



SCIENCE BYTES

DECEMBER 1, 2009 VOLUME 16

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

President Obama Announces Nat'l Lab Day Initiative

On Monday, President Obama announces the establishment of National Lab Day, a new science education initiative aimed at improving labs and inquiry-based science experiences for students in grades 6–12.

Designed to increase community-based collaborations between scientists, engineers, teachers and students, National Lab Day emerged from collaboration earlier this year among NSTA, the American Chemical Society (ACS), the National Science Foundation (NSF), the Jack D. Hidary Foundation, and the MacArthur Foundation.

National Lab Day will bring together stakeholders in communities of support where science, technology, engineering and math (STEM) professionals and teachers can work together to assess current labs, update or refurbish lab equipment, conduct equipment and materials in-

ventory, clean and repair equipment, and provide technology support. Projects can also center on computer or outdoor labs—anywhere where hands-on lessons in the STEM subjects can come alive.

The first National Lab Day is tentatively scheduled for early May 2010. For more information about National Lab Day, visit the official website at

www.nationallabday.org.

Students love to explore.

They ask questions, they are curious.

They are natural scientists.

They poke and prod and test.

They gain feedback and try new strategies.

(from National Lab Day website)

Montana State Spring Online Courses Include "Across the Sciences" and HHMI-sponsored Microbiology

An online pilot course called "Across the Sciences" helps high school teachers who are teaching outside of their endorsement areas. The 16-week course was developed by Oregon Public Broadcasting and Biological Science Curriculum Study and is offered this spring through Montana State University's National Teachers Enhancement Network. Teachers earn three graduate credits and gain a better understanding of science content for which they are not certified. Units include Physical Sciences, Life Sciences and Earth/Space Sciences. Teachers chosen to participate pay a \$200 registration fee, which is returned upon completion and evaluation of the course.

In spring, MSU also offers Microbial Ecology (MB 542). The 3-credit graduate course is just \$150, thanks to sponsorship from the Hughes Undergraduate Biology Program with funding from the Howard Hughes Medical Institute. The course covers the ecology of microorganisms in relation to nutrition, growth, control, metabolism, biogeochemical cycling, natural environments and microbial interactions. Visit eu.montana.edu/NTEN for these and other elementary and secondary online courses for Spring 2010.

"Kids in Micro-g!"

"Kids in Micro-g!" is a student experiment design challenge geared toward grades 5-8. Its purpose is to give students a hands-on opportunity to design an experiment or simple demonstration that could be performed both in the classroom and aboard the International Space Station.

The winning experiments will have observably different results when the experiments are performed in

the "1-gravity" or "1-g" environment of the classroom, compared to when the experiments are performed by astronauts in the "Micro-g" (one-millionth of 1-g) environment of the space station. The apparatus for the demonstration must be constructed using materials from a materials tool kit provided to the astronauts on board the space station. The tool kit consists of materials commonly found in the classroom and used for science demonstrations.

The experiment demonstration must take no more than 30 minutes to set up, run and take down. Experiment challenge winners and runners-up will be selected regionally and nationally by the Education offices of the ten NASA centers. The ten regional winners, one national winner and one national runner-up winner will have their experiments conducted by the astronauts on board the space station in the April-May 2010 timeframe. The experiments will be recorded in HD video and the winners supplied with copies of their video before the end of their school year.

Experiment proposals may be submitted by educators on behalf of their student groups. Proposals may be submitted via e-mail or postal mail during the period from **Jan. 4, 2010, through Feb. 19, 2010.**

The winning experiment proposals will be announced on April 2, 2010.

For more information about the challenge, including a scoring rubric, proposal requirements and a list of materials available to the astronauts, visit http://www.nasa.gov/mission_pages/station/science/nlab/experimentchallenge.html.

Questions about this challenge should be directed to jsc-iss-payloads-helpline@mail.nasa.gov.

Alaska Biogeography: Plants and Their Symbionts

For the second year, UAF, UAS and EPSCoR are joining forces to offer Middle and High School science teachers the opportunity to study "Alaska Biogeography: Plants & their Symbionts" with a two-week residency at UAF included in the course. Participants in this course will earn four professional development credits from the University of Alaska Southeast. This outstanding experience provides funding for the participant-teachers for travel, room and board through the EPSCoR grant. The cost for the UAS credit (\$100) is the responsibility of the teachers.

In addition, there will be opportunities this summer for any of your secondary science and social studies teacher to attend our PRAXIS II Training Camps (UAS Summer Science Institute and UAS Summer Social Studies Institute) on the UAS campus. Both of these institutes will be held in Juneau in June, 2010. Watch for more info coming on these one week long institutes for your teachers who need to become "Highly Qualified" as per NCLB requirements!

ATTENTION MIDDLE & HIGH SCHOOL SCIENCE TEACHERS!

Are you...
 ... in need of continuing education credits?
 ... interested in furthering your science education?
 ... excited about the idea of your students participating in new and timely scientific experiments in their own classrooms?

This course is for you!



ED593
Alaska Biogeography:
Plants & their Symbionts
 (4 credits)



Course Dates:

The course will run in June 2010. The first two weeks will be taught via distance, followed by a two-week hands-on residency at UAF. *Travel to/from and room and board for the residency will be provided.* Participants are responsible only for the UAS processing fee of \$100. Participants will be expected to implement course teaching in their classrooms. Follow-up support will include a visit to each participant to assist in development and implementation of experimental design and data collection in the field and/or classroom.

Course Description:

This course teaches the basic ecological concepts of phenology, invasive plants, and nitrogen fixation using plant-symbiont relationships and mycorrhizae as a unifying theme. It includes the development of lesson plans and experiments that educators implement in their own classrooms. Topics covered include;

- Symbiosis, specifically mycorrhizae on plant roots, focusing on *A. uva ursi* as well as important native species such as cranberries and blueberries
- Techniques for observing and recording phenological data, surveying mycorrhizal infection, and measuring variables that link phenological and symbiont information to climate data
- Identification and ecology of invasive species and legumes
- Nitrogen fixation
- Invasive legumes, such as bird vetch and sweet clover, as well as native nitrogen-fixing species such as alders
- Lab techniques to measure mycorrhizal infection and/or nitrogen fixation

For more information contact:

Christa Mulder, (907) 474-7152, cpmulder@alaska.edu or Alina Cushing, (907) 474-5805, ascushing@alaska.edu

A course for secondary science teachers offered summer 2010 by the University of Alaska Southeast, in collaboration with the University of Alaska Fairbanks Experimental Program to Stimulate Competitive Research (EPSCoR). The Culturally Responsive Biological Education Project is part of Alaska EPSCoR's continuing commitment to involve secondary students and rural schools in its activities, and enables rural Alaskan students to contribute valuable information to statewide and nationwide databases, while learning about scientific research methods and local biology.

Space is limited and interested teachers should contact Alina Cushing at ascushing@alaska.edu <[x-msg://93/ascushing@alaska.edu](mailto:ascushing@alaska.edu)> or 907-474-5805; or Christa Mulder at cpmulder@alaska.edu <[x-msg://93/cpmulder@alaska.edu](mailto:cpmulder@alaska.edu)> or 907-465-7152.

Biodiversity Role in Developing New Medicines

Most people regard venoms and bacteria as harmful, but both can be extremely helpful in the creation of new medicines. For example, each cone snail species produces venoms containing toxins that cause shock and paralysis—but also sedation. Because the toxins are so specific in their molecular targets, they are useful as both research tools and as potential drugs to treat neurological diseases.

On December 3 and 4, you can watch Exploring Biodiversity: The Search for New Medicines, a series of free webcasts from the Howard Hughes Medical Institute (HHMI). Register for HHMI's 2009 Holiday Lectures on Science and request a free poster for your classroom. <http://www.hhmi.org/biointeractive/>

NASA GIFT Workshop for Secondary Educators

Since 1991, the American Geophysical Union has offered GIFT (Geophysical Information for Teachers) Workshops. These professional development opportuni-

ties allow science teachers to learn about the latest research in Earth and space science from prominent scientists engaged in making the most recent discoveries and to actively engage in classroom activities that tie to this cutting-edge research.

The 2009 GIFT Workshop will take place on Dec. 17-18, 2009, at the AGU Fall Meeting in San Francisco, Calif. This workshop is intended for middle and high school science educators and will focus on "Earth's Surface: Where Biology and Geology Interact." The workshop will feature several prominent NASA scientists discussing their current research and explorations. Topics will include a broad view of water, water on Mars, water on the moon, and mapping impervious cover on Earth that impacts the water cycle. The entire first day will consist of NASA presentations.

Participants will learn how to use hands-on, inquiry-based activities that demonstrate data concepts as examples for teaching the science standards. Attendees will leave with curricular materials and resources for their classroom.

The workshop is free for teachers, but space is limited to 65 participants. It will be assigned on a first-come, first-served basis. Complimentary breakfast and lunch are included both days.

Participating teachers will also be provided with a coupon redeemable in the exhibit hall for a Galileoscope and a bag of NASA Earth and space science educational materials. Also included is a complimentary meeting registration to attend the technical presentations and exhibit hall during AGU.

This workshop is co-sponsored by AGU, NASA and Critical Zone Observatory.

For more information about the workshop and to register online, visit <http://www.agu.org/meetings/fm09/outreach/index.php>. (Registration will remain open until available slots are filled.)

Questions about this workshop should be directed to fm-help@agu.org.

registration to attend the NSTA National Conference on Science Education in Philadelphia.

Don't delay, apply now! Visit the TAPESTRY website <<http://www.nsta.org/pd/tapestry/?lid=exp>> for complete details. Applications must be submitted no later than Monday, January 18, 2010 to be considered.

Apply Now for the Toyota TAPESTRY Grant

The deadline to submit applications for the Toyota TAPESTRY Grants for Science Teachers program is fast approaching. K-12 science teachers with innovative project ideas that enhance science education in their school and/or school district are encouraged to apply.

Fifty large grants and a minimum of 20 mini-grants totaling \$550,000 will be awarded this year. Individual science teachers or a team of up to five teachers can submit proposals in one of three categories: physical science application; environmental science education; and integrating literacy and science. Additionally, all awardees will receive a \$500 stipend to use for travel expenses or