

# Explore:

## Fun with Science in the Library

Keliann LaConte, Eve Halligan, and Stephanie Shipp  
Lunar and Planetary Institute, Houston, TX



The Lunar and Planetary Institute's *Explore* program invites library staff to open doors to the universe to children – no prior experience in science is required! For each of eleven different Earth and space science topics, *Explore* provides step-by-step instructions for a selection of hands-on activities, as well as supporting facilitator resources. The activities are featured in periodic in-person and online trainings for library professionals. Training graduates reported an increase in confidence in presenting science, technology, engineering, and mathematics (STEM) programs, and most are actively using *Explore* materials. Through the trainings, participants gain the skills, knowledge, and virtual network of support to bring exciting, current science to their communities. They pass along an excitement for Earth and space science and exploration — especially benefitting children in rural and other underserved areas, which may lack a science center or other source for science experiences.

"The *Explore* program has become a staple for library programs in our community...After offering our first series of afterschool programs at the elementary school, the feedback we received from the community was overwhelmingly positive and unexpected. Now our patrons practically demand science programming, and we include it in our annual budget planning with our Friends of the Library group."

Explore Training Participant

### Approach

With input from library professionals, *Explore*

- ❖ **Develops and disseminates hands-on activity guides, background information, and lists of supporting multimedia** about lunar science and exploration; the planets Earth, Jupiter, and Mars; rockets; health in space; and more ([www.lpi.usra.edu/explore](http://www.lpi.usra.edu/explore)). The hands-on activities are correlated to National Science Education Standards, rely on inexpensive materials, and can be flexibly implemented in existing or new programs.
- ❖ **Provides in-person trainings and interactive webinars** to library professionals and other community educators.
- ❖ Disseminates **news and science updates, resources, and opportunities** via the *Explore* blog and listserv, as well as partner networks.



Participants undertake hands-on activities, such as this exploration of "strange, new planets" (constructed from foam, modeling compound, and miscellaneous craft items), as part of their trainings.

"I am very grateful for the *Explore* program's outreach to libraries and library staff. Not only does it help us as Librarians find ways to engage and educate our patrons, but it makes us part of a larger network of educators as well as a larger support group."

"The information that I received at both workshops was invaluable and gave me the tools and inspiration to offer science programs I had not offered before."

Explore Training Participants

A follow-up survey of the *Explore* community was conducted in spring 2013, and the 168 respondents indicated that

- ❖ **86%** are actively using *Explore* materials
- ❖ **~60%** implement *Explore* activities on a regular basis

Compared to their perceptions from before participating in *Explore*:

- ❖ **Over 50%** feel more prepared to offer science and engineering experiences and more comfortable using related resources — and they are more likely to lead science and engineering programs themselves (instead of hiring others)
- ❖ **60%** are very committed to providing science and engineering experiences for their visitors (compared to 16% before the training)
- ❖ **Over 75%** are more likely to advocate for including science and engineering in the programs offered at their facilities



A child at Sterling Municipal Library (Baytown, TX) explored health in space and created an "astronaut" using pipe cleaners and beads that change color when exposed to solar radiation.

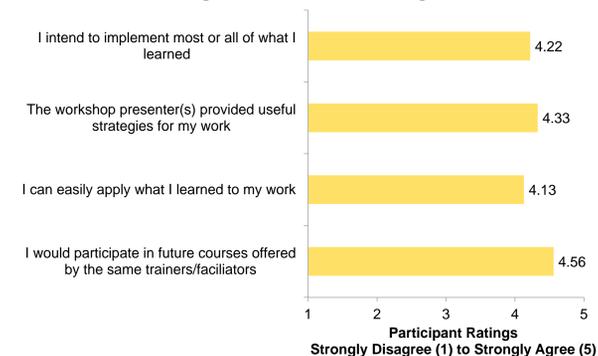
### Indicators of Success

Over the program's 15-year-history, 830 library professionals and other community educators (from 35 states) have graduated *Explore* trainings. Data was collected during in-person trainings by *Explore* program staff or external evaluators. Pre- and post-tests showed that, overall, participants gained statistically significantly in Earth and space science knowledge from pre- to post-training. Surveys, administered at the end of each training day or after the final day, measured ratings of the featured hands-on activities, discussions, materials provided, and quality of the training overall. Overall, the trainings increase the participants' confidence, as well as their self-reported ability and intention to use the activities. For example, 17 participants at a training in Morgantown, WV in September 2012 reported their preparedness, confidence, and perceived ability to lead activities on a scale from very low (1) to very high (5), as shown in Figure 1 (Swackhamer, 2013). They ranked their agreement with statements about the usefulness of the training in Figure 2.

Fig. 1: Self-reported Ability, Confidence, and Preparedness to Lead Space Science Activities



Fig. 2: Usefulness of Training



### Conclusion

Evaluation data indicate that *Explore* is succeeding in its goal to provide the content knowledge, skills, and materials that library professionals need to engage and inspire library patrons in current explorations of Earth and our solar system — allowing them to bring the excitement and discoveries of the science and engineering professions to young people across the nation!

### References and Acknowledgements

Unless otherwise indicated, all data are credited to S. Buxner and A. Jaksha, Planetary Science Institute. Preliminary data provided via email communications, June 19, 2013.

Swackhamer, L. E. and Holdgreve-Resendez, R. (2013). *Juno Education and Outreach Program -- LPI Explore!* Denver, CO: RMC Research Corporation.

The *Explore* program is supported by funding from NASA and the National Science Foundation.

### Contact Us!

Explore Program  
Lunar and Planetary Institute  
Education and Public Outreach  
[Explore@lpi.usra.edu](mailto:Explore@lpi.usra.edu)  
[www.lpi.usra.edu/explore](http://www.lpi.usra.edu/explore)