students</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- 50+ administrators and educators</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Potential participants:</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- 2800+ students</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- 50+ administrators and educators</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hamilton Invitational Science and Engineering Festival (HISEF)</td>
<td>Festival for winners of local science fairs to display their research and projects</td>
<td>CSOs collaborated with their Orbital ATK mentors to include rocket launch demonstrations at the festival.</td>
<td>CSOs: 3</td>
<td>- collaboration with peers and mentors</td>
<td>- The addition of rocket launch demonstrations increased peer interest in and attendance at the festival.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Community partners: 10+</td>
<td>- presentation and public speaking</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- 6000+ students</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C.O. Greenfield Elementary School SciTech STAR Party</td>
<td>Annual school-wide celebration of science and space</td>
<td>CSOs organized the event, arranged displays, and added a technology component showcasing their new virtual reality lab.</td>
<td>CSOs: 2</td>
<td>- event planning and coordination</td>
<td>- The involvement of local astronomers, technology vendors, and students' families strengthened community relationships.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Potential participants:</td>
<td>- collaboration with teachers and administrators</td>
<td>- Working with community partners outside the school district creates the potential for more and better STEM projects and demonstrations in the future.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- 400+ students and their families</td>
<td>- leadership</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- 15+ administrators and educators</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Other facilitators/partners</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>local astronomy club members</td>
<td></td>
<td></td>
</tr>
<tr>
<td>School</td>
<td>Project/Activity</td>
<td>CSOs/Partners</td>
<td>Potential Participants</td>
<td>Outcomes/Impacts</td>
<td></td>
</tr>
<tr>
<td>------------------------------</td>
<td>-----------------------------------------</td>
<td>--------------------------</td>
<td>----------------------------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------------------</td>
<td></td>
</tr>
</tbody>
</table>
| Liberty District Freedom     | Financing and constructing a community garden | 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.  
- Students engaged in inquiry-based learning about STEM topics.  
- Weekly winner announcements and prizes motivated peers to participate. |
| Elementary School            |                                         | 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.  
- Students engaged in inquiry-based learning about STEM topics.  
- Weekly winner announcements and prizes motivated peers to participate. |
| Kyrene Del Pueblo Middle     | Science knowledge competition           | CSOs: 3  
Other facilitators/partners:  
- school science teachers  
Potential participants:  
- 550+ students  
- 45+ administrators and educators | - creative thinking  
- analytic reasoning  
- collaboration  
- 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.  
- Students engaged in inquiry-based learning about STEM topics.  
- Weekly winner announcements and prizes motivated peers to participate. |
| MetroTech High School STEAM Spirit Week | STEAM-themed school spirit week | 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. | CSOs: 2  
Other facilitators/partners:  
- teachers and administrators  
Potential participants:  
- 1200+ students  
- 8+ administrators and educators  
- event planning  
- presentation and public speaking  
- collaboration  
- Students had increased exposure to STEAM subjects.  
- Student-led STEAM-related activities create more peer interest and promote a STEAM-positive school culture. |
| Trip to Washington D.C. | Presenting to government officials and legislators about STEM-related subjects and issues | CSOs prepared presentations to give to state senators and members of Congress and the White House Office of Science and Technology Policy. | CSOs: 6  
Other facilitators/partners:  
- Project Team was accompanied by Grand Canyon University sponsor and Phoenix Union High School District teacher.  
- leadership  
- presentation and public speaking  
- effective communication  
- Civic leaders learned about student concerns and ideas for promoting STEM subjects in schools.  
- Student voices were heard at the national level. |
| 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:  
- leadership  
- problem solving  
- presentation and public speaking  
- collaboration  
- effective communication | - CSOs learned about government policymaking, legislation, and civic engagement.  
- 6+ companies representing 10,000+ employees including Intel, Microchip, Garmin, and State Farm.  
- 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.