



ANNOUNCEMENT OF OPPORTUNITY

Bring the Solar System to *Your* Community — Become a MESSENGER Fellow

Take part in the current golden era of Solar System exploration by becoming a MESSENGER Educator Fellow! As an integral part of NASA's MESSENGER mission to Mercury, the Fellows will help bring the excitement of this daring mission to classrooms across the nation.

What is MESSENGER?

Humankind is sending a spacecraft back to Mercury! NASA's MESSENGER (MErcury Surface, Space ENvironment, GEOchemistry, and Ranging) mission will be only the second spacecraft to ever visit, and the first to orbit, this enigmatic planet. After its launch in 2004 and a flyby of the Earth in 2005, the robotic spacecraft is now heading to the inner Solar System to fly by Venus (in 2006 and 2007) and Mercury (in 2008 and 2009) before going into orbit around Mercury in 2011. MESSENGER will not only dramatically increase our understanding of Mercury, but also help reveal the story of the Solar System's formation.

How would you like to help take the nation along for this thrilling ride as a MESSENGER Educator Fellow? Visit

<http://MESSENGER.jhuapl.edu> for more information; click "Education" for information on the education and public outreach efforts of the mission, including the MESSENGER Educator Fellowship Program.



An artist's conception of the MESSENGER spacecraft in orbit around Mercury.

What is a MESSENGER Educator Fellow?

An essential part of the MESSENGER education and public outreach program is a nationwide teacher training initiative whereby a cadre of thirty Fellows—master science educators—conduct teacher training workshops nationally, training up to 27,000 grades preK-12 educators over the mission lifetime. Fellows train educators on education materials (termed MESSENGER Education Modules) developed by the MESSENGER education and public outreach team. To date, over 3,800 educators across the nation have been trained by the MESSENGER Educator Fellows. Taking part in the MESSENGER Educator Fellowship Program is a great opportunity for educators to make a broad, yet profound impact in science education in the preK-12 community.



The first class of MESSENGER Educator Fellows during training workshop in 2003.

The mission of the National Center for Earth and Space Science Education is to use explorations of Earth and space, and new technologies in aeronautics and astronautics, to inspire current and future generations. The vision is America's continued legacy as a leader on these frontiers of science and technology well into the 21st century, enabling human exploration for generations to come. The Center is a national facility of the Universities Space Research Association (USRA; www.usra.edu).

—Celebrating the past, embracing the present, and inspiring the future—

What are MESSENGER Education Modules?

MESSENGER Education Modules include inquiry-based, hands-on lessons for grades preK-12 that are aligned to the National Science Education Standards and Benchmarks for Science Literacy. The Modules focus on Solar System science, Solar System exploration through history, and the process of designing, constructing, and sending a spacecraft to another planet.

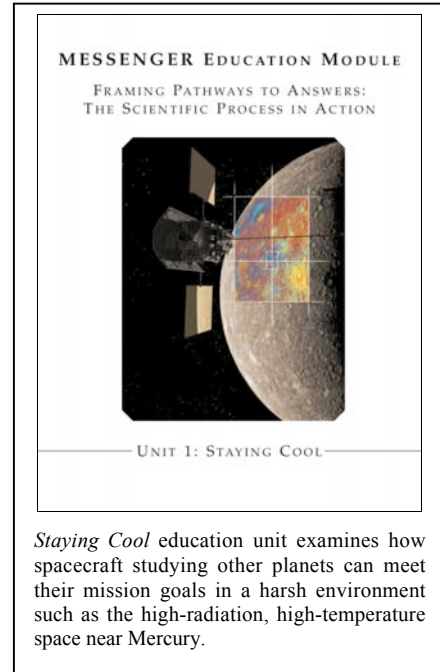
The first education unit developed for the program, *Staying Cool*, explores the basic concepts of light, heat, and energy to investigate how spacecraft such as MESSENGER can study planets using light and radiation without being damaged by the harsh high-temperature, high-radiation environment in which they have to operate. *Staying Cool* was developed in concert with the American Association for the Advancement of Science's Project 2061, and it received outstanding grades for both scientific content and pedagogy from the NASA Office of Space Science's Education Product Review in 2004.

Another education unit on which educators are trained is *Voyage: A Journey Through the Solar System*, which investigates Earth's place in the Solar System using models as powerful tools of exploration. The *Voyage* education materials are designed to help teachers nationwide bring into the classroom the excitement of the *Voyage* 1:10-billion scale model of the Solar System located on the National Mall in Washington, DC (see <http://www.voyageonline.org/> for more details).

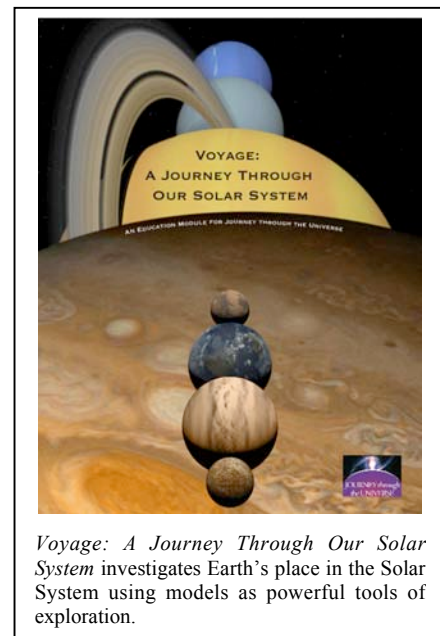
Future planned MESSENGER education units include a comprehensive look into the process of designing spacecraft missions in general (*Mission Design*), investigation of the importance of water in the form of ice in the Solar System (*Ice in the Solar System*), further exploration of the Solar System using models (*The Voyage Continues*), a study into the history of Solar System exploration (*Stories Across Cultures*), as well as an opportunity for students to use real MESSENGER data in the classroom (*Using MESSENGER Data*).

What organizations are involved in the MESSENGER mission?

The MESSENGER mission is supported by the NASA Discovery Program under contract to the Carnegie Institution of Washington (CIW) and the Johns Hopkins University Applied Physics Laboratory (JHU/APL). The MESSENGER education and public outreach program team includes individuals from the following organizations: National Center for Earth and Space Science Education (NCESS) at Universities Space Research Association (USRA), Carnegie Institution of Washington Carnegie Academy for Science Education (CIW/CASE), Center for Educational Resources at Montana State University–Bozeman (CERES/MSU–Bozeman), American Association for the Advancement of Science (AAAS), Minority University–SPace Interdisciplinary Network (MU-SPIN), Smithsonian Institution National Air and Space Museum (SI/NASM), and Science Systems and Applications, Inc. (SSAI). The MESSENGER Educator Fellowship Program is managed by NCESS.



Staying Cool education unit examines how spacecraft studying other planets can meet their mission goals in a harsh environment such as the high-radiation, high-temperature space near Mercury.



Voyage: A Journey Through Our Solar System investigates Earth's place in the Solar System using models as powerful tools of exploration.

What is the commitment expected of a MESSENGER Educator Fellow?

This recruiting class of Fellows must commit to conducting MESSENGER educator-training workshops for a minimum of **100 teachers per year** for a total of two years, beginning in summer 2006, and sharing evaluation information from the workshops with NCSSE.

If selected as a MESSENGER Educator Fellow, what will you receive?

To help you become an effective MESSENGER Educator Fellow, and to help you reach the program goals, you will receive the following:

- ❖ A package of materials to establish your credentials as a representative of a NASA spacecraft mission, including:
 - ◆ Business cards which identify you as a MESSENGER Educator Fellow; the cards will bear logos from NASA, CIW, JHU/APL, and NCSSE.
 - ◆ A press release about your acceptance to the program; the press release can be issued to media outlets in your community.
 - ◆ A letter of introduction from the NCSSE Center Director to authorizing officials (e.g., superintendents and museum directors) at potential workshop venues; the letter establishes you as a MESSENGER Educator Fellow connected with a current NASA spacecraft mission.
 - ◆ A personal Web environment at the MESSENGER Educator Fellowship Program Web site to promote your workshops (currently being planned).
- ❖ An all-expense-paid, five-day training workshop in Washington, DC, in summer 2006; the workshop includes:
 - ◆ Information on the science and engineering behind the mission, including presentations by and social events with MESSENGER mission scientists and engineers.
 - ◆ Tours of the Smithsonian National Air and Space Museum, including the new Steven F. Udvar-Hazy Center, and the Johns Hopkins University Applied Physics Laboratory MESSENGER Mission Operations Center (subject to availability of these facilities during the workshop).
 - ◆ Training on the MESSENGER Education Modules, including recipes for success in using the Modules in teacher training workshops as well as in classrooms.
 - ◆ An overview of program logistics and reporting documents.
 - ◆ Best practices on planning and conducting effective teacher training workshops.
 - ◆ Training on *Teachable Moments in the News*, a resource that offers ways to bring current space science events into the classroom.
 - ◆ An introduction to the MESSENGER Educator Fellowship Program Web environment, including online reporting tools and personal Web spaces.
- ❖ A presenter's package for conducting MESSENGER workshops, including
 - ◆ Copies of the grades preK-12 MESSENGER education units (which include the currently available *Staying Cool*, and *Voyage: A Journey Through the Solar System*, as well as *Ice in the Solar System*, *The Voyage Continues*, and *Mission Design*, to be available in 2006.)



MESSENGER Educator Fellows performing an activity from the lesson "Sensing the Invisible - the Herschel Experiment" from the *Staying Cool* education unit during the training workshop in 2004.



MESSENGER Educator Fellows performing an activity from the lesson "Star Power! Discovering the Power of Sunlight" from the *Staying Cool* education unit during the training workshop in 2004.

- ◆ A how-to manual on planning, advertising, conducting and assessing effective teacher training workshops, including sample workshop agendas, best practices on facilitating educator training workshops, and approaches to adapting MESSENGER education content for curricula concentrating on math, technology, reading, and writing.
- ◆ Multimedia resources, including posters and CD-ROMs.
- ◆ Educational supplies necessary to conduct workshops.
- ❖ An annual allowance of up to \$250 to help cover the cost of conducting workshops.
- ❖ Ongoing logistical and informational support from NCESSSE for all aspects of the MESSENGER Educator Fellowship Program.
- ❖ Ongoing detailed analysis of the assessments of your workshops based on the feedback provided by the workshops attendees.
- ❖ A MESSENGER Educator Fellowship Program Update Session to take place in spring/summer 2007 (details to be determined).



MESSENGER Educator Fellows performing an activity from the lesson "How Far Is Far?" from the *Voyage: A Journey Through the Solar System* education unit during the training workshop in 2004.

How will Fellows be selected?

This Announcement of Opportunity is intended to recruit a new cadre of thirty Educator Fellows capable of making a two-year commitment to the program (academic years 2006-2007 and 2007-2008). In order to maximize the reach of the program, Fellows are usually chosen to reflect a geographically and institutionally diverse mix of individuals from a variety of settings—science centers/museums, school districts, universities, educational organizations, etc. While a variety of factors will be used in the final selection, a MESSENGER Educator Fellowship candidate must be actively teaching students or conducting teacher training in a formal (traditional classroom setting, school district) or informal (museum, science center, etc.) science education environment. Experience with teacher/adult training is not required but is strongly desirable.

The application submission requirements are:

- ❖ A completed application form.
- ❖ A current resume or curriculum vitae.
- ❖ A written letter of commitment from your host institution (current employer or sponsoring organization) to provide you release time to conduct MESSENGER educator training workshops, and an expressed willingness to support you in these efforts throughout the two-year Fellowship.
- ❖ Two letters of reference from individuals or institutions that are familiar with your teaching style and can speak to your success as a presenter.
- ❖ A two-page proposal outlining an implementation plan for the workshops you would conduct, including possible venues, audiences, and goals.
- ❖ A ten-minute video sample of yourself teaching/training an audience on an inquiry-based, hands-on lesson. The video sample should clearly demonstrate your abilities to facilitate inquiry-based learning. If for some reason you cannot submit a video sample, please submit a written explanation as to why you cannot. Please note, however, that applications with a video will be given higher consideration than those without.

To receive an application form or if you have any questions, please contact the MESSENGER coordinator either by e-mail (messenger@usra.edu) or phone (202-689-1238). Applications are due at NCESSSE by March 31, 2006. Fellowship awards will be announced by April 21, 2005. The training workshop is currently scheduled to take place June 26-30, 2006.