

# SYSTEMIC CONNECTIONS



January 10, 2012 Volume 17

*This is an STEM information exchange that is available to all teachers in the Anchorage School District*

## CALENDAR - STEM EVENTS 2011-2012

January 6-7	SEAPerch Workshop - Anchorage
January 21	Lego League Statewide Invitational Championship SAHS, Anchorage
February 4	Lego League Statewide Open Championship Ryan Middle School, Fairbanks
February 4	Women of Science & Technology Day - presented by Girl Scouts @ UAA
February 10-11	FIRST Tech Anchorage Qualifier SAHS Anchorage
February 25-28	ASTE 2012: Create~Collaborate~Innovate
February 25	ROV Riot - Bartlett Pool
Feb 28-Mar 2	Iditarod Winter Conference for Educators
March 2-3	Statewide Championship Patty Center, UAF Sponsored
March 3	First Use Science Kit Training (K-6)
March 23-25	AK Science & Engineering Fair - Begich MS
March 29 - April 1	NSTA - Indianapolis, IN
March 31	Science Olympiad - UAA Campus
April 24- May 5	Math Derby
May 8-11, 2012	CCSC - Outdoor Week (Grade 6)
May 8-11, 2012	Outdoor Week

## STEM Web Page Highlights

### **Objectives & Initiatives for 2011 – 2012**

<http://www.asdk12.org/depts/STEM/objectives.asp>

### **Links to local STEM programs –**

Campbell Creek Science Center, Imaginarium, UAA Planetarium, Alaska Zoo. <http://www.asdk12.org/depts/STEM/>

*Please read and then TRY some of these!*

- 1. Advisory Council Being Formed for K-12 Engineering Academies**
- 2. National Youth Science Camp Accepting Invitations**
- 3. MIT to Conduct Summer Research institute for HS Juniors**

- 4. Juneau Ice Field Research Program Offers Students Opportunities**
- 5. Alaska Science Olympiad Set for March in Anchorage**
- 6. Campbell Creek Science Center Presents....**
- 7. from ANROE E-Newsletter January 3, 2012**
- 8. New Sun Science Website for Teens**
- 9. Understanding the Science of Safe Chemical Storage from Flinn**
- 10. from The Futures Channel**
- 11. Japan-US Teacher Exchange Program**
- 12. ExxonMobil Bernard Harris Math and Science Scholarships**
- 13. Teaching for a Smarter Planet**
- 14. Information to Share with Parents - Myths About Science**
- 15. Student Wildlife Conservation Grants**
- 16. from NASA Education Express Message- Jan 5, 2012**

## ***CHECK OUT THESE SITES:***

### ***Critical Past***

<http://www.criticalpast.com/>

### ***Astronomy Links***

<http://www.space.com/14085-12-amazing-skywatching-events-2012.html>

<http://www.space.com/14092-quadrantid-meteor-shower-peaks-january-4.html>

### ***Gizmos - costs \$\$ - but good resource***

<http://www.explorelearning.com/>

## **from EED Information Exchange January 3, 2012**

### ***Advisory Council Being Formed for K-12 Engineering Academies***

An Alaska Engineering Academies Advisory Council is being formed. It will be the lead group for coordinating all efforts.

One purpose of the advisory council is to generate advocacy for financial support from legislators, both state and federal. Volunteers -- including teachers, principals, engineers and other professionals, and government representatives -- are needed from all parts of Alaska, urban and rural.

The council eventually may have 100 members or more in order to have good representation of the needs throughout Alaska. The council will be a mechanism for educators, industry, and government representatives to learn from each other about what works and what is needed throughout Alaska.

An informational meeting will be held on January 13, 2012, from 2 p.m. to 4 p.m., at the BP Energy Center in Anchorage; it will be teleconferenced. Folks interested in attending the meeting, being involved with the advisory council, or having general questions can contact Cari-Ann Ketterling with APICC at [cketterling@apicc.org](mailto:cketterling@apicc.org) or 907-770-5250.

See [www.apicc.org](http://www.apicc.org) <<http://www.apicc.org>> and click on the Alaska Engineering Academies logo.

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### *National Youth Science Camp Accepting Applications*

The 2012 National Youth Science Camp competition is now open to Alaskan seniors who will graduate by June 30, 2012. The National Youth Science Camp is a residential science education program that honors and challenges two graduating high school science students from each state and others from selected countries around the world.

Scientists from across the nation present lectures and hands-on science seminars and linger to interact informally with student delegates. Delegates are challenged to explore new areas in the biological and physical sciences, art, and music with resident staff members. Opportunities are provided for delegates to present seminars covering their own areas of interest and research.

A visit to Washington, D.C., permits delegates to visit some of the nation's premier scientific, governmental, and cultural facilities. The NYSC experience includes overnight excursions into the Monongahela National Forest, featuring backpacking, rock-climbing, caving, mountain biking, and kayaking opportunities. Delegates are required to participate in the camp program for its entirety, as the fast-paced activities and remote location make travel to and from the NYSC very difficult. More information is available online at [www.nysc.org](http://www.nysc.org) <<http://www.nysc.org>> .

Mail or ship your complete application directly to your selection coordinator ([bjorn.wolter@alaska.gov](mailto:bjorn.wolter@alaska.gov)) so that it is received no later than February 17, 2012. Contact information for your selection coordinator is available online at [www.nysc.org](http://www.nysc.org) <<http://www.nysc.org>> .

Delegates must be able to attend the entire NYSC program. Delegates arrive in Charleston, West Virginia, on Wednesday, June 27, 2012, and depart on Saturday, July 21, 2012.

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### *MIT to Conduct Summer Research Institute for HS Juniors*

The Center for Excellence in Education and Massachusetts Institute of Technology, co-sponsors of the Research Science Institute, are looking for talented 11th grade STEM students who want to work on cutting-edge summer research. The program will be held on the MIT campus from June 24 to August 4. See [www.cee.org](http://www.cee.org) <<http://www.cee.org>>

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### *Juneau Ice Field Research Program Offers Students Opportunities*

The Juneau Ice Field Research Program provides education and field training of earth system sciences to students and scientists through field research and classroom training. These activities help maintain the longest continuous research program of any glacier in the western hemisphere, and contribute to the monitoring of Alaskan glaciers and their sensitivity to climate change. For more

information, or to apply, see [www.juneauicefield.com](http://www.juneauicefield.com) <<http://www.juneauicefield.com>> .

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### *Alaska Science Olympiad Set for March in Anchorage*

The Alaska Science Olympiad is being held March 31 at the University of Alaska Anchorage. For the past 28 years, Science Olympiad has led a revolution in science education. What began as a grassroots assembly of science teachers is now one of the premiere science competitions in the nation, providing rigorous, standards-based challenges to nearly 6,200 teams in 50 states. Science Olympiad's ever-changing event lineup provides a variety of career choices and exposure to practicing scientists and mentors. In the words of a Science Olympiad alumnus: "I consider Science Olympiad the most important and influential activity I participated in during my middle school and high school career." See [www.alaskascienceolympiad.org](http://www.alaskascienceolympiad.org) <<http://www.alaskascienceolympiad.org>> for more information.

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### *Campbell Creek Science Center Presents...*

#### *Astronomy Series...*

#### **January 12: Life Cycle of Stars**

To paraphrase the late Carl Sagan, "We're made of star stuff. Star stuff contemplating the stars!" Is this just a bit of poetry or is there scientific truth to his statement? What are the origins of the building blocks of planets and of life? And could our Sun, or another nearby star, someday turn destructive? Find out all this and more as Dr. Andy Puckett, Planetarium Director and Professor of Physics & Astronomy at UAA, explains how stars constitute a sort of "recycling program" within the Milky Way. The program begins at 7pm on Thursday January 12 at the BLM Campbell Creek Science Center (5600 Science Center Drive). Stargazing to follow if the skies are clear. Please call 267-1241 for more information.

#### *Fireside Chat Series...*

#### **January 18: Wires, Wireless, and Wilderness-- Alaska's WAMCATS Communication System**

Between 1900 and 1936, the United States Army Signal Corps built and operated the Washington Alaska Military Cable and Telegraph System (WAMCATS). Designed as an "all American" communication system connecting Alaska with the rest of the world, the WAMCATS included more than 1,400 miles of telegraph and 2,000 miles of undersea cable by the time it was completed in 1904. It also included two wireless radio stations—the first such stations in the world! Join historical archaeologist Morgan Blanchard for a discussion on the history and archaeology of the WAMCATS. The program begins at 7pm on Wednesday January 18 at the BLM Campbell

Creek Science Center (5600 Science Center Drive).  
Please call 267-1241 for more information.

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**from ANROE E - Newsletter for January 3, 2012**

**Anchorage: January 16- Communicating Ocean Science Workshop-** will teach ocean scientists, graduate students, and outreach professionals how to tell a compelling story of their scientific research. Randy Olson, author of the book Don't Be Such a Scientist: Talking Substance in an Age of Style, director of the documentary Flock of Dodos: The Evolution-Intelligent Design Circus, and writer and director of Sizzle: A Global Warming Comedy, will lead a two hour session on communicating through story. Other workshop sessions will be dedicated to using storytelling to bring science to broad audiences. They include preparing for pre K–12 classroom presentations, communicating to the media, using YouTube to reach the masses, how to create powerful radio pieces, and how to develop virtual field trips to reach thousands of students. The workshop is free but registration is required. To participate in the workshop; contact [robindublin@coseealaska.net](mailto:robindublin@coseealaska.net).

**January 23-March 16, 2012-Sky Rangers Online Workshop for Outdoor Astronomy Interpretation** - Designed for educators and interpreters from parks, nature centers, and other informal outdoor and environmental educational facilities. The free 8-week workshop will get participants out under the night sky, build confidence in locating constellations and planets, and provide the tools to interpret the sky for their audiences. Each participant will receive a free toolkit of materials for a variety of outdoor astronomy activities.  
<http://www.afguonline.org/mod/resource/view.php?id=1857>  
<<http://www.afguonline.org/mod/resource/view.php?id=1857>>

**Scientist at the Smithsonian-** Scientists in action online videos are now available. Students can watch and read about 21 scientists at the Smithsonian including a volcano watcher, a fossil hunter, art scientist, germinator, and zoo vet.  
<http://www.smithsonianeducation.org/scientist/index.html>  
<<http://www.smithsonianeducation.org/scientist/index.html>>

**Other Invertebrates- The Natural History Museum in London's Nature Online** website is designed for those visitors who can't visit personally. Other Invertebrates offers visitors information about the world of the backbone-deficient, which comprise the majority of animals on earth. Make sure to check out many of the links to other information, including the deep ocean, natural

disasters, reptiles, amphibians and fishes, and much more.  
<http://www.nhm.ac.uk/nature-online/life/other-invertebrates/index.html>  
<<http://www.nhm.ac.uk/nature-online/life/other-invertebrates/index.html>>

**Applications deadline March 12, 2012- Samsung - Solve for Tomorrow – Sharing the Wonder of STEM-** Your school can win a part of \$1,000,000 in technology. Samsung and its partners are asking teachers to participate in its contest, which will address a key academic challenge in our country: to increase the pursuit of Science, Technology, Engineering, and Math (STEM) education. <https://pages.samsung.com/us/sft/home.htm>  
<<https://pages.samsung.com/us/sft/home.htm>>

**Applications deadline May 1, 2012 Presidential Award for Excellence in Math and Science** - The Presidential Awards for Excellence in Math and Science Teaching are now open for nominations. This year is the Elementary Cycle, which is open to K-6 teachers who have taught 5 or more years. <http://www.paemst.org>  
<<http://www.paemst.org>>

**Applications deadline February 24, 2012: Sustainable Future Challenge for Middle School Students-** The ISWEEEP 3E Sustainable Future Challenge is a national contest for middle school students that aims to create a platform for young researchers in which they present their innovative projects to take on today's challenges in energy, engineering, and environment.  
<http://www.isweeep.org/3e-contest>  
<<http://www.isweeep.org/3e-contest>>

**Anchorage: January 11- Unexplored Ice: Polar Bear Research in the Chukchi Sea** is the topic for Wildlife Wednesday at the Alaska Zoo from 7 to 8pm. Dr. Eric Regehr, wildlife biologist with the U.S. Fish and Wildlife Service, will discuss a new study of polar bears living on the remote sea ice between Alaska and Russia.

**Anchorage: January 12- Confronting Toxics: Chemicals from Everyday Products in People, Health Implications, and Solutions** will be presented at 7pm (Reception will be held at 6:30pm) at the Anchorage Museum, Anchorage. Join Martha Arguello, Executive Director of Physicians for Social Responsibility- Los Angeles, for a powerful presentation on preventing toxic exposures from a public health perspective. She will examine our broken chemical safety system and offer solutions to protect our health and the environment. Lecture is free and parking in the museum garage is free. For more information call 222.7714 or go to [http://www.aktion.org/Take\\_Action/Events.html](http://www.aktion.org/Take_Action/Events.html).  
<[http://www.aktion.org/Take\\_Action/Events.html](http://www.aktion.org/Take_Action/Events.html)>

**Eagle River-January 14- Avalanche Awareness Training**- presented by the North America Outdoor Institute will be held from 10am to 4pm at the Eagle River Nature Center covering avalanche awareness, hazard assessment, trip planning, route selection, avalanche tools (transceivers, shovels and probes), and emergency response procedures. Pre-registration is required at [www.naoiak.org](http://www.naoiak.org) or by calling (907) 376-2898. \$5 parking for non-members. (Free, Registration required).

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### **New Sun Science Website for Teens**

Got Teens? If you work with or teach teenagers, we'd really appreciate you introducing them to [www.teensolarinvestigators.org](http://www.teensolarinvestigators.org)! This is the new website for a NASA-funded teen science program called Surfin' the Solar Wind which enlists local high school students (aka "Teen Solar Investigators" or TSIs) to help design and bring engaging Sun-based activities and multimedia to other teenagers throughout the San Francisco Bay Area. With the new website, we're now hoping to reach out to an even broader teen audience.

So please ask the teens you work with or teach to poke around and explore [www.teensolarinvestigators.org](http://www.teensolarinvestigators.org). We'll be updating the site with new activities from time-to-time, plus there's a "hidden" activity called the Sun Slider which is very cool - once you find it! Thank you and enjoy

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### **Understanding the Science of Safe Chemical Storage from Flinn**

Chemical reactions should take place in your lab, not in the chemical storeroom! This month's Safety Notes from Flinn Scientific entitled "What Are Compatible Chemical Families?" can help prevent dangerous unexpected reactions among your stored chemicals.

Include this month's Safety Notes in your first department meeting of 2012. You can print your free copy of "What Are Compatible Chemical Families?" by going to:  
<http://www.flinnsci.com/Sections/Safety/Snotes/snotes.asp>

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### **From The Futures Channel**

#### **Movie of the Week**

#### **Rhythm and Math**

When students ask, "Why do I need math? I'm going to be a musician!", introduce them to world-renowned drummer Ndugu Chanler. This six-minute movie contains amazing drumming, a breakdown of the mathematics of rhythm and a professional's opinion on technology and creativity.

Watch the movie and download the classroom activity:  
[http://www.thefutureschannel.com/dockets/realworld/the\\_rhythm\\_track/index.php](http://www.thefutureschannel.com/dockets/realworld/the_rhythm_track/index.php)

#### **Also Playing**

#### **The Wild Animal Veterinarian**

[http://www.thefutureschannel.com/dockets/science\\_technology/wild\\_animal\\_veterinarian/index.php](http://www.thefutureschannel.com/dockets/science_technology/wild_animal_veterinarian/index.php)

#### **Flowers by the Millions**

<http://www.thefutureschannel.com/dockets/realworld/flowers/index.php>

#### **Revisiting the Moon**

[http://www.thefutureschannel.com/dockets/space/revisiting\\_the\\_moon/index.php](http://www.thefutureschannel.com/dockets/space/revisiting_the_moon/index.php)

#### **Windsails**

<http://www.thefutureschannel.com/dockets/algebra/windsails/index.php>

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### **Japan-US Teacher Exchange Program**

The application is now available online for the 2012 Japan-U.S. Teacher Exchange Program for ESD. Up to 24 teachers from the U.S. will be selected to participate in 2012.

The Japan-U.S. Teacher Exchange Program for Education for Sustainable Development (ESD) will provide up to 24 U.S. K-12 teachers and administrators with the opportunity to travel to a conference in San Francisco and to Japan to learn about ESD efforts and strengthen ESD curricula in both countries. The program is fully-funded with the exception of some meals. ESD is "a vision of education that seeks to balance human and economic well-being with cultural traditions and respect for the earth's natural resources," according to the United Nations Educational, Scientific, and Cultural Organization (UNESCO).

Up to 24 educators from Japan will travel to the U.S. in late April, and up to 24 educators from the U.S. will travel to Japan in June. At the end of the program in each country, all 48 educators will gather for a few days of joint collaboration. The deadline to apply is January 31, 2012.

<http://www.iie.org/esdteacher>

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## ExxonMobil Bernard Harris Math and Science Scholarships

The ExxonMobil Bernard Harris Math and Science Scholarship is an opportunity especially for African American and Hispanic students. Named for the first African American to walk in space, ExxonMobil Bernard Harris Math and Science Scholarships are available to 2012 graduating high school seniors in school districts represented by the Council of the Great City Schools.

Four scholarships for two males and two females of \$5,000 each will be awarded to two African American and two Hispanic students on behalf of the former NASA astronaut, physician and businessman, Dr. Bernard Harris. The application submission deadline is April 2, 2012.

<http://www.cgcs.org/cms/lib/DC00001581/Centricity/Do-main/19/ExxonMobil%20%202012%20Scholarship%20Application.pdf>

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## Teaching for a Smarter Planet

Each of the three Smithsonian Science Education Academies is a week-long immersive science experience, including content sessions to deepen your understanding of key concepts, and behind-the-scenes access to Smithsonian collections and cutting-edge science at world-class research facilities. Three optional graduate-level credits are available for each Academy. There is an early bird registration deadline of May 14, 2011.

[www.nsrconline.org](http://www.nsrconline.org)  
<[http://r20.rs6.net/tn.jsp?llr=pziuracab&et=1108864931664&s=5490&e=001DbwVHpwGQsPI9M\\_rIF7veWxChAXIRGXn0Rqh7eTCbrrLd3Ezt4b3IuQg43HhtBbNI3cv7eAFUGVZGBJP5hpZIP1wddRJftSuyBd6YZfxtzp0dwSDZcimrg==>](http://r20.rs6.net/tn.jsp?llr=pziuracab&et=1108864931664&s=5490&e=001DbwVHpwGQsPI9M_rIF7veWxChAXIRGXn0Rqh7eTCbrrLd3Ezt4b3IuQg43HhtBbNI3cv7eAFUGVZGBJP5hpZIP1wddRJftSuyBd6YZfxtzp0dwSDZcimrg==>)

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## Information to Share with Parents - Myths About Science

**Myth #1:** Science teaching is better left to the science teacher.

A parent is a child's first and most important teacher. Whether you know it or not, your child has been learning from you since the moment he or she was born. Many parents, however, would rather leave science teaching to the teacher. Parents play a very important role and have the ability to significantly increase a child's interest and performance in science. With a little creativity, you can work science into your child's everyday life and find many opportunities for you and your child to explore and learn together.

**Myth #2:** Science is difficult.

It would be difficult to know all the facts of science. But science isn't just facts. It's a way of seeing the world around us and solving problems. Doing science is for everyone!

That's why "being scientific" is a great family activity.

**Myth #3:** I'm not a scientist and don't know enough about science to help my kids.

You do not have to be a scientist to help your children learn science. The majority of parents in this country are not scientists, but it doesn't mean they can't help their children learn science. Questions like Why is the sky blue? Why does ice float? Or how does a Frisbee soar through the air? are just a few examples of science questions you can explore with your children. The most important starting point is to ask: "Why?"

**Myth #4:** I have to know the answers to all of my child's questions.

It's okay to say, "I don't know." As a parent, you're probably familiar with the questions "Why?" and "How come?" Children by nature are very inquisitive and interested in the world around them. We wouldn't be telling the truth if we said we could answer all of their questions. But herein lies the opportunity for them to explore, alone or with you, and have fun discovering the answers.

**Myth #5:** Science is all about facts and not very interesting.

SCIENCE IS FUN! Science teaching today is a lot different than it was years ago. Today's emphasis is on inquiry, which means children are encouraged to explore their own natural curiosities about the world around them. Science museums and centers are sprouting up around the country because they allow children to conduct independent investigations on their own ... and children have a lot of fun!

**Myth #6:** Science requires equipment.

Science is everywhere! The skills of science can be practiced in any environment, including the kitchen or the park. The best way to begin is through conversation. Parents who ask open-ended questions (ones that don't have just one "right" answer) and who listen patiently to their children's responses are modeling the most essential skills for young scientists.

**Myth #7:** Science skills should wait for reading skills.

To encourage the "whole child," parents and teachers should join together to foster early science experiences along with opportunities for reading. In many ways, preschoolers' developmental skills are more suited to doing science than reading. Learning about science also can motivate kids to read.

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## Student Wildlife Conservation Grants

The Student Wildlife Conservation Grants are offered by our Planet Connect program, a youth engagement initiative of the National Environmental Education Foundation.

We are offering high school students grants of \$1,000 – this funding will give grantees the opportunity to implement wildlife conservation projects in their schools or communities and participate in a local internship focused on wildlife conservation or natural resources.

See attached promotional graphic and language and the following promotional video that quickly explains the grants:

[http://www.youtube.com/watch?v=G450jl\\_2Nko&feature=channel\\_video\\_title](http://www.youtube.com/watch?v=G450jl_2Nko&feature=channel_video_title)  
<[http://www.youtube.com/watch?v=G450jl\\_2Nko&feature=channel\\_video\\_title](http://www.youtube.com/watch?v=G450jl_2Nko&feature=channel_video_title)>

To learn more, please visit the grant web page--<http://planetconnect.org/2012wcgrants>  
<<http://planetconnect.org/2012wcgrants>> .

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### from NASA Education Express Message January 5, 2012

#### *High Power Microscopes: The Virtual Lab Web Seminar*

As part of a series of electronic professional development experiences, the NASA Explorer Schools project and the National Science Teachers Association are hosting a 90-minute web seminar for educators on **Jan. 11, 2012, at 8:15 p.m. EST**. Learn to use a computer program simulating three high-power virtual microscopes: an atomic force microscope, a scanning electron microscope and a fluorescence light microscope. Viewing specimens include one-celled organisms, human tissue, computer chips, insects and fungi. You will get an overview of the software, watch videos of students exploring specimens and learn to use the Virtual Lab website and software.

For more information and to register online, visit URL

[http://learningcenter.nsta.org/products/symposia\\_seminars/NES2/webseminar3.aspx](http://learningcenter.nsta.org/products/symposia_seminars/NES2/webseminar3.aspx).

To learn more about the NASA Explorer Schools project, visit <http://explorerschools.nasa.gov>.

Email any questions about this opportunity to the NASA Explorer Schools help desk at [NASA-Explorer-Schools@mail.nasa.gov](mailto:NASA-Explorer-Schools@mail.nasa.gov).

#### *4th Annual NASA STEM Educators Workshop Series*

Join NASA for the 4th Annual NASA STEM Educators Workshop Series taking place Feb. 28 - March 1, 2012, in Charlotte, N.C.

This workshop series will explore engineering design challenges, problem-based learning activities, distance learning modules, inquiry-based lessons and hands-on projects. Each workshop will be led by experienced educators and education public outreach specialists who will model pedagogical techniques and methods to foster problem-based learning, science as inquiry, technology integration and best practices. Workshops target inservice,

informal and preservice teachers who serve the K-12 education community.

Registration is free. The deadline for registration is **Feb. 15, 2012**.

For more information and to register for the workshops, visit <http://aesp.psu.edu/register/>.

If you have any questions about the workshops, please contact Brandon Hargis at [Brandon.Hargis@nasa.gov](mailto:Brandon.Hargis@nasa.gov).

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