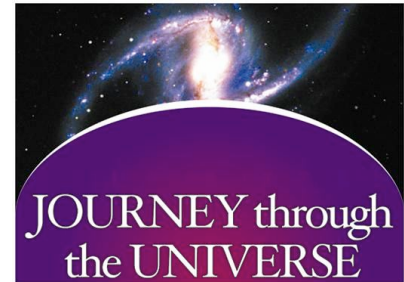


## 4. Provided Community Resources

*Journey through the Universe* provides a suite of resources to a community in support of all programming, and to extend the experiences of audiences. The **Community Resources Package** includes Grade K-12 Education Modules that serve as the curriculum for programming, and a ‘How To’ Manual to maximize program impact and delivery.



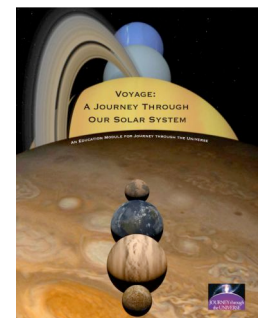
**Grade K-12 Education Modules**—compendia of inquiry-based, hands-on lessons at elementary, middle, and high school levels—that are used as the curriculum for community-wide programming. Five Modules are currently available covering topics such as exploration of the Solar System, galaxy, and Universe; Earth systems science; the search for extraterrestrial life; building a permanent human presence in space; and engineering interplanetary spacecraft.

- Each Module includes an Education Unit at three (K-4, 5-8, 9-13) or four (K-2, 3-4, 5-8, 9-13) grade levels. Each Unit contains lessons comprised of content overviews, pre-knowledge assessment, inquiry-based hands-on activities, assessment rubrics, resource listings, student worksheet masters, and answer keys. Typically each Unit also contains a lesson to be done by students with their family at home, and a lesson specifically dedicated to the process of science.
- Each lesson is developed from the National Science Education Standards with a focus on a specific standard. Two Modules (*Voyage* and *Staying Cool*) also address AAAS Benchmarks for Science Literacy.
- Lessons are designed to develop conceptual understanding through activities that seamlessly integrate content and process. Lessons are instructionally designed to support facilitation of inquiry-based learning.

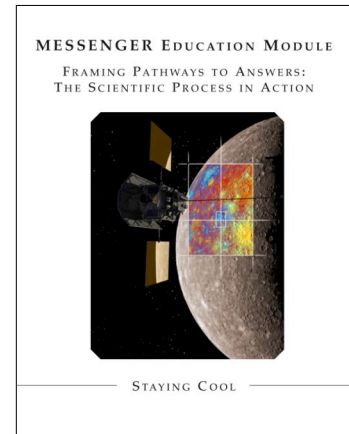
Available on request: an overview of the *Journey through the Universe* lesson layout; a description of each Module’s storyline, lesson objectives, embedded inquiry-based activities, and connections to standards; and extensive assessment data from educators on the content, design, and curricular relevance of the Modules.

Modules currently available:

- ***Voyage—A Journey Through the Solar System*** uses the remarkable power of models to provide an understanding of Earth’s place in the Solar System and the Sun’s place among the stars. The Module was created as part of the *Voyage Project*, which includes permanent placement of a one to 10-billion scale model of the Solar System on the National Mall in Washington, DC, and sites worldwide (<http://voyagesolarsystem.org>). [Included grade level units: K-2, 3-4, 5-8, 9-12]
- ***Earth Systems Science*** focuses on the interactions of Earth’s four systems: biosphere, atmosphere, hydrosphere, and geosphere. Lessons are designed to demonstrate that observed phenomena on Earth are not unique to a particular system but arise from a systems interaction. [Included grade level Units: K-4, 5-8, 9-12]
- ***Staying Cool*** explores the extreme environment of space, the challenges of operating a spacecraft in such an environment, and the engineering solutions that enable the human race to send spacecraft to study other worlds. *Staying Cool* was developed in support of NASA’s MESSENGER spacecraft mission to Mercury (<http://messenger.jhuapl.edu>), and in collaboration with the Carnegie Institution of Washington and Project 2061 of the American Association for the Advancement of Science. *Staying Cool* went through NASA peer review in 2004 and received an ‘outstanding’ grade for both scientific content and pedagogy. [Included grade level Units: PreK-1, 2-4, 5-8, 9-12]



- *Building a Permanent Human Presence in Space* explores the nature of the space environment and the challenges it imposes for life; why we would want to put humans in space; and how we would construct a permanent space habitat. [Included grade level Units: K-4, 5-8, 9-12]
- *Are There Other Neighborhoods Like Our Own? Searching for Abodes of Life in the Universe*, explores the essential requirements for life in ‘our neighborhood’, and uses this case study as a means of searching for other abodes of life. [Grades K-4: Earth-Moon system; Grades 5-8: Solar System; Grades 9-12 Universe]



**A Community ‘How-To’ Manual**—extensive resources for marketing, advertising, and conducting *Journey through the Universe* programming. The Manual is based on a 10-year heritage of program experience and includes:

options for tailoring programs to meet a community’s needs and maximize impact; approaches to, and presentation tools for, developing community-wide collaborations and buy-in; all of the logistics and marketing tools necessary for conducting successful programming; and a suite of assessment templates, with data analysis provided by the Center. Organized by programming element (educator workshops, classroom visits, and family/public events) the Manual covers pre, during, and post activities.

**Ask A Space Scientist** and **Ask a Space Science Educator**—connects teachers in *Journey* communities with scientists, engineers, and educators from the Center and the Visiting Researcher / Visiting Educator corps, to address teachers’ questions on content and pedagogical approaches in the classroom.

**A Journey through the Universe Web Site**—provides resources, activities, and information for the community’s Local Team, educators, students, and the public.

**Teachable Moments in the News (TMN)**—a newsletter that takes recent Earth and space science related news stories and places them in a context relevant to the science curriculum through inquiry-based lessons. It equips teachers to use a breaking news story to create a *teachable moment* in the classroom. *TMN* is meant to provide educators a seamless pathway from the news desk to the classroom.

**Opportunities Clearing House**—web and listserv-enabled environments that provide *Journey* communities awareness of, and facilitated access to, the diverse educational resources and opportunities available from our national partners, including: NASA and other federal agencies, universities, museums, science centers, and businesses.

**Donated Educational Materials**—posters, lithographs, multimedia packages, *etc.*, as available, that are donated by Earth and space science research and education organizations across the nation for distribution to *Journey through the Universe* communities. A donation package is provided to each school and informal science organization represented at the educator workshop(s).

<http://journeythroughtheuniverse.org>

Contact: Dr. Harri Vanhala; 410-740-6241; [hvanhala@usra.edu](mailto:hvanhala@usra.edu)

National Center for Earth and Space Science Education  
Universities Space Research Association  
10211 Wincopin Circle, Suite 500, Columbia, MD 21044-3432  
Phone: 410-740-6224, Fax: 410-730-1359



*We believe that to continue the legacy of scientific exploration, every generation must be inspired to learn what we know about our world and the Universe, and how we have come to know it.*

*We also believe that it takes a community to educate a child...*

*and that it takes a network of communities to reach a generation.*