

March 2010

Vol. 116

Science Teachers' Association Greetings Friends & Colleagues

Another conference has come and gone and despite the weather, the conference was awesome. Thanks to all who helped with the conference but more importantly, thanks to all who presented. Our conference is only as good as our presenters and it always amazes me how willing SD teachers are to share their ideas and knowledge with others.

Since I am your new president, I will share a little information about myself. I was a dental hygienist before pursuing my teaching career. There aren't many dentists in our remote area so after tutoring at the school for a year, I went back to school and got my teaching degree. I graduated in 1987 and this is my 20th year in McIntosh. My area of expertise has always been the physical sciences but many years ago, we lost our biology teacher so I ended up with biology also. I spent many summers at workshops trying to develop a repertoire of biology activities. I still prefer the physical sciences but am now comfortable teaching biology. I live on a ranch north of McIntosh with my husband Dave. I have 3 grown sons, three beautiful daughters-in-law, 6 sisters and 3 brothers. I look forward to serving as your president for the next couple of years.

Look for opportunities in this newsletter for summer workshops. SD generally offers a wide variety of educational opportunities that won't tie up much of your summer. I have been to many of these classes and have not been disappointed yet.

At the regional NSTA conference in Minneapolis in October, I discovered a great resource. The University of Colorado at Boulder has a website: <http://phet.colorado.edu/simulations> with numerous simulations and teacher developed lessons to accompany them. The simulations are organized by grade level (including elementary) and content. I have used several of them in my classes. One was the

Photoelectric Effect and the accompanying lesson written by Sam McKagan. This helped my students (and me) better understand the particle concept of light. I also used the Man in Motion simulation for my 9th graders & there is a Natural Selection simulation that I intend to use in Biology. These are fantastic. Check them out and use them...they are free.

Our outgoing treasurer, Brant Miller is going to be a part of the *Go North* polar husky expedition this year. He will be leaving around April 15 and will be gone about 4 weeks. *GoNorth* is a free adventure learning project for the K-12 Classroom that enables teachers to use advanced interactive telecommunications and technology as teaching tools. The online learning environment delivers comprehensive resources about the region of travel, collaborative opportunities and live field updates. You and your students can log on to <http://www.polarhusky.com> and follow the GoNorth team and our own Brant Miller as they journey across Greenland.

Hurrah! The votes are counted and our past president, Ramona Lundberg is our new District Director for District IX of the NSTA. **Congratulations Ramona!!** We know you will represent our District well and we look forward to working with you in a new capacity for the next three years.

We welcome Bobbie Traxinger to our executive board as our new secretary. James Stearns will take on yet another role (he is already our website coordinator and the newsletter editor) as treasurer and Brenda Murphey has moved in to the president-elect position. Congratulations to them and thanks to the others who ran for office. It was nice to see some competition for offices this year.

With that, I will close and wish you all a warm and sunny March and a non-stressful, productive final quarter of the school year. If anyone has any comments or suggestions for our organization, don't hesitate to email me.

Molly TenBroek - President, SDSTA
Feb. 2010-Feb. 2012

SDSTA Business Meeting - February 5, 2010

Meeting called to order at 4:40 pm by President Ramona.

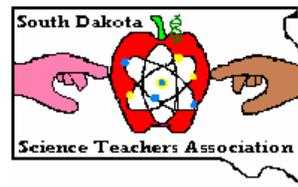
Old Business:

- Treasures Report offered by Brant Miller
 - See attached report
 - Explanation of increased seed money therefore decreased dollar amount for conference reimbursement to SDCTM & SDSTA.
 - Mark questioned philanthropy with \$0...any requests for dollars?
 - Micheline asked to support the bald eagle again \$200 flat rather than \$200/year
 - Molly suggested we continue supporting the Science Fairs
 - Micheline moved to approve/Julie and Molly seconded...all in favor, none opposed
- Secretaries Report offered by Brenda Murphey
 - Comments made about Larry's grant dollars and will be discussed as item in meeting
 - no additions or corrections to report
 - Molly motioned to approve report/Marcy and Nicole seconded...all in favor, none opposed

New Business:

- Newsletters are on the web site at sdsta.org
 - Offered opportunity to get newsletter on line could save \$900 per year.
- Conference Speakers
 - Always looking for speakers...any ideas? Contact Molly.Tenbroek@k12.sd.us
- Business meeting
 - Will be Sept 13 on DDN...Open invite to anyone who would like to take part in the meeting
 - Contact Molly.Tenbroek@k12.sd.us for a connection/setup for meeting
- Mark Farrand
 - Offer services to Department of Education as a group opinion about the change in NCLB and the requirements of science in the state. We should be proactive in our suggestions to show we are interested in helping.
- Micheline Hickenbotham
 - Suggests reconsidering the poster session as a component of the conference
 - Offers teachers a chance to display classroom activities and share their successes
 - We need to communicate this better to get more participation
 - Make session open to both strategies and student's work
 - Offer sharing session as extension of posters
 - Marcy suggests the information go in as a commercial for next year to get attention
 - Offer motivator such as ribbons or people's choice awards
 - Offer student poster with student advocacy for science education
- Molly TenBroek suggests lab coats with SDSTA logo for sale for next year. Asked for a show of hands in those interested...7-10 people raised their hands to show an interest in purchasing a lab coat for \$20-\$25.
 - Larry Browning Scholarship Information
 - ReMast part of NOISE program
 - Only a couple of years left of scholarship
 - Any student wanting to be a Physics Teacher let Larry know
 - A word from our NSTA Representative Paul Kiedel
 - A word on NCLB...2007 changes will include a new name NCLB will no longer be called NCLB
 - Eisenhower monies may be returning
 - In other sessions, there are always poster sessions. A suggestion is to offer sticky notes for viewers to have a chance to add messages of encouragement to poster boards on display.

SDSTA Minutes continue



•Officers

- At the conclusion of this meeting, the President will be Molly TenBroek
(According to the constitution and bylaws, the president is also NSTA liaison)
- Past president is Ramona Lundberg
- Julie Olson & James Stearns will be newsletter co-editors.
- Secretary Nominations: *Bobbie Traxinger & Arnie Lund*
No other nominations
Mark Farrand asks for clarification of secretaries duties
Micheline offers description from Officers Handbook
Nominations motioned to cease by Ken Graupmann seconded by Molly
All in favor, none opposed
Votes taken - Bobbie Traxinger was elected as the Secretary
- Treasurer Nominations: *James Stearns & Greg Diersen*
(Nominated by David Ireland seconded by Nicole Keegan)
Nominations motioned to cease and seconded by Arnie Lundt
All in favor, none opposed
Micheline offers descriptions of duties from Officers Handbook
Votes taken - James Stearns was elected as the Treasurer
- President Elect Nominations: *Brenda Murphey & David Ireland*
Micheline reviews president elect duties from Officers Handbook
No other nominations
Motion to cease nominations by Molly TenBroek and seconded by Ken Graupmann
All in favor, none opposed
Votes taken - Brenda Murphey was elected as President-Elect

•Other Business

- Any suggestions of newsletter additions??? Contact Molly TenBroek for ideas.
- Thanks Micheline for 6 great years of leadership. Clap Clap!!

Meeting adjourned at 5:19 pm

Brenda Murphey, SDSTA Secretary

The Race to Space in 1935 in South Dakota The Birthplace to Space Exploration

To quote Joe Kittinger, South Dakota became “the Birthplace of Space Exploration” in 1935 when Capt. Stevens set the world altitude record with his balloon flight into the Stratosphere. This year marks the 75th anniversary of that record setting flight from our very own Stratobowl in the Black Hills on November 11th and offers a unique opportunity for teachers and students to celebrate our “Birthplace of Space Exploration.” South Dakota is also the “birthplace” of the modern hot air balloon. If you would like to learn more about these historic events, Mike Barondeau made a combination PowerPoint and video presentation at the February Joint Math & Science Conference. He included numerous PowerPoint presentations and videos on the events and history leading up to the historic record setting flight as well as South Dakota’s role. Also included were numerous student labs and activities related to these events that Mike has collected in his 39 years of science teaching. If you have never heard of the Stratobowl or visited the Stratobowl that used to be a popular tourist attraction in the 1950’s and 60’s, he will reveal its location and give your specific directions on how to visit the rim overlook and see the memorial plaque embedded in rock. Anyone who was not present at Mike’s conference presentation can obtain a CD copy of his materials for \$5 to cover the cost of the media and mailing expenses. Contact him by email: Mike.Barondeau@k12.sd.us or

Mike Barondeau; PO Box 182; Roscoe, SD 57471-0182

Change of Address

Will you be moving soon? If so, your next newsletter will not be forwarded to you.

You will need to notify us so that we have your correct address to mail the newsletter to.

Email any officer or James at James@SDSTA.org

The Science center for Teaching, Outreach, and Research on Meteorology (the **STORM** project) at the University of Iowa in Cedar Falls will hold a course June 20-25 for middle school and high school science teachers. Participants will learn about conceptual models and computer based tools used to study and forecast air quality, and they will develop related classroom activities. Expenses, including travel, will be paid. Out-of-state teachers are encouraged to apply. Applicants will be accepted until filled but those received by February 26 will receive first consideration. Log on to www.uni.edu/storm/saqse.

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The Howard Hughes medical Institute presents the **Virtual lab Series** CD-ROM. It was created with advice from active research scientists and was the winner of the 2002 Perelli International Award for educational Internet multimedia. These 5 virtual labs offer immersive interactive environments in which students explore modern biomedical research techniques and scientific principles. Students can make transgenic fruit flies, diagnose heart patients with modern medical equipment and use DNA to identify unknown bacteria. These labs are available FREE. To order, visit: www.biointeractive.org

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DNA Day Essay Contest—to celebrate DNA Day (April 25), the American Society of Human Genetics invites high school teachers and students to participate in this essay contest, which challenges students to examine, question and reflect on the important concepts of genetics. The winning student will receive \$400, and the teacher will receive a \$2,000 grant for laboratory genetic equipment. Essay questions, rules and more information are available at www.ashg.org/education/dnadaycontest.shtml. Essays should be submitted by March 15.

K-8 students can raise awareness about sun safety by creating and submitting hand-drawn posters showing ways to prevent skin cancer. Teachers should submit student entries by April 7 using the form at www.shadefoundation.org/programs/poster-contest. Prizes include a Crayola Digital Camera Scrapbooking Kit for the top five entries in the K-3 category, as well as additional state prizes. The national winner in the 4-8 category will receive a family trip to Disney World.

NABT/Vernier Ecology/Environmental Teaching Award—Honors a teacher who has successfully developed and demonstrated an innovative approach in the teaching of ecology/environmental science and has carried it into the community. The winner receives a \$1000 travel award to attend the NABT conference and \$500 worth of Vernier Equipment. Deadline is May 7. Apply at www.nabt.org/website/institution/index.php/p=132

Freebies for science Teachers:

Science Picture Vocabulary Cards—more than 80 common terms used in elementary science are presented and illustrated in engaging cartoon-like style. The cards cover major disciplines as well as science processes. Download a set at www.palmbeach.k12.fl.us/K12CurriculumAdultCommunityEducation/ScienceK5_2008/fcat.html#vocab.

Educational materials for Endangered Species Day (May 21) — Lesson plans and other educational materials can be found at www.EndangeredSpeciesDay.org

A 16-part video series from NSF and NBC Learn explores the scientific principles affecting how Olympic athletes perform, including gravity, friction, velocity, acceleration and more. Sports involved include figure skating, hockey, snowboarding and skiing. Each video is about 5 minutes long and can be viewed at www.nbclearn.com

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Graduate school opportunities: We would like to reach outstanding SD science teachers and district leaders to let them know that the University of Nebraska-Lincoln is offering support in the form of teaching and research assistantships and fellowships to pursue doctoral degrees (both EdD and PhD) in science education. We are growing our science education program here at UNL and have some exciting opportunities to offer. Dr. Elizabeth Lewis, Science Ed. Department of Teacher Education 212 Henzlik Hall; UNL Lincoln, Nebraska 68588

More Freebies available on the web:

Design Squad Teachers Guide

This new guide from the PBS engineering reality competition series is for middle school science and technology teachers. Its three physical science units focus on force, electricity, and sound. In open-ended challenges, students learn to use the engineering design process and apply core science concepts. The challenges align with national science and technology standards and use inexpensive, easily found materials. <http://pbskids.org/designsquad/engineers/newsletter.html>

ChemMatters Video Podcast

The American Chemical Society's (ACS) award-winning high school chemistry magazine, ChemMatters, has created its first video podcast. It highlights the promises of nanotechnology and the science and technology of building very small machines—as small as 1/50,000th the width of a human hair. Watch it at www.bytesizescience.com and on the Bytesize Science podcast on iTunes. New episodes will be available in early 2010. <http://www.bytesizescience.com/>

The Science of the Olympic Games

A 16-part video series from NSF and NBC Learn explores the scientific principles affecting how Olympic athletes perform, including gravity, friction, velocity, acceleration, drag, and resistance. Titles include Figuring Out Figure Skating; Slapshot Physics: Hockey; The Science of Snowboarding; Air Lift: Ski Jump; and Banking on Speed: Bobsled. Each video is about five minutes long and can be viewed online. <http://www.nbclearn.com/portal/site/learn>



Learningscience.org

This website offers tools for teaching science, including real-time data collection, simulations, inquiry-based lessons, interactive web lessons, and micro-worlds. Framed by the National Science Education Standards, each subject category contains K–12 materials organized by grade level and annotated descriptions of each resource. In addition, there is a Science Education Hall of Fame website list and a recommended Learning Tool of the Year. <http://www.learningscience.org/>

NOAA Resources

NOAA's teacher website offers educational resources on topics such as Weather, Climate Change and Our Planet, Oceans and Coasts, Satellites and Space, or Teacher Training Opportunities. For example, Weather contains links in such categories as general weather, hurricanes, sun safety, the water cycle, tornadoes, lightning, and training and background materials. <http://www.education.noaa.gov/teachers1.html>

Updated Inquiry in Action Website With Physical Science Activities

At this American Chemical Society website, you can view and download inquiry-based physical science activities that support national science content standards. Each activity, as well as the entire 470-page book, is available for free download in PDF format. The website also has a chemistry background section, complete with molecular model animations and videos, and information on upcoming workshops based on the book. This new and improved site is searchable, and middle level students will enjoy watching the animations and videos. <http://www.inquiryinaction.org/>

Discovery Channel's School Curriculum Center Website

Organized in broad categories such as weather and climate, electricity, magnetism, bacteria, chemistry, genetics, viruses, oceans, the universe, and the solar system, each topic explored on this website offers interesting fun facts, quick project ideas, hands-on activities (with printable student worksheets), puzzles, a glossary, and a quiz. <http://school.discoveryeducation.com/curriculumcenter/>

The Forensic Teacher Magazine

Aimed primarily at high school forensic science, chemistry, and biology teachers, the magazine features lesson plans, reproducibles, rubrics, labs, and inquiry-based activities, many of which can be adapted for elementary and middle school levels. The magazine also includes puzzles, mini-mysteries, interviews, and a feature about stupid criminals. Sign up for a free subscription. <http://www.theforensicteacher.com/>

Congratulations PAEMST State Finalists!



Angela Hejl—Yankton, Paul Kuhlman—Avon, and Molly TenBroek—McIntosh

South Dakota Outstanding Biology Teacher of the Year—Tricia Neugebauer—Mitchell award sponsored by NABT and Sanford Health



Physical Science Teacher of the Year—Mary Gohring—Wessington Springs Award sponsored by 3M and SDSTA



Friend of Science—Jean Gomer



Movies/movie clips in Science – from the presentation at the SDSTA state convention by Tricia Neugebauer and Julie Olson

The Cove – Lionsgate – 2009 – 96 minutes -

www.thecovemovie.com

Ethics, good debate on whaling, biomagnifications of mercury

Medicine Man – 1992 - starring Sean Connery and Lorraine Bracco
biomes (tropical rain forest destruction), the scientific method,
ethnobotany, cultures, history (brief of aspirin)

Human Body: Pushing the Limits – Discovery Channel –
Sight, Strength, Sensation, and Brain Power -

MythBusters – single episodes for viewing available on Itunes, can purchase from Discovery Channel

Life After People – History Channel series – great for showing succession

The Lorax – good introduction to Environmental Science

Annenberg Media – Learner.Org <http://www.learner.org>

Free videos and lesson plans from Annenberg. Some popular series include “World of Chemistry”, “Planet Earth”, “Habitable Planet”

Rx for Survival: A Global Health Challenge, NOVA – Disease warriors, Rise of the Superbugs, Delivering the goods, Deadly Messengers, Back to Basics, How Safe Are We? – good overview of the history as well as the global health system. Activities and interactive provided on NOVA. <http://www.pbs.org/wgbh/rxforsurvival/series/teachers/index.html>

Teacher’s Domain – short clips from a variety of sources along with discussion, worksheets, lesson plans – free registration, <http://www.teachersdomain.org>

NOVA – Teacher’s Resource Page - <http://www.pbs.org/wgbh/nova/teachers> - link to programs by subject area, interactive, short clips for viewing, TV schedule

NewYorkScienceTeacher – independent website where worksheets (by title and subject) can be downloaded and shared. <http://www.newyorkscienceteacher.com/sci/pages/movies/index.php> Also contains links to lesson plans, games, worksheets, etc.

Virginia Commonwealth University – free downloadable video clips on a variety of science topics - <http://www.pubinfo.vcu.edu/secretsofthesequence>



“Ban DiHydrogen Monoxide” -
For Physical Science and Chemistry

DHMO Website - <http://www.dhmo.org/>

Have your students research this “dangerous” chemical compound by going to this website. This is a good lesson that not all on the internet is true...



Earn and Win

ASM Materials Education Foundation Teacher Grants

Deadline: 5/25/2010

To help teachers bring the "real world" of materials science into the classroom, the American Society for Metals (ASM) International Foundation is awarding 10 grants of \$500 each to teachers, K-12. The purpose of these grants is to enhance awareness of materials science and the role of materials scientists in society. ASM International has local chapters across North America. Members are willing to work closely with local teachers to develop and implement these lessons. <http://asmcommunity.asminternational.org/portal/site/www/Foundation/Educators/TeacherGrants/>

ING Unsung Heroes Awards

Deadline: 4/30/2010

The program recognizes innovative and progressive thinking in education through monetary awards. Each year, 100 educators are selected to receive \$2,000 to help fund their innovative class projects. Three of those are chosen to receive the top awards of an additional \$5,000, \$10,000, and \$25,000. Full-time educators, teachers, principals, paraprofessionals, or classified staff members with effective projects that improve student learning at an accredited K-12 public or private school may apply. <http://www.ing-usa.com/us/stellent2/groups/dc/documents/companylobinformation/001143.pdf>

Patagonia Environmental Grants

Deadline: 4/30/2010

Grants support small grassroots activist organizations with provocative direct-action agendas, working on multi-pronged campaigns to preserve and protect the environment. Grants can help local groups working to protect local habitat. Most grants are in the range of \$3,000 to \$8,000.

If you are not applying to a retail store, applications must be submitted by **April 30** or by **August 31** to be considered. All applications received by April 30 will be responded to in August. All applications received by August 31 will be responded to in January. Only one proposal from an organization will be considered per year. http://www.patagonia.com/web/us/patagonia.go?slc=en_US&sct=US&assetid=2942

Lemelson-MIT InvenTeams High School Invention Grants

Deadline: 4/23/2010

InvenTeams composed of high school students, teachers, and mentors are asked to collaboratively identify a problem they want to solve, research the problem, and then develop a prototype invention as an in-class or extracurricular project. Up to 15 grants of up to \$10,000 each will be awarded to selected teams. Grant funding is intended for research, materials, and learning experiences related to developing the team's invention. High school science, mathematics, and technology teachers—or teams of teachers—at public, private, and vocational schools are eligible to apply. <http://web.mit.edu/inventeams/>

Project Learning Tree GreenWorks! Grants

Deadline: 4/30/2010

GreenWorks! grants engage Project Learning Tree (PLT) educators and their students with their local community in "learning-by-doing" environmental projects. Student leadership, service-learning, and community participation are the cornerstones.

To qualify for the \$1,001-\$5,000 grant, applicants must have received training in PLT. Projects must involve youth, integrate student learning and community service, include at least one community partner, and acquire 50% matching funds. Projects must also involve classes, youth organizations, and community partners and include a plan to administer a Project Learning Tree professional development workshop for the staff of the school(s) or organization(s) sponsoring the proposal. Deadlines for submitting proposals
Spring 2010 Funding Cycle - Applications due **April 30, 2010**.
Fall 2010 Funding Cycle - Applications due **October 31, 2010**. http://www.plt.org/cms/pages/21_22_21.html



Ron Mardigian Biotechnology Teaching Award

Deadline: 5/7/2010

Sponsored by Bio-Rad Laboratories, the award recognizes a secondary school teacher or undergraduate college biology instructor who has demonstrated outstanding and creative teaching of biotechnology... [view full description]
Sponsored by Bio-Rad Laboratories, the award recognizes a secondary school teacher or undergraduate college biology instructor who has demonstrated outstanding and creative teaching of biotechnology in the classroom. The award will be presented at the National Association of Biology Teachers (NABT) Professional Development Conference and includes a plaque, a one-year complimentary NABT membership, and \$1500. Nominees must be current members of NABT.

Reward with Stickers

February and March are generally a tough portion of the school year. Both, teachers and students are tired. Which makes it a great time to try something new to give your instruction a little “zip.”

Something that I have tried recently is using stickers as a reward (picked this up at the SDSTA conference). I give the stickers out for various reasons: working on assignment, bringing a book to class, listening to my oh-so interesting stories, whatever! They don't have to be fancy stickers, actually they can be anything you find that is affordable. I have talked with teachers ranging from elementary to high school, and lets even add in supervisors in other professions. All have said the response to the stickers is amazing! Let's think of a few reasons why:

Instant feedback-Who doesn't like to get a little recognition for doing what they are supposed to. It lets those students know that you have noticed their work and/or doing as you instructed.

Competition- Middle schoolers do not want to seem different from their peers. The first day I gave out stickers, 3 students earned them. The second day, that number increased to 18 students!

Reward- It is easy to use candy as a reward. We have all been in that position. Then, at the end of the day we are the ones picking up candy wrappers. The recognition and competition of getting a sticker is enough of a reward for the students.

Time- It is very quick and easy to pass out the stickers. You can stick them on the item or give them the cut out sticker to place it themselves. Beware where you might be finding those “misplaced” stickers... it could be scary! Additionally, you are gaining (yes, I said gaining) time in the classroom because you do not need to repeat directions, deal with discipline, or re-direct.

Contact with Students- You get a chance to focus your energy on the positive and less on the negative. It is often that the students that are getting my attention are less than exemplary. It is nice to do something for those kids that show up everyday, do their work, laugh at my jokes, and don't drive me crazy!!

It's FUN!- You can get quite a variety of stickers. Festive stickers, sparkly stickers, funny stickers, motivational stickers. Keep a variety around, who knows what mood might strike!

What does this look like in the classroom? Students that are working on their focus activity at the bell, they get a sticker on the assignment. I have heard of other teachers that have a special sticker-tracking sheet in the notebooks and the students get a reward after a specified number of stickers. Other teachers use the student planners as a place to put the stickers. Select options you can work with.

Come on...give it a whirl. You know you are at the end of your rope! You will be pleasantly surprised!!!

Pi Day: Celebrate the Circle!

Pi Day is March 14th! (3-14 get it?!?!?!)

Circle Darts

1. Cut 8-inch diameter circles out of construction paper.
2. Mark a start line on the floor with tape.
3. Use a hula hoop or large circle on the floor for a target. Place a penny at the center for a bulls-eye.
4. Students throw the circles Frisbee-style.

Scoring: Covering the bulls-eye 10 points; Touching the bulls-eye 5 points; Inside the hula hoop 3 points; Touching the hula hoop 1 points

Pin the Radius on the Circle

1. Draw a large circle on the board or poster.
2. Cut out strips of construction paper the length of the radius.
3. Blindfold students and spin them around a few times.
4. Students attempt to place the radius on the circle.

Circle Drawing Contest

1. Distribute scratch paper to students, or have students work at the board.
2. Students attempt to draw freehand the most perfect circle of a given diameter—no erasing allowed.
3. Hint: A coffee cup makes a good judging tool for a 3-inch diameter circle.

Pi Concentration

1. Give students a copy of the first 100 digits of pi.
2. Students will have 2 minutes to memorize as many digits as possible.
3. Give students 30 seconds to write down as many digits of pi as possible.

Thanks to Cindy Kroon

Congratulations to Newell High School Teacher **Betsy Burtzloff**...one of twenty chosen nationwide for curriculum-expanding environmental education!

High School Educators Nationwide Awarded Classroom Earth Grants

The National Environmental Education Foundation, in partnership with The Weather Channel, announced 20 educators nationwide awarded a grant designed to bring environmental education into the classroom. One such educator is South Dakota's own Betsy Burtzloff. Betsy teaches high school Biology, Ecology/Environmental Science, Anatomy and Physics at Newell High School in Newell, SD.

As part of the award, teachers and specialists will take two online graduate-level courses offered by the Environmental Education and Training Partnership through the University of Wisconsin, Steven's Point. "This year's grant winners represent a generation of teachers who will help students flourish in the 21st century's green economy," said Diane Wood, president of the National Environmental Education Foundation. "Environmental education is more than just helping build an appreciation for the natural world, it's about preparing our young people for the careers of tomorrow."

The High School Challenge Grants Program—funded with support from The Coca Cola Foundation—is one component of Classroom Earth, a site designed by high school teachers for high school teachers, enabling them to find lesson plans, success stories and strategies for integrating environmental education into a variety of subject areas using unique and innovative lesson plans.

Classroom Earth strengthens environmental education in high schools by sharing best practices, increasing the expertise and enriching the curriculum of America's teachers.

For more information about each of the grant winners and the Classroom Earth program, visit www.classroomearth.org.

Regional Science Fairs



The SD Science Teacher's Association will once again be honoring the junior division winner at the five South Dakota Regional Science Fairs. The "best junior division project" (as selected by their judges) will receive a monetary award of \$30. If the winner is a team, the award will be split between the team members. When he/she has returned a name/address form along with a copy of his/her abstract, a check will be mailed to the student. An abstract is need for publication in our newsletter.

Besides the monetary award which is mailed out later, the student(s) will receive a certificate(s) at the science fair. The certificate(s) will be presented at the awards session. The monetary award will not be mailed out until the student has returned info and an abstract to our contact person.

In the past, a few winners had not received their checks. In most of these cases it was because they never sent back the required forms and/or a copy of their abstract. If you are the teacher of a student that wins this award, please make sure this does not happen.

Thank you for promoting science education in South Dakota. *Mrs. Brenda Murphy, Secretary, SDSTA*

The 18th Joint Professional Development Conference of the Science and Math teachers is now behind us. Plans are just beginning for next year. Make sure you mark your calendars and complete your requisitions for February 3-6, 2011. We will again be at the Crossroads in Huron.

Thanks goes out to Pepsi of Huron for setting up and paying for half the cost of the refreshments. Thank you to Chad Tussing & crew from the Game, Fish & Parks for the bags, notebooks and lanyards. Thank you to Tim Doppler/Saner-Bloser for the pencils we gave out. Thank you to the staff at the Crossroads and the Huron Chamber for the signs, messages, help and cooperation during the conference. Thank you to David and Nola for sharing their Promethean Board. Thank you to the vendors or exhibitors for the birds, books, handouts and other materials that were provided. A BIG Thank You to TIE for allowing us to use their multimedia projectors. Thanks also to all the speakers that took the time to prepare materials to present that will enable others to improve our Math and Science education in SD. And lastly, thank you to all the conference participants who make all of our efforts worthwhile—without you, there would be no conference. Hope to see you there next year. Maybe you will have an activity or two you wish to share with others!!!!



Flipping the Lights on Cosmic Darkness

Exploring the universe is a bit like groping around a dark room. Aside from the occasional pinprick of starlight, most objects lurk in pitch darkness. But with the recent launch of the largest-ever infrared space telescope, it's like someone walked into the room and flipped on the lights.

Suddenly, those dark spaces between stars don't appear quite so empty. Reflected in the Herschel Space Observatory's 3.5-meter primary mirror, astronomers can now see colder, darker celestial objects than ever before—from the faint outer arms of distant galaxies to the stealthy “dark asteroids” of our own solar system.

Many celestial objects are too cold to emit visible light, but they do shine at much longer infrared wavelengths. And Herschel can observe much longer infrared wavelengths than any space telescope before (up to 672 microns). Herschel also has 16 times the collecting area, and hence 16 times better resolution, than previous infrared space telescopes. That lets it resolve details with unprecedented clarity. Together, these abilities open a new window onto the universe.

”The sky looks much more crowded when you look in infrared wavelengths,” says George Helou, director of the NASA Herschel Science Center at Caltech. “We can't observe the infrared universe from the ground because our atmosphere blocks infrared light, and emits infrared itself. Once you get above

the atmosphere, all of this goes away and suddenly you can look without obstruction.”

Herschel launched in May from the Guiana Space Centre in French Guiana aboard a European Space Agency Ariane 5 rocket. Since then, it has expanded the number of distant galaxies observed at far infrared wavelengths from a few hundred to more than 28,000. And with the instrument testing and system check-out phases finally completed, the discoveries are only now beginning.

Beyond simply imaging these dark objects, Herschel can identify the presence of chemicals such as carbon monoxide and water based on their spectral fingerprints. “We will be able to decipher the chemistry of what's going on during the beginnings of star formation, in the discs of dust and gas that form planets, and in the lingering aftermath of stellar explosions,” Helou says.

And those are just the expected things. Who knows what *unexpected* discoveries may come from “flipping on the lights?” Helou says “we can't wait to find out.”

Herschel is a European Space Agency mission, with science instruments provided by a consortium of European-led institutes and with important participation by NASA. See the ESA Herschel site at sci.esa.int/science-e/www/area/index.cfm?fareaid=16. Also, see the NASA sites at herschel.jpl.nasa.gov,



The Herschel Space Observatory has 3.5-meter primary mirror, allowing astronomers to see colder, darker celestial objects than ever before.

www.herschel.caltech.edu, and www.nasa.gov/mission_pages/herschel. Kids can learn about infrared light by browsing through the Infrared Photo Album at The Space Place, spaceplace.nasa.gov/en/kids/sirtf1/sirtf_action.shtml.

This article was provided courtesy of the Jet Propulsion Laboratory, California Institute of Technology, under a contract with the National Aeronautics and Space Administration.

New Entry on the Space Place “Mission Chronicles” Blog

Sometimes scientists who work on things like Einstein’s theory of general relativity and the properties of spacetime seem a breed unto themselves. But, as Michele (mi_KAY-lee) Vallisneri explains in his new Mission Chronicles blog entry on The Space Place, such scientists are just very curious individuals eager to figure out how the universe really works. He explains the LISA mission to detect the gravitational waves predicted by Einstein's theories and what it’s like to work with this passionate team of spacecraft and mission designers, engineers, and scientists. Check out his story at <http://spaceplace.nasa.gov/en/educators/mission-chronicles>.



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The SDSTA Newsletter is published four times a year. The March issue (this one) is mailed to 225 paid members & science organizations & a few others.

The Membership year in SDSTA starts with the February conference and ends the first of February. Dues are due at each conference for member discount rates.

SDSTA members may give a one year free membership to their student teachers by submitting the student teacher's name & address.

One free conference registration is given away to the SDSTA member that has made a submission to the newsletter (or given a presentation at the conference) and has referred at least three new members.

Members may also earn a 10% finders fee for any science related ads placed in the newsletter. Our rates are \$75 per page (or 3 to 4 quarter pages) or insert per issue or \$225 per page for four consecutive issues.

On the Funny Side...

Biology personal ads: (genetics)

Some dates have called me a promotor. Others have referred to me as a real operator. Personally, I think I'm just a cute piece of DNA who is still looking for that special transcription factor to help me unwind.

Gene therapy graduate. After years of producing nothing but gibberish, I've shed my exons and am ready to express my introns. All I need is a cute vector to introduce me to the right host.

Q: Why are chemists great for solving problems?

A: They have all the solutions.

Teacher: What is the formula for water?

Student: H, I, J, K, L, M, N, O

Teacher: That's not what I taught you.

Student: But you said the formula for water was...H to O.

This sign was hung up in a physics / electricity room

"Hangin' With My Ohmies"

A mushroom walked into a bar. The bartender said, "Get out of here! We don't serve your kind."

"Hey, what's the problem?"

"Just get out of here. We don't serve mushrooms."

The mushroom in anguish says, "Why not? I'm a fun guy."

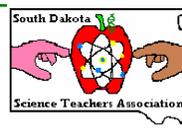
Mature cell seeks same who still enjoys cycling and won't go apoptotic on me. Let's fight senescence together!

We are looking for science humor and anecdotes. E-mail Julie.olson@k12.sd.us



Look for SDSTA lab coats at next year's convention!

Mail to: James Stearns, SDSTA Treas
15 North Fifth Street
Groton, SD 57445



\$ 5 student
\$ 5 K - 6
\$ 20 Others

Name _____ Home Phone _____ - _____

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Your School _____ School Phone _____ - _____

School Address _____

City _____ State _____ Zip _____

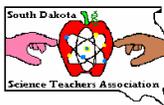
Your area K - 6 7 - 8 9 - 12 College Other _____

(circle one)

referred by _____

South Dakota Science Teachers' Association

Julie Olson and James Stearns
Editors, S D S T A Newsletter



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Mature cell seeks same who still enjoys cycling
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me. Let's fight senescence together!

Calendar of Events Calendar of Events

- March 14 Albert Einstein's birthday - Pi Day.org - 3.141592653589793 . . .
- March 18-21 NSTA National Conference in Philadelphia, PA - NSTA.org
- April 6 Girls Day at the School of Mines - darla.vanzuidam@sdsmt.edu
- April 25 **DNA Day - Enter Essay Contest by March 15**
- October 23 Mole Day - 6.02×10^{23} www.moleday.org
- October 27-29 NSTA Area Conference—Kansas, MO
- November 11 75th Anniversary of the record balloon flight from South Dakota
(*Do you know from where it was launched or where it landed?*)

February 3-5, 2011 19th Annual Joint Math & Science Conference - Huron, SD

Homepage Located At <http://www.sdsta.org>