



SCIENCE BYTES

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NASA Centennial Challenge Competitions

When I came back from Maryland I saw an article in the Alaska Airlines magazine called "It IS Rocket Science" about a man who designed a better glove for astronauts. The article went on to mention the NASA Centennial Challenge competitions. I don't know if you are familiar with them or not. Apparently there are several categories. The website is

<http://centennialchallenges.nasa.gov/>

It might be of interest to students and science teachers. I found it fascinating.

Angie Slingluff - Aviation and Space Education Coordinator

New Award Offered for K-8 Earth Science Teacher

The American Geological Institute (AGI) and the AGI Foundation have announced creation of the Edward C. Roy, Jr. Award for Excellence in Earth Science Teaching. Given annually, this award recognizes one classroom

teacher from kindergarten to eighth grade for leadership and innovation in Earth science education.

The winner will receive a \$2,500 prize and an additional grant of \$1,000 to enable the recipient to attend an AGI member society conference. To be eligible for this year's competition, applications must be postmarked by March 1.

This award is named in honor of Dr. Edward C. Roy, Jr., a past president of AGI, who was a strong and dedicated supporter of Earth science education. To learn more, visit

<http://www.agiweb.org/education/awards/ed-roy/>.

Earth Science Week Resources Online Year-Round

Earth Science Week is more than one week of the year. If you've got Internet access, you can teach and learn about Earth science all year long.

The Earth Science Week website, at <http://www.earthsciweek.org>, features classroom activities, theme-based resources, research projects, local events and organizations, and careers. Most importantly, the site features dozens of recommended lessons that teachers and parents can conduct with children. All are aligned with the National Science Education Standards. Check it out!

Videoconference to Explore 'Our Changing Planet'

Tune in for a new interactive, online videoconference on March 13, the third annual International Polar Year (IPY) Day. The theme of the event is "Our Changing Planet: Past and Present."

International Action on Global Warming (IGLO) is collaborating with IPY and NASA to organize the second in this series of videoconferences. During last year's Earth Science Week, schools and science centers in the United States and Italy took part in the successful pilot event.

This time, up to five science centers will be selected as "active sites," where scientists will give brief presentations on topics such as the poles, climate change, and local impacts. Afterward, students will offer observations on the environment, and a Q&A session will allow discussion among students and active sites.

IGLO invites science centers wishing to become active sites to email igloo@astc.org by January 15. Participants at other centers will be able to watch the webcast and email questions to scientists. To learn more, visit IGLO at <http://www.astc.org/iglo>.

ALASKA SCIENCE & ENGINEERING FAIR

April 11-12-13, 2008

Begich Middle School

Website is up and running
<http://www.alaskasciencefair.org/>

BLM Campbell Creek Science Center Program January 23: Porcupines

Porcupines are one of the most common wildlife species in the Anchorage area, yet most people rarely see them. Come learn more about the haunts and habits of these prickly creatures from Jessy Coltrane, wildlife biologist with the Alaska Department of Fish and Game. The program begins at 7:00 pm on Wednesday January 23 at the BLM Campbell Creek Science Center (6865 Elmore Road). Please call 267-1247 for more information.

Create a Community

Dear 5th and 6th grade teachers!

I want to let you know about an exciting learning opportunity for you and your students.

The Anchorage Homebuilders Association is sponsoring the 21st Annual Create A Community Contest and invites you to join them!

The contest is a great way for students to showcase what they have learned over the last 6 or 7 years in school in Science, Social Studies, Math, Health and Language Arts. It builds upon knowledge students have learned in the Ecosystems, Exploring Energy, Variables, Structures and There Is No Away units. For this event students create a community that might exist in the future. Entries can be either 2 or 3 dimensional, and must provide specific elements for the people who would live there. The contest allows students to use mapping and layout skills to design their community, as well as their understanding of community needs and issues, to create an exciting and inviting living place.

Students also need to complete an essay explaining the intricacies and benefits of living in this designer community

As a judge for this contest over the last several years, I think the best entries are those that are imaginative and creative yet functional.

For additional information please contact:

Trisha Herminhaus
Anchorage School District
Curriculum and Instruction, Science
907-742-4858 (w)
907-742-4581 (FAX)

January - Flinn Scientific Tips

To print "Safe Storage and Handling of Lab Chemicals," please go to:

<http://www.flinnsci.com/Sections/Safety/Snotes/snotes.asp>

Project Learning Tree & Project WILD Workshop

April 25th, 26th, 2008

College Gate Elementary

Theme will be Birch Tree Tapping

Who: Teachers, home school parents, scout leaders and camp counselors are welcome to attend this educator's workshop.

What: Project WILD and Project Learning Tree are hands-on, interdisciplinary, supplementary activities that focus on environmental conservation. Through wildlife and the forest, students learn concepts and gain skills in core subject areas. These workshops are fun !

What else: These are action-packed days filled with activities. Participants receive activity guides and additional support materials. Correlation guides to the Alaska State Content Standards are available.

Credit: Graduate credit is available through UAA, but not required for participation in these workshops. The credit cost is \$69. Course # ED 580Q.

Where: College Gate Elementary—Head East on Northern Lights past East High. Turn right at Sunflower (before Boniface!)

When: Fri April 25th 4:30-8:00

Sat April 26th 8:00-4:00

Cost: \$ 94 to UAA/ \$ 30 to ANROE

How: Registration is required. E Mail Matt Weaver
Matt.weaver@alaska.gov matt (dot) weaver
at Alaska (dot) gov

Questions: For information on workshop content, call 269-8481

Science For Alaska Lecture Series

7 p.m. • UAA Wendy Williamson Auditorium

January 23

What Is a Planet anyway? The Debate Over Pluto

Travis Rector Assistant Professor of physics and Astronomy, UAA

January 30

The Economics of Climate Change

Brittney Cioni Assistant Professor of Economics, UAS

February 6

There's no Place Like Nome:

Science Nuggets from the Last Frontier

Ned Rozell Science Writer, Geophysical Institute/UAF

February 13

Climate Change, Alaska and National Security

Douglas Causey Vice Provost for Research and Graduate Studies, UAA

For additional information about the lectures and parking:

907-474-5114 or www.scienceforalaska.com

Coordinated by University Relations, University of Alaska Fairbanks

Science for Alaska

Lecture Series 2008

NASA Fundamental Aeronautics Competition

Here's another STEM opportunity which might intrigue high school and college students.

The NASA Fundamental Aeronautics Competition for the 2007-2008 Academic Year. Students are asked to think about a revolution in aircraft, a vehicle that could become a next generation DC-3* type of transport vehicle. High school students are invited to write an essay describing how the transportation of goods and passengers might be revolutionized with a revolutionary aircraft design. College level students are invited to design the aircraft, using guidelines provided by NASA, and suggest a minimum of three valid operational scenarios for their proposed vehicle. Complete details for each group are found on NASA's website:

<http://aero.larc.nasa.gov/competitions.htm> *See the website for further explanation of the DC3 which was the workhorse cargo plane for Alaska and still used to haul freight and fuel to remote areas of Alaska.

High School Competition: Based on the utility of the legendary Douglas DC-3 aircraft, write a research paper to explain your ideas for a future aircraft that could become the 'DC-3' for cargo and passengers in the year 2058. You are not limited at all to the DC-3 design, you are asked to think of a revolutionary new design. Your description should be well informed to include sections on fuel, environmental effects, noise levels, runway length and condition, operating costs, passenger and cargo loads, and service operations.

Papers will be limited to 12 pages and should include a literature review and documented references. Teams or individuals may enter. Only US citizens are eligible for cash prizes. Winning papers may receive trips to a NASA-based experience or a cash award, depending on available funds

Final entry is due on or before March 15, 2008--no exceptions You are asked to send NASA a notice of intent to enter. *A notice of intent tells NASA that you plan to enter the competition. This helps us to determine how many reviewers we need for the final entries
Angie Slingluff

Aviation and Space Education Coordinator
FAA Alaska Region AAL-30

Building A Presence with Science Opportunities # 1-14 Opportunity #1

2008 GLOBE INTERNATIONAL CONFERENCE

June 22-28, 2008, Cape Town, South Africa

The GLOBE Learning Expedition and Annual Partner Conference in South Africa is the largest international event currently planned by the GLOBE Program with more than 300 students, and 200 scientists and educators, from 109 partner countries expected to attend. This year's theme is GLOBE Research for Sustainable Communities. Students will present their research on topics such as environmental impacts on the quality of life (including water quality issues and malaria), regional impacts of climate change and GLOBE Earth System Science Projects. Sustainable communities balance the fulfillment of human needs with the protection of the natural environment and the upcoming event in South Africa will encourage students from around the world to examine this fundamental issue.

GLOBE (Global Learning and Observations to Benefit the Environment) is a hands-on, primary and secondary school-based science and education program, uniting students, teachers, scientists and community members around the world in study and research about the dynamics of Earth's environment. GLOBE began operations on Earth Day 1995. Since then, the international GLOBE network has reached more than a million students in over 20,000 schools located in 109 countries. For more information, visit <http://www.globe.gov>.

Opportunity #2

The **2008 NSELA Professional Development Institute** (PDI) on „Leading Professional Development in Science Education% will be held in Boston on Wednesday, March 26, 2008. The PDI will consist of six broad strands that all support different aspects of leading professional development in science education. Each strand will involve either one six-hour session (divided into two segments) or two separate three-hour sessions. The identified strands include:

- Using Data as Professional Development
- Content-Focused Professional Development
- Designing and Evaluating Professional Development Programs
- Assessment and Professional Development
- On-line Professional Development
- Partnerships that Support Professional Development

For more details and the RPF, please review the Request for Proposals that will be listed shortly on the web at www.nsela.org. If you would like the RFP emailed to you, please send a request to: susansprague@yahoo.com.

Consider how your organization or institution might share your expertise with an audience of dedicated NSELA practitioner-leaders in science education.

If you have questions about the strands or the RFP, please contact Jim Short, Chair of the NSELA Professional Development Committee at 212-769-5139 or jshort@amnh.org. If you have questions about submitting a proposal, please contact the Susan Sprague, NSELA Executive Director at (928) 771-1030 or susansprague@yahoo.com.

Opportunity #3

MIT offers online science and math resources

The Massachusetts Institute of Technology's Highlights for High School Web site provides access to free online resources to improve high school science, technology, engineering and mathematics instruction.

The web site builds on MIT's existing OpenCourseWare
<<http://ocw.mit.edu/OcwWeb/web/home/home/index.htm>> initiative.

Opportunity #4

IPY DAY FOCUSING ON ICE SHEETS!

Thursday, December 13th, 2007

Opportunity #5

Space Explorers

Space Explorers has been working with the Alaska Aerospace Development Corporation for the past decade. Last year 118 Alaska schools participated in our Internet-based programs based on actual NASA missions. We would like to extend this grant opportunity to other teachers and schools throughout Alaska.

The Grant program is designed to promote general science education activities in classrooms for kindergarten through twelfth grade. The program encourages development of innovative aerospace activities within the prescribed curriculum. Training for the programs will be provided for every teacher interested in participating in the programs - with all expenses paid through the generosity of the Alaska Aerospace Development Corporation.

To apply for the grant or receive additional information, please click on the link below

<http://www.space-explorers.com/grants/form2.asp>
www.akaerospace.com/education.html

Tim D. Lewaren

Space Explorers, Inc.

tim@space-explorers.com

800-965-3763 ext. 262

Opportunity #6

NASA 50th ANNIVERSARY ESSAY CONTEST FOR STUDENTS GRADES 5-9

Entries due: Jan. 7, 2008
The NASA 50th Anniversary Essay Competition for middle and junior high school students is now accepting entries. The competition consists of two separate topics, each with a limit of 500 words. The first topic chal-

lenges students to describe how they benefit in their everyday lives from space technologies built by NASA over the last 50 years. The second topic requires students to imagine how their everyday lives will have changed because of NASA space technology in the next 50 years. Students may submit two separate essays, each responding to a separate topic. Participants must be U.S. students in grades 5-9 and under the age of 15. For more information, visit

http://www.nasa.gov/audience/foreducators/5-8/features/F_Essay_Competition.html.

Opportunity #7

JOURNEY THROUGH THE UNIVERSE

Journey through the Universe is a national science education initiative that engages entire communities using education programs in the Earth and space sciences and space exploration to inspire and educate.

The program offers a broad array of grade K-12 programming, curricular content, and resources that a community can use to create a customized Journey through the Universe program. The content addresses exploration of the solar system, galaxy, and universe; Earth system science; the search for extraterrestrial life; building a permanent human presence in space; and engineering for spaceflight.

Programming is delivered by a team of engineers, scientists and master science educators from research and education organizations across the nation. For more information, visit <http://journeythroughtheuniverse.org> or contact Stacy Hamel, shamel@usra.edu.

Opportunity #8

KEEPING COOL WITH SHADOWS

http://www.nasa.gov/audience/forstudents/k-4/home/F_Keeping_Cool_With_Shadows.html

Have you seen your shadow today? You might not always notice it, but when you're in the sun your shadow is often nearby. Shadows exist in space, too. They can help keep spacecraft from getting too hot. Young students can read more about shadows, on Earth and in space, in a NASA portal article specially written for K-4 students.

Opportunity #9

LANDSAT IMAGE MOSAIC OF ANTARCTICA (LIMA)

A team of researchers from NASA, the U.S. Geological Survey, the National Science Foundation and the British Antarctic Survey has created a new map of Antarctica that offers geographically accurate, true-color, high-resolution views. The map was created from more than a thousand images from three years of Landsat satellite observations. The resulting mosaic gives researchers and the public a new way to explore Antarctica through a

free Web portal. Eight different versions of the full mosaic are available to download at <http://lima.usgs.gov>.

Using LIMA data, the Scientific Visualization Studio at NASA's Goddard Space Flight Center has created a Flying Tour of the McMurdo Area. The movie can be viewed and downloaded in different formats at <http://lima.nasa.gov/mcmurdo/>. For related educational materials, visit: <http://lima.nasa.gov>.

Opportunity #10

RISING TIDES: JOURNAL FOR HIGH SCHOOL TEACHERS AND STUDENTS

"Rising Tides" is an oceanographic education journal developed with high school science teachers and students in mind. The journal focuses on the biological aspects of coastal oceanography with an emphasis on research technology. In the journal, you will find a collection of cutting-edge research articles as well as classroom and laboratory activities, scientist interviews, further reading, and links to a plethora of oceanography topics. There is an advanced section designed to challenge even the most gifted of high school science students.

This journal has been developed as part of the CoastalObs Project, and is a collaboration between NOAA and NASA, as well as other partners. The first issue (73 pages) was released in fall 2007 and is available online at: <http://phytoplankton.gsfc.nasa.gov/risingtides/>.

Opportunity #11

The American Geological Institute (AGI) is pleased to offer "Hubble: The Mirror on the Universe" (ISBN: 1-55407-316-2) by astronomers Robin Kerrod and Carole Stott for \$35.00 plus shipping and handling.

Published in October of 2007 by Firefly Books, "Hubble" explores the nearly twenty years the telescope has been in operation. This edition features over 80 new full-color photographs taken by Hubble. It highlights the most recent discoveries that have been made and how these discoveries are revising our understanding of the Universe, including the information behind Pluto losing its planetary status.

This stunning 192 page book contains 300 detailed photographs that delve into the birth of stars, galaxies colliding, the Eagle Nebula and other dramatic images that are millions, even billions of light years away.

To learn more about "Hubble" or to order this or other AGI publications online please visit <http://www.agiweb.org/pubs/>. You may also order by phone by calling 703-379-2480.

The American Geological Institute is a nonprofit federation of 44 geoscientific and professional associations that represents more than 120,000 geologists, geophysicists and other earth scientists. Founded in 1948, AGI provides information services to geoscientists, serves as a voice of shared interests in the profession, plays a major role in strengthening geoscience education, and

strives to increase public awareness of the vital role the geosciences play in society's use of resources, resiliency to natural hazards, and interaction with the environment.

Opportunity #12

Free Lesson Plans Allow Students to "Master the Science...Master the Game"

Join Nintendo, the National Institute of Aerospace, and Nortel LearnIT as they team to help students connect the science behind the fun of the Pokémon Diamond and Pokémon Pearl video games.

Free online lesson plans help explore the dimensions of time and space using the basic themes of the Pokémon Diamond and Pokémon Pearl video games. Students learn 21st Century science topics using 21st Century tools.

Visit www.masterthescience.org to download free lesson plans beginning now through the end of December 2007. A classroom activity component is also available, encouraging teachers to submit student products and questions to be answered by science experts. Check this site monthly looking for new resources and student work.

For award-winning, interactive lessons in math, science, language arts and life skills, visit the Pokémon Learning League, www.PokemonLearningLeague.com. For a limited time, access a free Pokémon Learning League trial using this URL: <http://www.pokemonlearningleague.com/autologin.weml?username=niademo&password=pokemon>

For information on the National Institute of Aerospace, visit <http://www.nianet.org>

Opportunity #13

NEW ONLINE GRADUATE COURSE ON THE SOLAR SYSTEM FROM THE AMERICAN MUSEUM OF NATURAL HISTORY

Co-authored by Neil deGrasse Tyson and Denton Ebel, the American Museum of Natural History will offer "The Solar System", its latest addition to Seminars on Science, the Museum's online professional development program. The course, intended for K-12 educators, uses original essays, videos and interactive media to address the origin and evolution of the solar system, its rich diversity and extreme environments, the research focus of current space missions, and its eventual fate.

Seminars on Science offers online graduate courses in the life, Earth, and physical sciences to educators throughout the country and abroad. Designed by the Museum specifically for K-12 educators, each six-week course immerses the learner in an area of contemporary research. Educators come away with a deeper understanding of both the science and the tools of scientific inquiry as well as an array of classroom resources. Courses are co-taught and led by Museum scientists and educators and feature rich web-based discussions. Other

courses offered by the program include Evolution, Earth: Inside and Out; The Ocean System; Genetics, Genomics, Genethics and Space, Time and Motion.

Drawing upon the Museum's extensive research and education resources in astrophysics, as well as an array of other web-based resources, 'The Solar System' will consider questions such as: What can we tell by looking at the surface of solar system bodies? What is an atmosphere, and how do those of different planets vary? What kinds of space missions are currently active, and what is the focus of research in each case? Register now for the sessions beginning January 28th and March 24th, as well as two summer sessions. Program details and the course syllabus can be found online at:

<http://learn.amnh.org/solar>

<<http://learn.amnh.org/evolution>>

Please call 800-649-6715 or see the Seminars on Science website for details: <http://learn.amnh.org>

<<http://learn.amnh.org>>

Opportunity #14

Share-a-thon Presenters -2008 Regional Conferences

The High School and Middle Level Committees are looking for Share-A-Thon presenters for the 2008 Fall NSTA Regional Conferences (Cincinnati: December 4-6, Charlotte: October 30 - November 1, and Portland: November 20-22) plus for the 2009 National Conference in New Orleans: March 19-22.

For the Share-A-Thon, each presenter is responsible for standing in front of the group and giving a 5-8 minute overview of their lesson or unit and answer any questions. Then the next presenter will have their turn. At the end of all presentations, copies of CDs are passed out to the attendees. The CD lowers the amount of papers for everyone involved.

If you have ever considered presenting, but have been worried about taking a whole hour, the High School or Middle Level Shares are a great way to "try out" presenting. Interested? Contact me, Susan German, Middle Level Director, at sgerman@hallsville.org or Jean Tushie, High School Director, at jtushie@comcast.net

Lastly, going to Boston? There are a few open spots for the Middle Level Share. Email sgerman@hallsville.org asap if you would like to be a part. Last year at St. Louis, there were well over 100 attendees.

ENJOY this Edition of Science BYTES. Hopefully you can find something of interest.

Judith Onslow, Science Support Teacher, ASD