



SCIENCE BYTES

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This is an information exchange that is available to all teachers in the Anchorage School District. Please read and then DO it!

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For your Calendar:

NSTA Conferences 2008-2009

2009 National NSTA Conference

New Orleans, LA – March 19-22, 2009

Science Fair 2008 - 2009

Alaska Science and Engineering Fair

March 27-29, 2008 @ Begich Middle School - Anchorage
Looking for volunteers for the SF Board.

Science Olympiad 2008-09

April 4, 2009 @ Begich Middle School - Anchorage

2009 - Alaska Math & Science Conference

INQUIRY - The Bridge to Understanding

October 14-17, 2009 Juneau, AK

from Anchorage Waterways Council - Streamline Nov. 2008

Adopt-A-Stream Program for ASD

Anchorage is composed of over 25 watersheds, and there are 26 Anchorage School District (ASD) schools within walking distance of a creek. With funding from the US Fish and Wildlife Service, we are developing and implementing a pilot program called Adopt-a-Stream for the ASD. This academic year we will build on our relationship and experience with Polaris K-12, where a successful program similar to Adopt-a-Stream has evolved over the past 3 years on Little Campbell Creek. Two schools located close to Chester Creek, Begich Middle School and King Career Center (KCC), are new participants in the pilot program. The objectives are to train a few teachers and students in water quality monitoring procedures, have these classes collect data near their schools using standard scientific protocol, enter the data into a database that is accessible on the web, and use the data and other technologies, i.e. GPS and geographic information systems (GIS), to analyze, visualize, display, and share findings in a variety of venues. The data collected will contribute to AWC's water quality monitoring program, it will be used by and shared between the participating classes and others, and additional activities involving improvement of riparian habitat will be undertaken.

Part of the USFWS funding has purchased monitoring equipment, chemical tests, and books and maps for the classes. Several science-based student projects are evolving from the program at Polaris K-12, and at Begich the students have participated in a variety of creek activities, such as mapping their creek reach, identifying and pulling invasive weeds, collecting and identifying macro-invertebrates, sampling water quality, and measuring

stream flow. At KCC the students are looking at this experience as career exploration and as possibly a means of getting involved in some of the state's projects such as the Denali Alaska Gas Pipeline. Anyone who has seen those commercials can't help but want to get outside and do some of that neat fieldwork!

We plan on expanding this program across the curriculum to involve language arts, math, and social studies in the upcoming year. Check it out on our website, and if you're a teacher who is interested in learning more about the program, contact Cherie Northon at cherie@anchoragecreeks.org (561-4627). Volunteers to help with the classes are always welcome.

Mapping Alaska Communities Workshop: An Introduction to GIS & Community Analysis

Anchorage : January 8th and 9th, 2009* 8:30am - 4:30pm
University of Alaska Anchorage - 3801 Old Seward Hwy.
Room 149 Anchorage, AK, 99501

***Note: These are one day workshops. Participants choose which one day to attend.**

More Info/Registration:

<http://www.urban-research.info/workshops/alaska-gis.htm>

Audience: Beginners, anyone interested in mapping their community

Participants will learn to use ArcGIS 9.3 to do the following: Create thematic maps

Participants will learn to create thematic maps of their own data, and display spatial trends in information.

Address mapping (geocoding)

Participants will learn to map addresses of their clients, their projects or incidents such as crime and disease.

Download and map Census & American Community Survey data

Participants will learn to extract and map current Census data such as poverty, race, language, population, transportation, education and workforce characteristics.

Participants will also learn to:

- Conduct spatial queries

- Download free shapefiles

- Create well-designed maps

Mapping techniques transferable to all other communities. Exercises are designed for beginners. Intermediate Excel skills required.

Materials

- + Comprehensive workbook (75 pages), which includes the presentation, exercises and reference worksheets,

- + ArcGIS (ArcView 9.3) software 60-day trial CD set,

- + Thirty day free access to new 2005 Tiger/Line geography files (converted to shapefiles) which include streets,

zip codes, school districts, voting districts, census tracts and many other useful geographies

+ Thirty day free access to our Analyzing Your Community: Local Demographic Analysis Online Workshop

What People Are Saying

State of Alaska - Department of Transportation - "This was truly an outstanding class!"

Municipality of Anchorage: "This was a very good "jump start" to my GIS education."

University of Alaska - Anchorage: "This was an excellent workshop."

Alaska Department of Education: "This was great! I am looking forward to incorporating our existing data into a mapping system."

from ANROE Electronic Newsletter

Employment:

**Anchorage: Application deadline, November 25- Interdisciplinary Environmental Education Coordinator* GS-0401-09/11 at the BLM Campbell Creek Science Center. The position is responsible for the educational outreach program for students and teachers at the primary, secondary, and college levels. To apply and more information, go to USAJOBS at <http://jobsearch.usajobs.opm.gov>.

Workshop / Training Opportunity:

**Application deadline: February 9, 2009- ARMADA Project- Research and Mentoring Experiences for Teachers* The University of Rhode Island's Office of Marine Programs is now accepting applications for the ARMADA Project Research and Mentoring Experiences for Teachers. The ARMADA Project, funded by the National Science Foundation, provides K-12 teachers an opportunity to actively participate in ocean, polar, and environmental science research and peer mentoring.

<http://www.armadaproject.org/>

**Application deadline: December 31- NOAA's Teacher at Sea Program: A Free Teacher Research Experience*

The mission of NOAA's Teacher at Sea program is to give teachers a clearer insight into our ocean planet and a greater understanding of maritime work and studies, and to foster an interdisciplinary educational experience that provides a unique environment for learning and teaching.

NOAA's Teacher at Sea program accepts applications from currently employed, full-time educators in these categories: K-12 teachers and administrators; community college, college, and university teachers; museum and aquaria educators; and adult education teachers.

Participants can expect to be at sea anywhere from one week to one month, with the average cruise lasting

12-14 days. Cruises take place throughout most of the year on a space-available basis.

All necessary travel costs are paid for by NOAA's Teacher at Sea Program. For more information please visit our Web site at <http://teacheratsea.noaa.gov>

Resources for Educators

**Microdocs Short Attention Span Science Theater*

Produced through Stanford University and Garthwait & Griffin films, Microdocs - Short Attention Span Science Theater offers a new ecological sustainability education resource. The website merges web technology with environmental science to communicate the wonders and knowledge of science. The website hosts more than thirty, 2-4 minute micro-documentaries written by leading scientists. Supporting each microdoc is text expanding on the concepts introduced by each film and links to further reference material. The main topic explored is ecological sustainability, taking the viewer for a quick trip around coral reefs of the world. The microdocs download quickly and offer very clear viewing of interesting video. <http://www.stanford.edu/group/microdocs/index.html>

**American Museum of Natural History Science Bulletins*

The American Museum of Natural History's Science Bulletins are online videos which feature the latest developments in the fields of astrophysics, human biology, biodiversity, and evolution. The website offers additional resource links, educator resources, and an educators' guide to help incorporate the materials into classroom work. The bulletins are categorized in sections that include Astro, Earth, Bio, and Human, with further subcategories of features, visualizations, and snapshots. <http://www.amnh.org/sciencebulletins/>

Funding Opportunities

**Application deadline: November 30- AIAA Classroom Grants*

The American Institute of Aeronautics and Astronautics awards grants to support hands-on mathematics, science, and technology projects. The purpose of these grants is to assist educators in presenting mathematics, science, and technology principles to K-12 students in an exciting, hands-on manner to develop future aeronautics and aerospace engineers, scientists, pilots, and space explorers. Preference will be given to proposed activities including, but not limited to, biological and physical research, earth science, and more. Acceptable materials include classroom science supplies, supplies for robotic programs, and more. Grants are considered on a quarterly basis, with deadlines at the end of November, January, April, and

July; the next deadline for submission is November 30, 2008.

<http://www.aiaa.org/content.cfm?pageid=216>

**Application deadline: December 31- Captain Planet Foundation Grants*

The Captain Planet Foundation provides grants to school and community groups to support hands-on environmental projects for youth in grades K-12. The objective of the foundation is to encourage innovative programs that empower youth around the world to work individually and collectively to solve environmental problems in their neighborhoods and communities.

<http://www.captainplanetfdn.org/grants.html>

**Application deadline: February 1, 2009- American Honda Foundation Grants*

The American Honda Foundation makes grants to K-12 schools, colleges, universities, trade schools, and others for programs that benefit youth and scientific education, and programs pertaining to academic or curriculum development that emphasize innovative educational methods and techniques. The foundation seeks programs that are scientific, creative, humanistic, innovative, and more. Grants are awarded on a quarterly basis, with deadlines of November 1, February 1, May 1, and August 1 each year. <http://corporate.honda.com/america/philanthropy.aspx?id=ahf>

Research Tips for Teachers - Toshiba /Exploravision

- * Encourage your students to take a trip to the library. This will spark their curiosity and help them see that there are volumes of information from which to draw.
 - * Recommend that your students use a variety of resources, such as books, magazine articles, newspapers, and the Internet. They can even interview experts on their chosen topics.
 - * Suggest that your students write down full bibliographical information while they are finding resources. Pertinent bibliographical information includes the source's author, title, place of publication, and publisher.
 - * When doing online research, advise your students to pay attention to domain name extensions. Sites having the extensions ".edu" (educational institution), ".gov" (government), or ".org" (non-profit organization) represent institutions and tend to be more reliable than private sites. <http://exploravision.org>
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from NSTA Express

Bayer "Making Science Make Sense" One-Day Session on Diversity in STEM This December

Earlier this year the Bayer Making Science Make Sense® program polled CEOs and other executives leading Fortune 1000 STEM (science, technology, engineering and math) companies about U.S. competitiveness and workforce issues.

The survey report, titled The Bayer Facts of Science Education XIII: Fortune 1000 STEM Executives on STEM Education, STEM Diversity and U.S. Competitiveness is now available at www.BayerUS.com/MSMS and will be discussed at a second STEM Education Diversity Forum in San Francisco on Thursday, December 11, 2008.

Titled "Bridging the Diversity Gap: Introducing STEM Industries to K-12 Best Practice Programs," the forum will introduce participants to a number of these programs, primarily based on the West Coast, that have a proven track record of helping girls and underrepresented minorities to participate and achieve in STEM.

The forum will consist of a series of panels, including the Best Practice Elementary STEM Education Programs and Best Practice Secondary STEM Education Programs.

Each panel will be moderated by Dr. Mae C. Jemison, the nation's first African American female astronaut, a chemical engineer, physician and Bayer's longtime national spokesperson for the Making Science Make Sense® program.

To register to attend, please visit www.BayerUS.com/MSMS. Questions or comments? Please e-mail BayerMSMSForum@bayer.com.

CCSC - December Fireside Chat - The Night Sky

December 11: The Night Sky—A Family Friendly Look at What's Overhead

Come learn more about the stars, planets, galaxies, and other objects that fill our night skies. Dr. Katherine Rawlins, a professor in the physics and astronomy department at the University of Alaska Anchorage, will give us an overview what's in the heavens. Afterward you can try some hands-on activities to learn more about the moon and its phases, how to find objects in the night sky, and more. The program begins at 7:00 pm on Thursday December 11th at the BLM Campbell Creek Science Center (5600 Science Center Drive). Please call 267-1247 for more information.

from NASA Education EXPRESS

The Educational Materials section of NASA's Web site offers classroom activities, educator guides, posters and other types of resources that are available for use in the classroom. Materials are listed by type, grade level and subject. The following items are now available for downloading.

Lunar Nautics Instructional Video Available Online

On Oct. 27, 2008, education curriculum specialist Paula Rodney presented a 30-minute instructional webcast highlighting many of the activities included in the Lunar Nautics Education Guide. This webcast has been archived and is now available on demand.

To view the webcast and to download the Lunar Nautics Education Guide, visit http://www.nasa.gov/audience/foreducators/topnav/materials/listbytype/Lunar_Nautics_Designing_a_Mission.html.

The Lunar Nautics Educator Guide has 40 activities geared toward students in grades 6-8 and in informal settings. Students assume roles of workers at Lunar Nautics Space Systems, Inc., a fictional aerospace company specializing in mission management, lunar habitat construction, exploration design, and scientific research. This guide features lessons that address the basics of Newton's Laws of Motion, rocket design, microgravity and the moon. Students will design, test and analyze a model lunar lander, a robotic model and a soda bottle rocket. Other activities include building edible models of spacecraft and creating a solar oven to cook hot dogs. Students can also build a microgravity sled as part of an underwater activity.

The Lunar Nautics CD now has enhanced accessibility features designed with visually and hearing-impaired students in mind.

Follow the above link to download the free educator and student guides and/or to order a copy of the CD from the Central Operation of Resources for Educators, or CORE.

The Hubble Ultra Deep Field Lithograph Grades 10-12

At the end of their lives, low-mass stars expand in size and become red giants. Then they shed their outer layers and become planetary nebulae. The Hubble Ultra Deep Field, an image that contains as many as 10,000 galaxies of all shapes, sizes, colors and ages, is on the first page of the lithograph. Background information about the HUDF is on the second page. The lithograph includes a Level One Inquiry activity entitled "In Search of ... Galaxy Evolution," in which students analyze galax-

ies from different eras to determine how they have evolved and changed over time.

http://www.nasa.gov/audience/foreducators/topnav/materials/listbytype/Hubble_Ultra_Deep_Field_Lithograph.html

GLAST Exploring the Extreme Universe Lithograph -- Grades 8-12

The Gamma-ray Large Area Space Telescope, or GLAST, is now called the Fermi Gamma-ray Space Telescope. The telescope will study known sources of gamma rays in detail but will also discover thousands of new gamma-ray sources in its five-year mission. This lithograph gives the mission's details and discusses the instruments on board the spacecraft. A pulsar activity calls for students to build a small model to demonstrate how pulsars create the pulses that can be seen.

http://www.nasa.gov/audience/foreducators/topnav/materials/listbytype/GLAST_Lithograph.html

Discovery Education "NASA at 50" Series -- Grades 6-12

"NASA at 50" highlights key innovations and milestones in the sciences and in space exploration from NASA's 50-year history. Each clip serves as a gateway for further learning in science and history; each promotes critical thinking and inquiry as essential components of scientific literacy.

Students can enjoy "NASA at 50" in video or audio formats. In addition, teachers guides are provided for each clip to facilitate integration of this content into lesson plans. Downloadable versions of the videos are captioned.

http://www.nasa.gov/audience/foreducators/topnav/materials/listbytype/Discovery_Education_NASA_at_50.html

NASA's African-American Astronauts Fact Sheet -- All Grades

NASA selects astronauts from a diverse pool of applicants with a wide variety of backgrounds. From the thousands of applications received, only a few are chosen for the intensive Astronaut Candidate training program. Only 321 astronauts have been selected to date. This fact sheet lists those astronauts of African descent.

http://www.nasa.gov/audience/foreducators/topnav/materials/listbytype/African_American_Astronauts.html

Particle Detection Activity -- Informal Education

Recruit four to 30 participants to play Particle Detection. They will "launch particles from space" to demonstrate how the Interstellar Boundary Explorer spacecraft works. The IBEX mission is the first NASA

spacecraft to image and map the dynamic interactions taking place where the hot solar wind slams into the cold expanse of space.

http://www.nasa.gov/audience/foreducators/topnav/materials/listbytype/IBEX_Particle_Detection.html

Using Scrapbooks in Science Educator Guide -- Grades 3-12

Employ students' creativity and artistic talents to build on their knowledge of science and scientific concepts. The guide includes teaching tips and examples of assignment sheets, grading strategies, students' scrapbook pages and ideas to involve parents.

http://www.nasa.gov/audience/foreducators/topnav/materials/listbytype/Scrapbooks_In_Science.html
