



SCIENCE BYTES

NOVEMBER 17, 2009 VOLUME 14

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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NSTA Conferences 2009-2010

March 17-20, 2010 Philadelphia, PA

Science Olympiad

March 20, 2009 Teeland & Mat-Su Career and Tech HS

Alaska State Science & Engineering Fair

March 26-28, 2010 Begich Middle School

National Green Week 2010!

Calling on all educators! Enroll in **National Green Week 2010** by **Dec. 15, 2009** and be entered into a raffle for free garden kits (gloves, tools, seeds), **IXG Green Packs** (reusable drink & snack containers, shopping bag and an organic tee) and cash prizes to jump-start your green program **and** be eligible for a \$5,000 grant!

National Green Week 2010 (Feb. 1-5, 2010)

Green Education Foundation (GEF) is mobilizing millions of students from across the nation to participate in environmental educational programs during **National Green Week 2010**. GEF's comprehensive curriculum provides Pre K-12 schools with extensive standards based lessons coupled with the following hands-on eco challenges:

- **Green Thumb Challenge**—Join the largest youth gardening initiative in history calling on classrooms

and schools to plant 10,000 indoor or outdoor gardens during the spring of 2010! GEF's website provides gardening instructions, checklists for school approvals, plot location guidelines; container garden suggestions, funding resources (including grant templates) garden plans, vegetable and flower suggestions and much more. **Green Thumb Challenge** lessons link gardening to science, math, language arts, creative arts and technology. Summer student internships and community service programs will be available along with an online professional development course for teachers.

- **Waste-Free Snacks**—Students nationwide will participate in the largest school based waste-reduction program of all time by simply pledging to carry their drinks and snacks in reusable containers for the week. The goal is to eliminate 500,000 pounds of trash from schools and landfills.
- **Green Energy Challenge**—Students will audit their classrooms, schools and homes to find energy leaks and correct them in an effort to reduce energy consumption.

Don't wait, enroll today at

www.GreenEducationFoundation.org

Green Education Foundation (GEF) is a non-profit organization that provides educational resources that promote sustainable, impactful pro-green behaviors in children, families, and communities. Children learn best through hands-on programs which enhance a child's critical thinking and understanding of why and how they should adopt new green habits. With this in mind, GEF programs provide a hands-on component coupled with lessons that promote environmental sustainability and individual health and well-being.

NASA's Web - Educational Materials

Neutral Buoyancy: Astronaut Training Is Not Always "Sink or Swim" -- Grades 9-12

Watch the short NASA Brain Bites video "Why Do Astronauts Practice Underwater?" and use the accompanying resource sheet to explain sinking and floating. NASA astronauts simulate floating in space as they train for spacewalks in a huge pool called the Neutral Buoyancy Laboratory. The video shows the NBL, and the resource sheet lists questions, answers and resources to stimulate a discussion on density and Archimedes' Principle. The resource sheet includes links to more buoyancy activities.

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

What Is the Temperature of Space? -- Grades 9-12

Watch a short NASA Brain Bites video and use the accompanying resource sheet to explain why objects traveling through space have a temperature but space

does not. The resource sheet contains questions and answers to stimulate a discussion about the types of heat transfer, solar absorptivity, IR emissivity, and how NASA designs spacecraft and spacesuits for astronauts.

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

Spacesuits: Pressurized Protection from Thermal Effects -- Grades 9-12

Start with the NASA Brain Bites video “How Do You Scratch Your Nose in a Spacesuit?” for basic information about the suits. Then build on the video with a discussion of how the suit is like a “personal spacecraft.” This resource sheet lists discussion questions, answers, and resources about spacesuits and air pressure. In an application of Ohm’s Law, students calculate the current drawn by the heaters in a spacesuit glove. The resource sheet includes additional links and resources about spacesuits and albedo.

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

Ares I Can Model -- All Grades

NASA plans to send humans back to the moon and on to Mars. To do this, the agency is developing a new rocket called the Ares I. Teachers and students can build an Ares I model. This easy-to-build model, made of cans of foods, was originally created to give visually impaired students an idea of the structure and relative sizes of the parts of Ares I.

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

“Out of Sight” Remote Vehicle Activity -- Grades 5-9

Engineers and scientists tested the FIDO rover in the Mojave Desert. The rover drivers worked out of a trailer without watching the rovers. In similar fashion, in this activity students drive a remote-controlled car through a course to learn the challenges faced while trying to operate a planetary rover. They will use measurement, geometry and problem-solving skills to move through the course.

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

Rover Races Activity -- Grades 5-9

Students learn the challenges of operating a robot on Mars from Earth. In this simulation, the rover drivers upload their commands to their rovers (team of three blindfolded students) to travel around obstacles on the Martian surface (red paper on the floor) and complete the mission.

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

Buzz Lightyear ‘Putting It All Together’ Activity -- Grades 3-8

Buzz Lightyear has the distinguished honor of having been the longest-serving toy in space. He launched May 31, 2008, aboard the space shuttle Discovery with mission STS-124. He returned on Discovery 15 months later on Sept. 11, 2009, with STS-128. Now, back on Earth, Buzz has a challenge for your students: Create a Rube Goldberg-type device that incorporates at least 10 steps to put a marble in a cup. Students use their knowledge of the design process and physical science to design, test, modify and build a successful device.

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

Waste Limitation Management and Recycling Design Challenge Educator Guide – Grades 5-8 & Informal

This guide is a starting point for middle school students to research and answer the challenging questions of how to maintain human habitations on the moon and other planets in the solar system. The guide focuses specifically on the need for water recycling. The guide includes background information on topics relating to the moon, Earth’s water cycle and water recycling. Several basic classroom activities on water recycling are also included.

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

from SCIENCE MATTERS in November

What Is Science Matters?

nsta.org/sciencematters/

Science Matters is an initiative by the National Science Teachers Association (NSTA) to bring content, news, and information that supports quality science education to parents and teachers nationwide.

Science Matters builds on the success of the Building a Presence for Science program, first launched in 1997 as an e-networking initiative to assist teachers of science with professional development opportunities. Building a Presence for Science—now Science Matters—reaches readers in 34 states and the District of Columbia.

Why does Science Matter? Science is critical to understanding the world around us. Most Americans feel that they received a good education and that their children will as well. Unfortunately, not many are aware that international tests show that American students are simply not performing well in science when compared to students in other countries. Many students (and their parents!) believe that science is irrelevant to their lives.

Innovation leads to new products and processes that sustain our economy, and this innovation depends on a solid knowledge base in science, math, and engineering.

All jobs of the future will require a basic understanding of math and science. The most recent ten year employment projections by the U.S. Labor Department show that of the 20 fastest growing occupations projected for 2014, 15 of them require significant mathematics or science preparation to successfully compete for a job.

This is why Science Matters. Quality learning experiences in the sciences—starting at an early age—are critical to science literacy and our future workforce. Feel free to publish this information in school newsletters and bulletins, and share it with other parents, teachers, and administrators.

Acknowledge Exemplary Science Teaching

<http://www.nsta.org/pdfs/awards/CibaTeaching.pdf>

Ciba Specialty Chemicals Exemplary Middle Level and High School Science Teaching Awards recognize classroom teachers who have demonstrated exemplary science teaching in one or more of the following areas: creativity using science teaching materials; design and use of innovative teaching plans and ideas; and development and implementation of department, school or school–community programs that improve science instruction and/or stimulate interest in science and the learning of science. The award consists of \$4,000, a one-year membership in the National Science Teachers Association (NSTA) and up to \$1,000 to attend the NSTA National Conference on Science Education, March 18–21, 2010 in Philadelphia. Deadline: November 30, 2009.

Win \$3000 For Your School's Science Department

<http://PestWorldForKids.org>

An educational children's Web site developed by the National Pest Management Association (NPMA), has announced a national competition for students (grades four through eight) to win \$3,000 for one lucky school's science department. The contest challenges teachers and their students to create educational Public Service Announcements (PSAs) that highlight the health and property risks posed by household pests such as rodents, ants, termites, cockroaches, stinging insects and ticks. Deadline December 23, 2009.

NASA Announces the Waste Limitation Management and Recycling Design Challenge

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

NASA is inviting students in grades 5-8 to participate in the Waste Limitation Management and Recycling Design Challenge. The challenge uses real-world scenarios that meet science and mathematics content standards. Students can participate in a formal, informal or home-school setting.

Teams of up to six students will design a water recycling system for the unique environment of the moon. Teams will then test their system on a simulated wastewa-

ter stream. Proposals and results are due Feb. 1, 2010.

The winning teams will be announced in May 2010. The top three teams will receive awards. The first place team will receive an expense-paid trip to NASA's Kennedy Space Center in Florida. During the winning team's visit to Kennedy, students will gain firsthand knowledge about NASA's missions, receive behind-the-scenes tours of NASA's launch facilities, and learn about future aerospace and engineering careers.

Solar System Educators

<http://solarsystem.nasa.gov/ssep/index.cfm>

The application period for SSA's sister program, Solar System Educators has passed with no applicants from Alaska. There is an attached SSEP application packet. Ignore the due date and the announcement dates. Late applications are being accepted in target states.

Solar System Educators are master teacher volunteers who to train with us and host professional development workshops for other teachers in their states. In addition to receiving specialized training on NASA's educational products, SSEPs join Solar System Ambassadors and the Museum Alliance for mission update trainings. We look for teachers who have a minimum of five years classroom experience as well as experience hosting workshops. SSEPs do not necessarily have to be in the classroom when they apply; they just need past classroom experience. Some of our current SSEPs are now working in informal settings.

SSEPs are asked to annually conduct three educator workshops, or reach 100 teachers, in their states with information about NASA's educational products. There are limited funds available to aid with travel costs (usually mileage) for SSEPs who may have to travel within their states to accomplish their goals. SSEPs also may conduct and report public events.

SSEPs are given one in-person institute when they enter the program. Stipends are available to aid with travel costs. The remainder of trainings will be handled on-line in the same manner as SSA.

For answers to any questions please contact:

Kay Ferrari, Coordinator ambassad@jpl.nasa.gov

Freebies for Science Teachers

<http://www.nsta.org/publications/freebies.aspx?lid=tnavhp>

Tucked away in the NSTA website, under the Publications tab, you'll find the Freebies for Science Teachers, a continually refreshed repository of free resources for you and your classroom. The "Freebies" have long been a popular part of the Grab Bag pull-out section of NSTA Reports.

Where the Wild Things Are

<http://www.nwf.org/beoutthere>

National Wildlife Federation has teamed up with the film *Where The Wild Things Are* to bring you some fun activities. Try them out and discover the Wild Things in your own world! Playing outside makes healthy, happy kids.

You will find an Educator's Guide, plus all the details on how to plan a fun Wild Rumpus Day, by visiting: http://www.nwf.org/beoutthere/docs/BeOutThere_KidsGuide.pdf

Learn Science From Frankenstein

<http://www.miamisci.org/af/sln/frankenstein/index.html>

The Atoms Family is a Science Learning Network online resource based on The Atoms Family exhibit at the Miami Science Museum. This resource contains educational activities, presented by famous gothic horror characters, related to different forms of energy. In *The Mummy's Tomb*, students learn about energy conservation and kinetic and potential energy. In *the Phantom's Portrait Parlor*, they investigate the principles of atoms and matter. In *Frankenstein's Lightning Laboratory*, they study different forms of electricity and electrical safety. *Dracula's Library* introduces the properties of light, waves and particles, and *The Wolf Man's Graveyard* presents the concepts of fuel conservation and energy transfer.

PUMAS

<https://pumas.gsfc.nasa.gov/>

Practical Uses of Math and Science (PUMAS) offers more than 60 one-page examples of how science and math can be used in interesting settings and everyday life. Topics include clouds (why they float), Social Security benefits (algebra), Pythagorean theorem (cabinet corners), ice sheets and sea level (logarithms), matching birthdays (statistics), traffic signals (probability), seasons (causes), volcanic clouds, wind chill (algebra) and more. The examples, written primarily by scientists, engineers and other content experts, are aimed mainly at K-12 classroom teachers.

Whelmers

<http://www.mcrel.org/whelmers/>

Whelmers are 20 hands-on science activities intended to capture students' imagination and spark curiosity. The activities have been aligned with the National Science Education Standards by the staff of McREL. Among the activities are *Iron in Cereal*, *Nickel Karate*, *Inch of Skin*, *Fire Sandwich*, *Pretzel Predictions* and *Liquid Rainbow*.

from ANROE e-Newsletter

SeaNET

If you are interested in promoting Alaskan Marine and Climate Change Literacy, join SeaNET, a new listserv and networking site for scientists, educators, science

communicators, and Alaskan coastal community members. The Alaska Center for Ocean Sciences Education Excellence (COSEE) has launched SeaNET and will provide regular postings of *Caught in the News Net*, a round-up of Alaska ocean climate change news, resources, and calendar items related to science outreach and educational and professional training opportunities. Members of the networking site can create and participate in forums and sub-groups. To join the listserv, contact Marilyn Sigman, msigman@alaska.edu, or go to <http://oceanseanet.ning.com> to join the networking site. More information and links to educational resources are available at <http://www.coseealaska.net>.

<<http://www.coseealaska.net/>>

<<http://www.coseealaska.net/>>

Easy-to-Use Climate Change Action Projects for K-12 Students

Facing the Future has released a comprehensive service-learning resource for climate change. The Climate Change Action Project Database includes more than 25 ready-to-use action projects that will prepare students to understand and take action on climate change.

<http://www.facingthefuture.org/ServiceLearning/Cli...>

<<http://www.facingthefuture.org/ServiceLearning/ClimateChangeActionProjects/tabid/350/Default.aspx>>

Teacher Program to Costa Rica

Application Deadline: December 3

Are you an educator interested in gaining first-hand research experience on an ocean research ship? This program gives teachers a clearer insight into our ocean planet, a greater understanding of maritime work and studies, and environmental literacy by fostering an interdisciplinary research experience.

<http://teacheratsea.noaa.gov>

<<http://teacheratsea.noaa.gov/>>

Teacher Program to Costa Rica

Application deadline: January 6, 2010

The 2010 Toyota International is a fully-funded professional development program for U.S. educators. The program aims to advance environmental stewardship and global connectedness in U.S. schools and communities. The program will take place June 18 – July 3, 2010. For application instructions, eligibility requirements, FAQs, and to apply online: www.toyota4education.com
<<http://www.toyota4education.com/>>

SeaGrant Newsletter Link

For those of you not familiar with this exceptional program in AK, go to the site below for a copy of their current newsletter.

<http://seagrant.uaf.edu/news/fishlines/2009/november.php>

NASA's Digital Learning Network Presents...

NASA's Digital Learning Network presents a series of videoconferences to assist educators in staying current on NASA education resources and related products.

During each event, product producers, authors and experts will demonstrate their materials designed to optimize awareness and understanding of science concepts. Instructional objectives, accessing the materials and primary contacts for the materials will also be discussed. During the videoconferences, participants will be able to submit questions to the presenter that will be addressed during the presentation.

In the coming months, the following topics will be covered:

- **Using NASA eClips™ to Engage Millennial Learners:** Nov. 18, 2009, 4-5 p.m. EST
- **Exploring Space Through Math:** Dec. 16, 2009, 4-5 p.m. EST
- **STS-131 Robotics:** Jan. 27, 2010, 4-5 p.m. EST
- **NASA Fit Explorers** Feb. 24, 2010, 4-5 p.m. EST
- **NASA eProfessional Development Network -- Robotics Course:** March 31, 2010, 4-5 p.m. EDT
- **MoonWorld:** April 28, 2010, 4-5 p.m. EDT
- **On the Moon:** May 26, 2010, 4-5 p.m. EDT

For more information about these videoconferences and to sign up online, visit <http://dln.nasa.gov/dln/content/webcast/>. Questions about these events should be directed to Caryn Long at caryn.long@nasa.gov.
