

**EXPLORE! MATERIALS FOR SHARING EARTH AND SPACE SCIENCE IN LIBRARIES AND AFTER-SCHOOL PROGRAMS.** B. Nelson<sup>1</sup> and S. Shipp<sup>2</sup>, <sup>1</sup>Lunar and Planetary Institute (3600 Bay Area Boulevard, Houston, TX 77058), <sup>2</sup> Lunar and Planetary Institute (3600 Bay Area Boulevard, Houston, TX 77058).

### Introduction: What is the Explore Program?

The Lunar and Planetary Institute's *Explore!* program is designed to engage youth, ages 8-13, in Earth and space science in library and after school settings. Through hands-on, inquiry based activities, children become immersed in the wonders of science through topics such as Rockets, Comets, The Solar System, Space Stations, Shaping the Planets, Health in Space, To the Moon and Beyond - with NASA's LRO Mission, Mars: Inside and Out and more!

The Institute's *Explore!* team trains library and after-school program staff through workshops and Web casts, to engage families and children in their communities in Earth and space science. Currently *Explore!* is offered by over 350 facilitators in 16 states.

### Why Libraries and After-School Programs?

The public library of today is very different from that of 10 years ago. Recognizing that they are the only public institutions to offer free access to information, technology, and services to educationally at-risk populations, libraries are evolving from storing books to offering information and lifelong learning opportunities with an emphasis on meeting visitor's needs. Libraries often are located within reach of underserved communities in rural and urban areas. As these audiences traditionally do not participate in programs, libraries are actively working to attract and engage them.

The role of after-school programs has evolved as well; traditionally, such programs provide nurturing experiences, including sports, crafts, and homework help. The US Department of Education's 21st Century Community Learning Centers (CCLCs) and other after-school programs have increased emphasis on *academic* learning, in part to help schools meet No Child Left Behind Act requirements; indeed, the CCLC's are the state-based after-school programs mandated by No Child Left Behind. This opens an opportunity to engage children in space science in after-school programs.

Attuned to the need to support academic achievement, and of their community's interest in science, libraries and after-school programs are striving to provide science programming. Pacing this increased demand is the need for materials and training; these organizations have little experience in science content and engage-

ment. *Explore!* provides their staff with current, accurate science and prepare them to introduce science to children, to make it accessible and engaging, and to support further learning.

### Module Materials

The modules include hands-on inquiry based activities and demonstrations, content to support the facilitator, and suggested reading and Web resources, many of which are NASA resources, for further exploration.

The modules are designed specifically for the informal learning environments of libraries and after-school, and librarians and after-school program providers are included as development team members. Activities explicitly are designed to meet audience needs by:

- being easy to implement with groups of children or families of varying sizes;
- being easy to divide or combine to implement in varying timeframes and varying settings;
- requiring little content preparation by the facilitator and providing all content needed;
- being inexpensive and utilizing as many easily available materials as possible;
- engaging the children in fun, active science learning; and
- incorporating a "take home" component that the child can share with family and friends.

While prepared for the informal learning environment, the materials are connected to the National Science Education Standards, as many of the library and after-school programs need to demonstrate the academic skills and content knowledge their programs are supporting.

All materials are available at:

<http://www.lpi.usra.edu/education/explore>.

### *Explore!* Module Examples

Come visit the demonstration to look at two of the most recent *Explore!* modules - *To the Moon and Beyond - with NASA's LRO Mission* and *Explore! Mars: Inside and Out*.

*To the Moon and Beyond - with NASA's LRO Mission* focuses on the upcoming mission to the Moon, and includes activities about the LRO mission, processes that formed and shaped our Moon, the search for water and other resources on the Moon, and the challenges of locating sites for future lunar outposts! *To the*

*Moon and Beyond* was developed through a collaboration between the Lunar and Planetary Institute's (LPI) Department of Education and Public Outreach and the LRO Education and Public Outreach team and LRO scientists and engineers.

<http://www.lpi.usra.edu/education/explore/LRO/>

*Mars: Inside and Out!* compares Mars and Earth by exploring common features such as volcanos, craters, and stream channels. The children become Geologic Scene Investigators and perform experiments to determine how these features form, then discuss what the features suggest about the history of Mars as well as what they tell us about Mars' interior. They also create and compare models of Mauna Kea and Olympus Mons, make edible models of Earth and Mars, examine the patterns of volcanos on the two planets, and discover why volcanos on Mars are so big! As planetary sleuths, Geologic Scene Investigators reinforce what they have learned by answering questions on the activities in their GSI Journals. <http://www.lpi.usra.edu/education/explore/mars/index.shtml> provided.