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.

It takes a community to educate a child... and a network of communities to reach a generation.
To Space Grant Directors, Lead Institutions and Consortia Members across the Nation, we would love to partner with you to reach grade **K-16** students, teachers, families – even entire communities in your state. We have a 20-year heritage of national programs that powerfully inspire and educate the next generation.

**Our organization:** [http://ncesse.org](http://ncesse.org)  **Our programs:** [http://ncesse.org/programs](http://ncesse.org/programs)  **Our Content:** [http://ncesse.org/content/](http://ncesse.org/content/)  **Testimonials:** [http://ncesse.org/testimonials/](http://ncesse.org/testimonials/)  **Assessment:** [http://journeythroughtheuniverse.org/program_overview/po_as.html](http://journeythroughtheuniverse.org/program_overview/po_as.html)

**Our latest program:** the Student Spaceflight Experiments Program (SSEP), partnering with 10 Space Grant lead institutions in CT, FL, KY, LA, MD, NM, NC, OR, TX, and WA.  [http://ssep.ncesse.org](http://ssep.ncesse.org)

**Coming October 2010:** VOYAGE, a 2-day community-wide celebration of solar system exploration in support of NASA’s Year of the Solar System, and leveraging the resources of our Voyage National Program – the scale model solar systems we are permanently installing in communities across the nation. In each participating community, VOYAGE will include: a family/public program for 200 – 2,000 attendees, patterned after our award-winning NASM Program; and a 1-day PD workshop for 30-150 teachers on the Voyage and NASA MESSENGER K-12 lessons we’ve created.

Call me anytime: Jeff Goldstein, Center Director, NCESSE  Cell: 301-395-0770; [jeffgoldstein@ncesse.org](mailto:jeffgoldstein@ncesse.org)

p.s., I’m doing the keynote for NSTA Kansas City  October 2010, if you’re going to KC, let’s get together.
At a time when there is a great disparity in educational preparedness for students across America...

At a time when it should be the birthright of all students to an education that allows them to successfully enter the job markets of the 21st century...

At a time when America must inspire its next generation of scientists and engineers if we as a nation are to compete in the technology markets of the 21st century...

The National Center for Earth and Space Science Education (NCESSE) creates and oversees national programs addressing science, technology, engineering, and mathematics (STEM) education, with a focus on earth and space. Programs are designed to provide an authentic window on science as a human endeavor, and to *inspire ... then educate*.

A central objective of the Center’s programs is to help continue America’s legacy as a leader on the frontiers of
National Center for Earth and Space Science Education

Inspire...then Educate

Learning Community Model

**Formal Education**
- Programming for Students (grades preK-20)
- Professional Development for Pre- & In-service Educators (grades preK-13)

**Community-based Consortium of Organizations**
- Lead Organization within a Community (School District, University, Museum)
- Distance Learning & Web-based Programs

**Informal Education**
- Public Programs (families, adults, and children)
- Exhibitions and Related Programs
Strategic, Systemic, Sustainable Support

We seek to engage communities in comprehensive educational programming:

• The breadth of the Center’s program capabilities allows a community to address its unique strategic needs in STEM education through programs tailored to that community.

• Programs are delivered systemically—providing audiences across entire school districts with experiences that are embedded at the curricular level and enhanced at home and in informal venues like museums and science centers.

• Content and resources are provided on an ongoing basis to ensure sustainable programs that can make a lasting difference.
NCESSE Program Heritage–
Journey through the Universe
Journey through the Universe

A national community outreach program providing communities with diverse educational resources, including original programming, curriculum materials, and educator training delivered through a network of scientists and educators. We work with the community as a whole to support community-based learning.

Typical programming delivered to each community includes:

- Classroom presentations by space science researchers and educators to 4,000-10,000 grade K-13 students;
- Training for 100+ grade K-13 educators;
- Family events for 100-2,000 parents, students, and teachers.

A Foundation for Expanding and Deepening Our Work with Communities
Voyage

A celebration of what we know about our place in space ... and that we can know it.
Voyage National Program  Click for web page

A space science education experience for an entire community—students, teachers, families, and the public—that uses the power of models to understand Earth’s place in the Solar System and the Sun’s place among the stars.

Elements:

• Permanent installation of a replica of the Voyage one to 10-billion scale model Solar System exhibition on the National Mall in Washington, DC:
  
  • a seamless fusion of sculpture and science education: approved by the U.S. Commission of Fine Arts and the National Capitol Planning Commission.
  
  • 13 to 15 anodized aluminum stanchions: with model worlds laser-sculpted in 3-D inside crystal, and full color high resolution storyboards in porcelain enamel.
  
  • a humbling experience: the model worlds provide the true nature of our existence. All of humanity—over 6 billion souls—lives on a tiny, fragile planet Earth, as part of the Sun’s solar system, and the Sun, our star, is but one of countless stars.
  
  • revealing that beauty had nothing to do with size: in stark contrast to the tiny worlds, the full color storyboards provide an up close look at each world in compelling text and imagery.
  
  • a tactile experience: the Sun, planets, and their names are also provided in tactile relief for the vision impaired.

Smithsonian Secretary Lawrence Small, National Air and Space Museum Director John Dailey, NASA Administrator Dan Goldin, and Challenger Center President Vance Ablott preside over Voyage opening ceremonies on the National Mall, October 2001.
Voyage National Program

Elements continued:

- **Extensive suite of programs, a grade K-12 curriculum, and other resources, allowing the Voyage exhibition to be a focal point for sustainable and systemic community-wide science education.**

  - *Standards-based grade K-12 lesson packages* used before and after a tour of the exhibition, and robust enough to be adopted by a school district as some or all of the space science curriculum. Each year, the Center trains over 1,000 educators on the Voyage lessons. [Click for web page](#)


  - Through the Center’s *Journey through the Universe program*:

    - Suite of *professional development workshops* for grade K-12 educators. [Click for web page](#)

    - *Family and public programs* each for hundreds of attendees, based on award-winning programming conducted by the Center at the Smithsonian’s National Air and Space Museum for 17 years. [Click for web page](#)

    - *National Teams of scientists and engineers—serving as heroes and role models* visiting thousands of students across entire school districts—one classroom at a time. [Click for web page](#)

    - *A commitment to assessment* for all programming. [Click for web page with protocols, analysis, and downloadable reports](#)

*These resources define a Learning Community Model* for delivery of the Voyage National Program.
Voyage  A celebration of what we know about our place in space ... and that we can know it.

The Voyage Exhibition in Kansas City, MO

Opening Date: October 10-11, 2008

On the Web: http://voyagesolarsystem.org

Contact: Dr. Jeff Goldstein, Program Director, Voyage National Program, jeffgoldstein@ncesse.org, 301-395-0770

Last Rev: 12/30/08
Voyage  A celebration of what we know about our place in space ... and that we can know it.

The Voyage Exhibition at Space Center Houston

Opening Date: November 14, 2008

On the Web: http://voyagesolarsystem.org

Contact: Dr. Jeff Goldstein, Program Director, Voyage National Program, jeffgoldstein@ncesse.org, 301-395-0770

Last Rev: 11/22/08
Voyage  
A celebration of what we know about our place in space ... and that we can know it.

The Voyage Exhibition in Corpus Christi, Texas  
Opening Date: July 18-20, 2009

On the Web: http://voyagesolarsystem.org

Corpus Christi Photo-album:  
http://voyagesolarsystem.org/facebook/cc

Contact: Dr. Jeff Goldstein, Program Director, Voyage National Program, jeffgoldstein@ncesse.org, 301-395-0770  
Last Rev: 7/22/09
Imagine—

More than one million Earths fit in the Sun.

More than 800 million Suns fit in the star Betelgeuse.

© 2008 National Center for Earth and Space Science Education
Voyage Grade K-12 Lessons—the Voyage Education Module

• Includes an Education Unit at four grade levels: lower elementary (K-2); upper elementary (3-4); middle (5-8); and high school (9-12).

• 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.

• Lessons were developed from the ground up from national science education standards and benchmarks, and are comprehensive enough to be adopted by school districts as some, or in the case of grades 5-8, all of their space science curriculum.

• Lessons target core standards and benchmarks through inquiry-based, hands-on activities whose objective is deep conceptual understanding of both content and process.

• The lessons are meant to work in concert with a trip to a Voyage exhibition, serving as pre- and post-visit activities.
Outdoor Exploration Guide Customized to the Community

A visitors guide that can be made available at multiple visitor information sites across the community. Goals:

Visitor Orientation and Resources—
• an overview of the Voyage exhibition and its connection to Voyage on the National Mall
• a site map
• tips for touring
• approaches to tactile learning for the vision impaired
• information for teachers
• acknowledgment of local funders/partners
• URLs allowing the visitor to Continue the Voyage at home

Facilitate Inquiry-Based Learning—
• extend the exhibition experience by allowing the visitor to be the explorer, with challenges in the Guide for each stanchion.
• use Voyage as more than a passive exhibition—put it to work as an inquiry-based laboratory for Solar System exploration.

Added Customization by the Community—
• provide community the ability to insert a site-specific photograph and limited additional information.
MESSENGER Educator Fellows

NCESSE oversees the MESSENGER Educator Fellowship Program, and the development of curriculum packages, in support of NASA’s MESSENGER spacecraft mission to the planet Mercury.

On August 3, 2004, NASA launched the MESSENGER spacecraft to Mercury, the second mission to the planet. Unlike its predecessor Mariner 10, which flew by Mercury in 1974 and 1975, MESSENGER will enter orbit in 2011 and begin a full year of observations. MESSENGER is destined to change our view of Mercury—and how our Solar System was born.

MESSENGER is a NASA Discovery Mission headed by the Carnegie Institution of Washington (CIW) and managed by the Johns Hopkins University Applied Physics Laboratory (APL). It was taken from idea to reality by a remarkable, inter-organizational team headed by Sean Solomon, Director of CIW’s Department of Terrestrial Magnetism. Sub-teams for engineering, mission operations, science, and the suite of instruments aboard the spacecraft provide areas of concentration that make a space flight mission possible.

There is a dedicated team of organizations conducting education and public outreach (E/PO) activities in support of the mission—so that the human race can go along for the ride. The National Center for Earth and Space Science is an organizational member of the E/PO Team.

The Center oversees:

- The development of the grade 5-8 (middle school) and grade 9-12 (high school) units of the MESSENGER Education Modules—conceptually powerful grade K-12 compendia of lessons addressing Solar System science and engineering. These include the Voyage Education Module on Solar System science, and the Staying Cool Education Module on engineering. A Mission Design Module will be completed in Spring 2010.

- The MESSENGER Educator Fellowship Program, through which we recruit, train, and support a corps of 30 of the best science educators in the nation—the MESSENGER Fellows. The Fellows in turn train 3,000 teachers a year on the MESSENGER Education Modules, through professional development workshops they conduct across the nation.

Meet the MESSENGER Fellows

As of March 23, 2010, 14,537 grade K-12 teachers have been trained at 620 workshops conducted by the Fellows. The goal is to train 27,000 teachers over the mission lifetime, translating into experiences for over 1 million students.

- Delivery of Solar System content through the Center’s community initiatives, e.g., Journey through the Universe, and Family Science Night at the National Air and Space Museum, with participation by the MESSENGER Fellows and MESSENGER scientists and engineers.
Family Science Night

at the Smithsonian’s National Air and Space Museum

The Center’s Family Science Night program takes place at the most visited museum on the planet. Millions of visitors a year come to the National Air and Space Museum to see the machines that gave life to human dreams of flight in air and space.

A school field trip designed for family learning, Family Science Night is held after hours so that hundreds of students, parents, and teachers from Washington, DC, metro area schools may have the museum to themselves. Attendees explore galleries, experience the universe through IMAX® films, and hear a presentation by a dynamic space scientist. The presentation is the program’s centerpiece, providing a very personal view of exploration on the frontier and the spellbinding, wondrously human stories behind the machines that changed the world.

The program fosters wonderful opportunities for parents and their children to talk about science, our world, and the cosmos—it helps launch family learning. Schools can choose from 9 presentations and 7 IMAX® films, allowing educators to integrate the program into the curriculum.

With the curricular connection, Family Science Night provides parents a window on the education of their children; schools a way to build bridges to the community; the Museum a chance to augment the classroom experience with their unique collections, exhibits, films, and educational programs; and researchers an opportunity to share what it’s like to work on the great frontiers.
The Final Countdown: Shuttle Atlantis Soars Heavenward for Last Time – A Teachable Moment

Posted by DrJeff on May 12th, 2010

Filed under 1.4. Teachable Moments in the News, 6. Cool Spacecraft

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Arthur C. Clarke Space Ambassadors

1,000 Citizens of the World advocating for the exploration of space, and engaging children, families, teachers, and the public through space education programs.

Do you have the right stuff to be a Space Ambassador?

FIND OUT MORE

The Arthur C. Clarke Institute for Space Education is dedicated to delivering education programs world-wide which address our planet, its health, and our ability to venture beyond Earth and understand our place in a greater cosmos. It is with profound honor and a deep sense of purpose that in some small measure we help continue Sir Arthur C. Clarke’s legacy.

The Clarke Institute for Space Education is the international arm of the National Center for Earth and Space Science Education in the USA, which recognizes that all humanity is on a journey about space and Earth, and it should be the birthright for all our children to understand that the explorer lives within them.

Learn more about the Clarke Institute, and explore how you can be part of Sir Arthur’s legacy.

Search

Enter search keyword

Submit

NEWS FROM THE BLOG

Arthur C. Clarke Institute Launch: June 1, 2010

Posted by admin on 24. Apr, 2010
Arthur C. Clarke Institute for Space Education

Planet Earth Educator Fellows
Honoring Our Planet by Protecting It

Master Science Educators across the planet dedicated to training 10,000 teachers a year on Global Climate Change.

Become a Planet Earth Educator Fellow

The Arthur C. Clarke Institute for Space Education is dedicated to delivering education programs world-wide which address our planet, its health, and our ability to venture beyond Earth and understand our place in a greater cosmos. It is with profound honor and a deep sense of purpose that in some small measure we help continue Sir Arthur C. Clarke’s legacy.

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Learn more about the Clarke Institute, and explore how you can be part of Sir Arthur’s legacy.

Search

Enter search keyword

NEWS FROM THE BLOG

Arthur C. Clarke Institute Launch: June 1, 2010
Posted by admin on 24. Apr, 2010
Voyage International Program

A replica of the Voyage scale model Solar System near the Smithsonian Institution on the National Mall in Washington, DC, for permanent placement in cities world-wide ... because the story of humanity’s existence on Earth in a greater space knows no national borders.

Explore a Voyage for your community.

Find out more

The Arthur C. Clarke Institute for Space Education is dedicated to delivering education programs world-wide which address our planet, its health, and our ability to venture beyond Earth and understand our place in a greater cosmos. It is with profound honor and a deep sense of purpose that in some small measure we help continue Sir Arthur C. Clarke’s legacy.

The Clarke Institute for Space Education is the international arm of the National Center for Earth and Space Science Education in the USA, which recognizes that all humanity is on a journey aboard spaceship Earth, and it should be the birthright for all our children to understand that the explorer lives within them.

Learn more about the Clarke Institute, and explore how you can be part of Sir Arthur’s legacy.

Search

Enter search keyword

Submit

News from the blog

Arthur G. Clarke Institute Launch: June 1, 2010

Posted by admin on 24 Apr, 2010
To Earth and Beyond

Try Just One of Our Programs in Your Community

The Center believes it takes a community to educate a child, and that’s why we put special emphasis on community-wide engagement through our Learning Community Model. We do this principally through our Journey through the Universe initiative or Voyage National Program, which provides a robust suite of programming for diverse audiences.

But we also recognize that a community might want to request a single program to gauge community interest, gauge program quality, or just meet a one-time need. If you’re looking for an educator workshop; a program for families or the general public; a keynote address for a conference, community event, or graduation ceremony; or visits to grade K-12 classrooms by one of our researchers—or a National Team of scientists and engineers—we’ve set up To Earth and Beyond as the means for schools, school districts, museums and science centers to request a single program.

Want to see the power of our programs?

read these comments from inspired teachers, students, families, and community leaders

The Center’s staff have given thousands of presentations to diverse audiences—students, families, teachers (at conferences and workshops), and the general public. The hallmark is audience participation, and the topics addressed span the Earth and space sciences. The central objective is to develop conceptual understanding of the universe around us by building bridges to the familiar—using the power of models.

General objectives for our presentations:

• reflective of the Center’s pedagogical approach to science education, and a 20-year heritage of programming
• audience engagement & participation, conceptual understanding, inspiration
• customized to address specific topics and strategic educational objectives of the community
• a choice of two strategic educational approaches for programming: 1) a Grade-independent Model: a focus on an understanding of the process of scientific inquiry, using the Earth and space sciences as the content vehicle; or 2) a Grade-specific Model: a focus on specific Earth and space
Voyage Workshop in Corpus Christi significantly exceeds attendee expectations, even though attendees’ prior experiences with workshops is very positive:

Pre-Assessment Question: In general, I usually find workshops: (check all that apply)
Post-Assessment Question: I found this workshop to be: (check all that apply)
Opening Event Educator Workshop Assessment

Note about grading—The bar is set high for Voyage workshops and programming. Pre- and post-workshop questionnaires ask respondents to rank various workshop attributes (below) on a scale of 1 to 4. These values are then translated to a “Grade” on a 0 to 100 scale. If all respondents give a particular attribute a 3 out of 4 (a reasonable ranking), the grade on the 100 scale is only a 66. NCESSE expects all grades to be 80 or higher.

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Grade on 0-100</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rate the efficacy of the presenter(s) to:</td>
<td></td>
</tr>
<tr>
<td>• Present science content that provides a conceptual foundation for the lessons</td>
<td>3.9</td>
</tr>
<tr>
<td>• Model best teaching practices</td>
<td>3.7</td>
</tr>
<tr>
<td>• Present material in an understandable and grade-appropriate manner</td>
<td>3.7</td>
</tr>
<tr>
<td>• Present information in a dynamic and entertaining way</td>
<td>3.9</td>
</tr>
<tr>
<td>• Facilitate inquiry-based exploration by the audience</td>
<td>3.9</td>
</tr>
<tr>
<td>Rate the quality of the educational materials with regard to:</td>
<td></td>
</tr>
<tr>
<td>• Completeness in terms of your ability to effectively teach these lessons in your classroom</td>
<td>3.8</td>
</tr>
<tr>
<td>• Quality of their instructional design to facilitate effective and efficient lesson management</td>
<td>3.8</td>
</tr>
<tr>
<td>• Relevance to your curriculum</td>
<td>3.5</td>
</tr>
<tr>
<td>• Relevance to the state standards</td>
<td>3.6</td>
</tr>
<tr>
<td>• Ability to facilitate and support inquiry-based exploration in the classroom</td>
<td>3.8</td>
</tr>
<tr>
<td>Rate the quality of the workshop with regard to:</td>
<td></td>
</tr>
<tr>
<td>• Logistical preparation and management</td>
<td>3.8</td>
</tr>
<tr>
<td>• Overall general impression</td>
<td>4.0</td>
</tr>
</tbody>
</table>

NOTE: for full details on the assessment protocol employed, the data analysis, and how to interpret these data, please visit: http://journeythroughtheuniverse.org/program_overview/po_as_ew.html
To *Earth and Beyond* Programming of interest –

*Launched Fall 2010 in support of the Year of the Solar System for communities nationally*

**Journey through the Solar System Educator Workshops**  
Washington, DC

*1-day each for DCPS, the Archdiocese Schools, the Public Charter Schools, and instructors city-wide in Out-of-School Programs*

*Underwritten by the District of Columbia NASA Space Grant Consortium*

**Journey through the Solar System**  
**A 2-Day Celebration Engaging an Entire Community**

**NCESSE Assets:**  
Voyage grade K-12 content  
MESSENGER grade K-12 content  
**Journey through the Universe Suite of Programming**
Student Spaceflight Experiments Program (SSEP)

A New U.S. National STEM Initiative for Grades 5-12
to inspire the next generation
of space scientists and spaceflight engineers

Current Opportunity: Student Experiments on STS-134
the Final Scheduled Flight of the Space Shuttle Program
the Flight of Space Shuttle Endeavour, February 26, 2011

NOTES TO READER:
To efficiently gain an understanding of the SSEP from this website, read the pages in the order listed in the navigation banner above: Home page (this page), SSEP Overview page, How to Participate page ...

Recent updates on this website are provided in this color text, reflecting News Posts on the SSEP Blog found in the column at right.

All teachers and students participating in SSEP are strongly encouraged to subscribe to the SSEP Blog, which serves as the primary source for program updates and news.

Current Resource Essay: for a look at Earth in a greater space, the nature of human exploration, and the role of teachers, read: The Nature of Our Existence

UPDATE August 31, 2010: SSEP IS GO FOR LAUNCH

PARTNERS

National Center for Earth and Space Science Education

Nanoracks, LLC

Instrumentation Technology Associates

FROM THE SSEP BLOG

Webinar Covering SSEP and CREST-1
SSEP is sponsored by Space Grant Lead Institutions in the following States:

- Connecticut
- Florida
- Kentucky
- Louisiana
- Maryland
- New Mexico
- North Carolina
- Oregon
- Texas
- Washington

- Alaska