

Techniques for Engaging the Public in Planetary Science

Public audiences are often curious about planetary science. Scientists and education and public engagement specialists can leverage this interest to build scientific literacy.

Make It Personal

Audiences are interested in personal stories, which can capture the excitement, joy, and challenges that planetary scientists experience in their research. Audiences can learn more about science itself by meeting planetary scientists and hearing personal stories about their motivations, interests, and how they conduct research. These personal stories can convey the variety of scientific methods, the roles that collaboration and communication play in science, the importance of creativity and diversity in science, and the ways that scientific explanations are revised and reinterpreted with new evidence.

For instance, share:

- How you first became interested in planetary science.
- The experiences that influenced your career and research.
- Some of the career and research challenges you faced.
- Aspects of your work that excite you.

Share Relevant Connections

Most audiences have very limited understanding of the solar system and the features and compositions of planetary bodies, but they enjoy learning about those factors that they can see in person, or that connect to their culture or local community.

For example:

- Show where to find your planetary body in the current night sky.
- Connect to what your audience has learned about the solar system.
- Describe your organization's role in your local community.
- Students might enjoy the relationship between the planets and the days of the week in different languages.
- Scouts might enjoy the theme of exploration.
- Share ways they can become involved in current activities or in the future of planetary exploration.

Demonstrate Concepts

Some concepts can be clarified with analogies, but others can be demonstrated or modeled with materials. Demonstrations that are messy, loud, or surprising are particularly good at capturing an audience's attention. (Caution: if they don't directly relate to the key concept, demonstrations can distract audiences from your point.)

For example:

- A full laundry hamper can be used to explain geologic superposition, with the oldest clothes at the bottom of the pile.
- Exploding water balloons can model the vaporization of an impactor and the scale of the resulting crater.
- Quarters and pennies can be used to model the Earth and Moon, demonstrating the Moon's rotation.

Give Them a Role

Audience participation is a useful engagement technique. Inviting audience participation should start early in a presentation, so that the change in flow isn't too abrupt for the audience, particularly for those unaccustomed to different styles of presentations.

Ask the audience a question:

- Invite them to take 30 seconds to discuss their answer with a neighbor.
- Post a multiple-choice question and invite them to vote using cards or their fingers.
- Invite a gymnasium of children to move to a corner of the room corresponding to their answer.

Members of the audience can be invited to demonstrate an activity, either individually, or as a group.

Facilitate an Activity

Enable the audience to conduct an activity. People learn best by doing and by teaching others; simple hands-on activities in which the audience is discovering something themselves can be extremely effective at engaging audiences.

Demonstrations and Activities

Short planetary science demonstrations easily adapted to different audiences include:

- Create scale models of the solar system to demonstrate distances.
- Use assorted balls, marbles, and beads to model scale sizes of planetary objects.
- Use blacklights and golf balls to model lunar phases.
- Use stereoscopic viewers, 3D images and glasses, or 3D printed surfaces to show interesting topographic features.
- Modify bathroom scales to show weight on different planets and moons.
- Compare meteorites to ordinary rocks with magnets and magnifying lenses.

Additional Planetary Science Activities

- NASA Wavelength: nasawavelength.org
- LPI's Explore program: www.lpi.usra.edu/education/explore
- Fast Lesson Finder (Solar System Exploration): solarsystem.nasa.gov/educ/lessons
- Exploring Planets in the Classroom (Hawaiian Space Grant): www.spacegrant.hawaii.edu/class_acts
- Mars NGSS STEM Lesson Plans (ASU): marsed.asu.edu/stem-lesson-plans
- Resources and Activities (JSC ARES): ares.jsc.nasa.gov/interaction/lmdp/educationresources.html

For more information or suggestions on this or other topics in Sharing Planetary Science, please contact the Lunar and Planetary Institute's Scientist Engagement efforts, at education@lpi.usra.edu.