

January 2006 Eblast

Hi Everyone:

Welcome back to a new year. Hopefully everyone is rested and ready to go. We have another eblast full of new announcements, events and happenings and thanks for passing these on to your fellow colleagues.

Upcoming events in Montana Math and Science Include:

Jan 13 – 14 – Math/Science Leadership Conference in Bozeman

Jan 20 – 21 – Winter Wonderland Open House – Canyon Ferry

Feb. 3 – Paper Car Challenge - Bozeman

March 19 – 21 – State Science Fair - Missoula

March 23 – 25 – T-3 Conference – Canyon Ferry

April 6 – 9 – NSTA National Conference – Anaheim, CA

June 12 – 15 – Toying Around with Skimmers, Gliders, and Gears Workshop – Canyon Ferry.

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1. Paper Car Challenge

Once again John Graves is sponsoring his paper car challenge, and if you haven't done this event, it's a great one. Basically students use three sheets of paper, some wire coat hangers and they build a paper car. The object is to build a car that will roll down a ramp the fastest. If you haven't tried this, give it a try and you'll see how many science process skills, understanding of momentum, kinematics, friction and design are involved as your students build these cars. If you don't have time in your curriculum, run of a copy of the rules, give them to students to work on at home. The winning car from your grade can be sent to John for a 'state' race off. These cars are due on Feb. 1. A copy of the rules (both pdf and word document) are posted on the BaP website (<http://ecommerce.nsta.org/bap>).

2. Careers in Biology Web Site Update.

AIBS recently updated its "Careers in Biology" Web page at www.aibs.org/careers. The new page features comprehensive information for students interested in pursuing a career

in biology, including the outlook for jobs in biology and new directions in the biological field, links that feature job and internship opportunities, and a links table showing the career and graduate school resources offered by AIBS member societies and organization. www.aibs.org/careers/mso.career_links.html

3. Return to the Moon

The Montana Space Grant Consortium (MSGC), in cooperation with the Texas Space Grant Consortium, is pleased to announce the 2006 LiftOff program: Return to the Moon. MSGC will cover travel and registration for up to two teachers (grades 4-12) to attend the week-long program in Houston, TX. For further information, visit the MSGC website at <http://spacegrant.montana.edu>

4. Discover Mars in Alaska!

Become an integral part of the Phoenix Mars Mission Education Team by actively participating in the Alaska Phoenix Mars Arctic Region Science Field Experience for Secondary Teachers--Phoenix MARSFEST. NASA's Phoenix Mars Lander and Mars 2001 Odyssey missions invite eight pairs of middle and/or high school science teachers to immerse themselves in a week-long summer field experience focused on current polar science research on both Earth and Mars. Selected teacher teams will: Collect and analyze permafrost samples from the CRREL research Tunnel; Visit and study active glaciers and learn about Alaska polar Science; Study and compare remote sensing data from both Earth and Mars; Work directly with Mars scientists, arctic experts, and education specialists; Prepare to present Mars activities at regional and national education conferences. Applications are due February 15, 2006. For an application and more information, please visit the Phoenix Mars Lander Web site at: http://phoenix.lpl.arizona.edu/alaska_workshop or contact: Doug Lombardi, Phoenix E/PO Manager, lombardi@lpl.arizona.edu, 520-626-8973 Middle and/or high school science teachers are invited to apply for a week-long summer field experience focused on current polar science research on both Earth and Mars. For further information, visit the Montana Space Grant web site: <http://spacegrant.montana.edu>

5. Science Websites:

We have a number of science websites offering many potential curricula additions. Some you may wish to check out include: Teach students about geology and mapmaking with earth science activities and information from the U.S. Geological Survey. The USGS also has graphic examples of the life cycle (so to speak) of rocks and other geological phenomena. For more information, go to <http://education.usgs.gov/schoolyard/index.html>. Students can step through a conversation between two characters struggling to understand how global warming occurs. The central role of carbon dioxide gas becomes clear and students understand how deforestation and burning fossil fuels contributes to the presence

of this gas in the atmosphere.

http://www.epa.gov/globalwarming/kids/global_warming_version2.html

High school teachers can use 50 video segments and accompanying lesson plans to teach genetic research in the classroom. Video segments cover a range of topics including cancer, gender determination, cloning, forensics, genetic engineering and many health related issues.

<http://www.pubinfo.vcu.edu/secretsofthesequence/>

At first glance, it may seem that the life cycle of a glacier couldn't be more straightforward: snow accumulates at the high end of a glacier, and the ice that the snow turns into flows downhill until it melts, evaporates, or falls into the sea. Well, it turns out that a biography of your average glacier is more eventful than that, as you'll discover when you follow the journey of a single snowflake as it takes a ride through a glacier, a process that can take as much as 30,000 years to complete.

<http://www.pbs.org/wgbh/nova/mtblanc/glacier.html>

Allow your students a fun, interactive trip through topics such as Environmental Issues, Wildlife, Energy, and Science & Nature. In keeping with today's theme, be sure to explore Climate Change under Environmental Issues and, for a real kick, check out Animal Antics under Climate Change.

http://www.ecokidsonline.com/pub/eco_info/browse_topics/index.cfm

6. Earthwatch Education Awards

The Earthwatch Institute, an international nonprofit that connects adventurous travelers with research scientists worldwide, offers fully funded fellowships for K-12 educators to participate in one of 130 conservation and field research projects around the world. For more information, go to

<http://www.earthwatch.org/education/educator/fellowships/apply.html>.

7. A Good Density Demo

From Tik Liem's excellent discrepant event book comes a neat density demo. The effect is that a small candle is dropped into a clear liquid and it floats. A larger candle is dropped into another clear liquid and it sinks. Students hypothesize that the larger candle is heavier so it sinks. The teacher drops the large candle in the other liquid and it floats and the small candle sinks in the second liquid. Students are asked to make a second hypothesis. Working: It's not the candle (that has the same density) it's the liquid. One container has water and the other has alcohol (either methyl or rubbing). They both are clear so it looks good. The density of the water (1.0 g/cm³) is greater than the candle (.9 g/cm³), but not greater than the alcohol (.7 g/cm³). This demo has a lot of potential in creating some good density discussions.

8. Using Mealworms in Class

Mealworms, those little critters that we find for sale in stores that are used for fishing bait, make wonderful topics for science class. Take this little 'worm-like' critter, feed it some oatmeal, and keep moisture present by using an apple or wet paper towel, and students will watch the wonderful metamorphosis into a black beetle. For students who have never witnessed this, it is an amazing sight. Generally the process takes

several weeks so students can make a number of observations as the process is happening. In addition to watching the mealworm go through the stages of metamorphosis, students may wish to explore such questions as: Do mealworms like to be alone or together? Can students train a mealworm to go through a maze? Do they prefer light or dark, warm or cold, damp or dry? What is their reaction to odors like vinegar, ammonia or foods like pickles (please teach students to be respectful of the mealworm and not put any of these on the worm)? Better yet, let your students design their own research question, and allow them to design an experiment that answers their question. Stop in any store that sells earthworms for fishing bait, and ask about mealworms. Put them in some oatmeal (give them some water) and watch the magic of the mealworm.