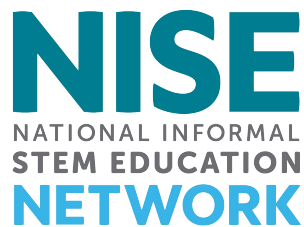


Earth & Space Project-Based Professional Learning Community



Collaborating with STEM Experts

Recorded in February 2022 as part of the Earth & Space Project-Based Professional Learning Community



Collaborating with STEM Experts





Working with STEM Experts:

A Guide for Educators in Museums
and Other Informal Learning Settings

By Catherine McCarthy and Darrell Porcello

NISE
NATIONAL INFORMAL
STEM EDUCATION
NETWORK

www.nisenet.org

<https://www.nisenet.org/working-with-experts>

Working with STEM Experts Guide

- Why Bring STEM Experts and the Public Together
- Ways to Work with STEM Experts
- How to Prepare Experts to Engage Public Audiences
- Strategies for Finding STEM Experts
- Finding STEM Experts by Subject Area



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Why Bring STEM Experts and the Public Together?

Many reasons for having STEM experts directly engage the public.

- **Content knowledge** about a specific topic
- Experts can offer much more **beyond facts and information**



Why Bring STEM Experts and the Public Together?



10

10 Potential Impacts of Experts Engaging the Public

- 1 Sharing a Passion for Science
- 2 Providing for Mutual Learning
- 3 Understanding that Science is a Human Endeavor
- 4 Increasing the STEM Workforce and Creating Career Pathways
- 5 Greater Representation of Women and Minorities in STEM Careers
- 6 Changing the Face of STEM – Picture a Scientist, Who Do You See?
- 7 STEM Identity and Providing Role Models and Mentors
- 8 STEM Literacy and Creating Lifelong Learners
- 9 More Trust in Science
- 10 Creating Opportunities for Participatory Democracy

Ways to Work with STEM Experts

- **Formats for Public Engagement**

Hands-on Activities, Events, Guest Lectures,
Forums, Science Cafés, Mentoring, Festivals . . .

- **Joint Collaborative Projects**

- **Professional Development**
for Staff and Volunteers

- **Liaison Roles**

- **Ongoing Advisory Roles**



Ways to Work with STEM Experts

Including Experts in the Development Process

- Brainstorming
- Helping to create content
- Participating in iterative prototyping
- Technical content review



How to Prepare Experts to Engage Public Audiences

- **Strategies**

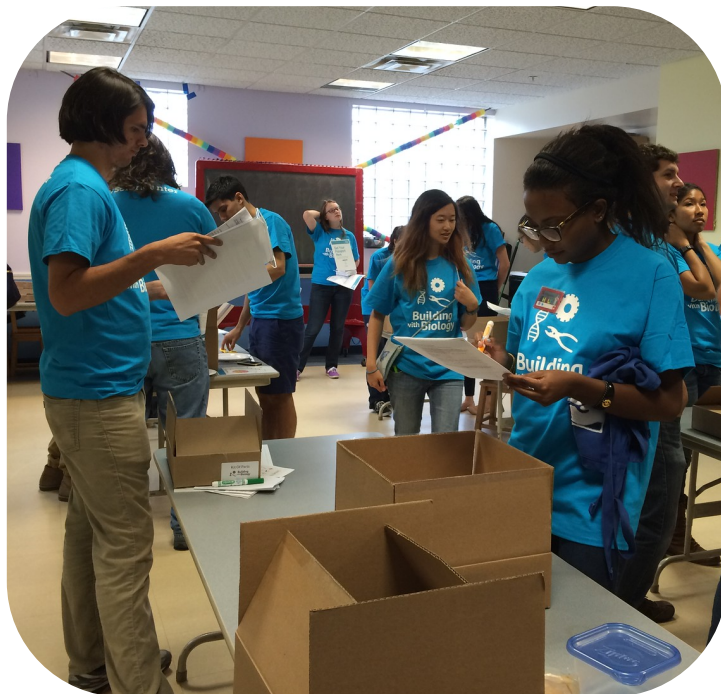
- Start with existing hands-on activities and training materials

- **Tips Sheets**

- Planning Guest Presentations
- Guest Speakers
- Leading Hands-On Activities

- **Annotated List of Resources**

<https://www.nisenet.org/catalog/tips-sheets-engaging-public-audiences>



Strategies for Finding STEM Experts

- STEM Professional Societies
- Diversity-Serving Professional Societies
- Colleges and Universities
- Student Groups
- Local, State, and Federal Agencies
- Local Industry Professionals
- Affinity Groups
- Indigenous Ways of Knowing



Finding STEM Experts by Subject Area

- Chemistry and Physics
- ➡ ● Space and Earth Science
- ➡ ● Environmental Sciences
- Agriculture
- Biology and Biomedical Sciences
- Neuroscience
- Engineering, Technology
- Computer Science, Math, Statistics
- Incorporating STEM into Arts and Cultural Celebrations
- ➡ ● Indigenous Ways of Knowing



Space and Earth Science

Please also see the section focused on environmental sciences.

Colleges and Universities

- You may find experts at a local college in astronomy, astrophysics, physics, planetary science, geology, meteorology, aeronautical engineering, mechanical engineering, and other Earth science programs.
- **NASA Space Grant Consortium**
Seek out the NASA Space Grant Consortium program in your state. The Space Grant Consortium is a national network of colleges and universities that has locations in all 50 states, the District of Columbia, and Puerto Rico.
https://www.nasa.gov/stem/spacegrant/home/Space_Grant_Consortium_Websites.html

Student Groups

- Local colleges and high schools may have student clubs or interest groups, especially for astronomy.

Professional Societies

- Your community may have members of professional societies in related topics, for example:
 - **American Astronomical Society (AAS)** maintains a directory of members that can be searched by city and state as well as specialization:
<https://aas.org/directory>

AAS also has an Astronomy Ambassador program for hands-on science:

<https://aas.org/education/roster-aas-astronomy-ambassadors>

- **American Geophysical Union (AGU)** sections are organized by specialization rather than geographically:
<https://www.agu.org>
AGU Thriving Earth Exchange promotes community collaborations to solve local challenges related to natural resources, climate change, and natural hazards:
<https://thrivingearthexchange.org/projects/>

Affinity Groups

- **The Solar System Ambassadors Program (SSA)**
This is a STEM public engagement program designed to work with motivated volunteers across the nation. These volunteers communicate the excitement of NASA's space exploration missions and information about recent discoveries to people in their local communities. As of 2021, there are more than 1,000 ambassadors in all 50 states, Washington DC and U.S. territories, military bases, and consulates overseas. Volunteer ambassadors bring the excitement of space to the public. Ambassadors are space enthusiasts from various walks of life who are interested in providing greater service and inspiration to the community at large.
<https://solarsystem.nasa.gov/ssa/>
- **The Night Sky Network**
This is a nationwide coalition of amateur astronomy clubs bringing the science, technology, and inspiration of NASA's missions to the general public. Night Sky Network members share their time and telescopes to provide unique astronomy experiences at science museums, observatories, classrooms, and outdoors under the night sky.
<https://nightsky.jpl.nasa.gov>

Thank You

