

"Autumn is a second spring when every leaf is a flower."

Albert Camus

Sept. 2012

Vol. 126

Science Teachers' Association

From the President's Desk

The Enjoyments of Education

As the waning days of autumn encroach and winds push open the school house doors, we have to remember that there are professional perks to carry us enthusiastically back to our classrooms. Science teachers, especially, have much to be thankful for as we peruse our curriculum, dust off our lab equipment, and unsheathe our skeletons to prepare for the new year. We are fortunate because every day there are opportunities to open windows to our students' minds and energize their souls for learning. Our curriculums overflow with real life applications to answer the persistent question of which we are all so familiar, "Why do we have to know this stuff?"

In our world of science education, we can "walk the walk" and "talk the talk". Words like amplitude, frequency, crest, and trough come to life as we pluck a guitar string and make a sound, create a wave in a pan of water, bounce a ball across the classroom floor. Food that enters our mouth has a purposeful journey that so many people take for granted, but we science teachers have the wonderful task of sharing knowledge of this journey as it travels through the digestive system and is absorbed into our bloodstream and transforms from chemical to mechanical energies. Most people pick up a rock and look it over because they think the stripes of various colors are pretty. We, how-

ever, hold the rock in our hands and recognize the earthly processes and time that went into its formation. And, appropriate for this time of year, the beautiful fall colors are merely landscape decor for most, but we know the pigments in the leaves embrace the real beauty and relevance to the life of the trees.

Let's face it you guys, we hold a deeper appreciation of just about anything life sends our way, and because we have chosen science education as a profession, we are able to pass this appreciation and understanding on to our students. We have a big beautiful job, so as the school year begins, make sure to eat your *Wheaties*, strap on your energy belts, and enjoy your days building foundations of knowledge that will lead your students to a life of learning even after they leave your classroom doors.

Enjoy reading and utilizing the contents of this newsletter to enhance your teaching this year. Make sure to begin plans and conversations to attend the 21st annual Science/Math convention in Huron, Thursday, February 7—Saturday, February 9, 2013.

I hope your year is off to a good start, and the autumn season sends a bountiful harvest!

Brenda Murphrey,

SDSTA President—Feb. 2012-Feb. 2014

Regional Science Fairs - Jr Hi Science winners

In the May newsletter, we published three abstracts of Junior High science winners from Regional Science Fairs. SDSTA awards a \$30 prize to each of the Regional Science Fairs that have students submit their abstract to us to be printed in a newsletter. A fourth one is printed below along with highlights from a student that attended the ISEF in PA.

Learn to Remember: How Harry Potter Can Help Learning New Vocabulary

Kashfia Rahman - Mickelson Middle School

Abstract

Educational research has always focused on the effectiveness of different learning methods on improving standardized test scores. Vocabulary is one of the major parts in standardized tests and learning new vocabulary has always been challenging for the learners. The purpose of his project was to examine the positive effects of context on vocabulary learning. Two experiments were done to test the effect of context as well as context familiarity on vocabulary learning and retention. The first experiment was done in 21 sixth grade students who were randomly assigned to learn grade level vocabulary words in a list, in a narrative with

an unfamiliar character, or in a narrative with a familiar character. After 4 days, the students were tested through a Matching Meaning with the Words Test. The second experiment involved the same students and was tested through a Sentence Completion Test after 7 days to measure the retention of the same word. The results demonstrated that those students who read a narrative about a familiar character scored better than the other two groups and the students who studied from a list scored the least. Additionally, the second experiment demonstrated that students who studied vocabulary in a familiar context remembered the most after a week later; followed by the unfamiliar context and the list group remembered the least. These results confirm research hypothesis that vocabulary learning is improved if words are present in contextual format and also that familiarity with the character in the context increases this effect.

International Science Fair—

The Intel International Science and Engineering Fair (ISEF) is the largest pre-college scientific research event in the world, and is owned and administered by the Society for Science & the Public. Each May, more than 1500 students, in grades 9-12, from 70 nations are flown in to compete in the fair for scholarships, tuition grants, internships, scientific field trips and the grand prizes in 17 different categories. Contestants are selected from regional, district, and state ISEF affiliated fairs. This year, the ISEF was held in the lovely city of Pittsburgh, Pennsylvania from May 13 to May 18, 2012. It is a great experience for all of the science fair finalists and an inspiration and motivation for the next generation to change the world.

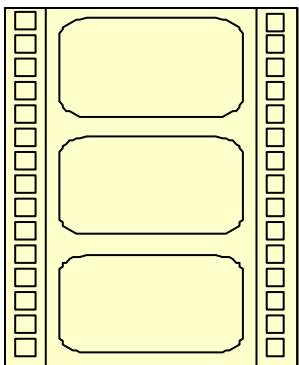
I was one of the fortunate

finalists to compete in this year's Intel ISEF after being awarded Grand Prize from the Eastern South Dakota Science and Engineering Fair. My project this year focused on the effects of mastication and caffeine on the cognition and memory in adolescents with Attention-Deficit-Hyperactivity Disorder (ADHD). ADHD is one of the leading childhood psychiatric disorders affecting mostly school-aged children. It is characterized by impairments of attention, concentration, hyperactivity, and working memory deficits. Additionally, ADHD behavior is in direct conflict with the demands of the classroom which are challenging for ADHD students to navigate and may limit their ability to succeed in academic performance. Based on recent brain imaging research, I hypothesized that mastication (the act of chewing) may boost key aspects of cognition (e.g., memory and attention). In a crossover study, adolescents with ADHD were examined. All participants were assessed in conditions with gum, caffeine (from dark chocolate) plus gum and without gum.

A series of neuropsychological tests that assess attention (SynWin and Stroop), concentration (reading comprehension), and working memory (Paced Auditory Serial Addition Test and word recall) were administered. The findings suggest that compared to a no-gum control, chewing gum and caffeine plus gum significantly improved aspects of attention and memory, but didn't significantly affect concentration. The information from the study will help people find possibilities of using gum or a combination of gum and caffeine in situations where an improved executive functioning is required, such as tests at school, to reduce the risks of neurobehavioral related disorders like ADHD and improve academic performance.

At the Intel ISEF 2012, I placed second in my category (Behavioral and Social Science), earned a grant from Massachusetts Institute of Technology's Lincoln Laboratory to have a minor planet named after me, as well as a special award from the National Institutes of Health. At the fair, I received the opportunity to talk and interact with experienced scientists in my area, as well as enjoy a seminar with eight noble laureates. In addition, I met and talked with other young scientists, just like me, from around the nation and around the world. The city of Pittsburgh

-continued on Page 11-



STEAM—Science Technology Engi- neering Art and Math

"The saddest aspect of life right now is that science gathers knowledge faster than society gathers wisdom."

Isaac Asimov



Useful Links:

Movie Sheets.com—<http://moviesheets.com/site/science-movie-sheets.php>

Showing science videos and the occasional Hollywood film in the classroom is an innovative way to demonstrate science concepts and expose common misconceptions while providing a thought provoking change of pace for students. Below is a catalog of science movie worksheets and video guides. Site has many video worksheets and movie guides that go along with

popular science movies on DVD/VHS. The collection was generously contributed by other teachers.

New York Science Teacher —
<http://newyorkscienceteacher.com/sci/pages/about.php>

New York Science Teacher was created in 2005 with the goal of setting up a central location for teachers in New York State and the entire world to visit in order to find course and profession related materials. Resources and

links to just about anything science related

The Biology Corner—
www.biologycorner.com

The Biology Corner is a resource site for biology and science teachers. It contains a variety of lessons, quizzes, labs, web quests, and information on science topics. You can find lessons related to biology topics in the links listed under "topics" on the sidebar.

Paper Slide Video Project

What is paper slide video? It is a video created from multiple "slides" drawn by the students representing a concept. They can be set to music (see sources at the end of this article). All you need is a camera, a script (a step by step process, song, etc.), paper, and markers. The students draw slides of the concepts to be shown in order. The slides are then video taped—without stopping the camera! What

grade are these for? Any grade. There is a wiki link that gives guidelines for elementary students. Some of the concepts used in high school are: muscle contraction, energy production, photosynthesis. It's a great way to turn STEM into STEAM (add the arts).

Elementary Wiki : <http://paperslide.wikispaces.com/ Guidelines>

Lodge McCammon—<http://>

www.iamlodge.com/beans/

He writes his own songs that are for your use on his website.

The Science Groove—<http://www.science-groove.org/Now/Glucose.html>—lots of science songs, lyrics, and some sheet music

Science Songs for Teaching—
<http://www.songsforteaching.com/>

Get some cash and ideas for your classroom

Ward Scientific will pay you \$15 for every lesson you submit before Oct. 1, 2012. The money will be in the form of Wards gift certificates. There are categories and a certain format to follow. The criteria can be found by Googling "Share Your Best Lessons—Wards" (the URL is too

long.) Each lesson plan must have: A connection to the topic area (list is on the web site). Grade level specified. Clear correlation to the National Science Standards. Detailed list of required materials. Step by step teacher and student instructions. Ability to be completed by a full

class of students.

There are so many science teachers in South Dakota that have GREAT ideas. Here is a way to get some more materials for your classroom. Lesson plans that are submitted will be posted on the site for everyone to use.

Free Webinars to Focus on NRC Framework Practices of Science



The Next Generation Science Standards (NGSS), expected out next year, will be based on A Framework for K–12 Science Education, released in 2011 by the National Research Council (NRC). The Framework describes the major science practices, crosscutting concepts and disciplinary core ideas that all students should be familiar with by the end of high school and incorporates a larger role for technology and engineering in science education.

Starting September 11, 2012, and continuing through December, NSTA will be presenting a series of eight FREE web seminars on the practices described in the Framework for K–12 Science Education. Each web seminar will run from 6:30 to 8:00 p.m. Eastern Time and will focus on a particular practice outlined in the Framework including: (the first five webinars are:)

Asking Questions and Defining Problems

(September 11, 2012)

Developing and Using Models (September 25, 2012)

Planning and Carrying Out Investigations (October 9, 2012)

Analyzing and Interpreting Data (October 23, 2012)

Using Mathematics and Computational Thinking (November 6, 2012) The key elements of the practice;

How the practice is part of the broader set of practices that work together (and how no practice is taught in isolation);

How the practice can be used in combination with disciplinary core ideas and crosscutting concepts to form performance expectations; and

What the use of the practice really looks like in the classroom.

WHO SHOULD ATTEND? The web seminars

are offered free of charge and are designed so that participants can participate in just one or all eight sessions. The primary audience is middle level and high school teachers, science coordinators, supervisors, state science supervisors, but the web seminars should be valuable for anyone interested in the Framework and NGSS.

"The Framework for K–12 Science Education (and the Next Generation Science Standards) is expected to improve instruction and classroom practices, and bring about a transformative change in the teaching and learning of science." says Gerald Wheeler, NSTA Interim Executive Director. "At these webinars teachers can learn more about these practices now in advance of the release of NGSS and begin incorporating them into instruction to provide students the skill sets they need to be successful in learning any content." http://learningcenter.nsta.org/products/symposia_seminars/NGSS/webseminar.aspx

Science Competitions— MS and HS

Science Olympiad—Students compete for medals in teams of two or by themselves in science events. Examples of past events: Tower building, astronomy, Bridge building, egg drop, protein modeling. Many of these are great learning activities to use in the classroom. The event is held on the USD campus March 23, 2013. Go to the South Dakota Science Olympiad website at <http://orgs.usd.edu/~sdscioly/> for more information and team entry forms.

Science Fair—South Dakota has four regions for students to compete in with high school students having a chance to qualify to attend the International Science and Engineering Fair to be held in Phoenix , Arizona this year in May.

Northern South Dakota Science and Math Fair

Dr. Jodie Ramsay:
Biology Department, 1200 S. Jay St., Northern State University, Aberdeen, SD 57401-7198
SPONSORS: Northern State University
TERRITORY: the counties of Roberts, Marshall, Brown, Day, Clark, Spink, Hand, Hyde, Sully, Potter, Walworth, Edmunds, Campbell, McPherson, Faulk and Grant (with the exception of Grant-Deuel High School)

Eastern South Dakota Science and Engineering Fair

Mr. Brad Blaha: WEB SITE: <http://www.sdstate.edu/sciencefair>
ABS Administration Office, South Dakota State University, Box 2207, SAG 156, Brookings, SD 57007

SPONSORS: South Dakota State University and Sigma Xi and The SDSU Foundation. TERRITORY: the South Dakota counties of Beadle, Codington, Kingsbury, Lake, Brookings, Hamlin, Deuel, Moody, Minnehaha, Turner, Lincoln, Yankton, Clay, Union, and Sioux County in Iowa. Also covers Grant-Deuel High School in Grant County, South Dakota.

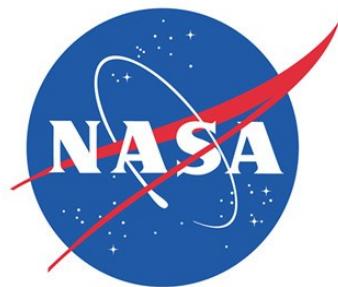
South Central South Dakota Science and Engineering Fair

Mrs. Jody A Strand: WEB SITE: <http://www.dwusciencelfair.com>

Dakota Wesleyan University, 1200 West University, Mitchell, SD 57301
SPONSORS: Dakota Wesleyan University, The Mitchell Daily Republic, Twin City Fan & Blower, Touchstone Energy, 6th District Medical
TERRITORY: the counties of Bon Homme, McCook, Miner, Hutchinson, Davison, Hanson, Sanborn, Jerauld, Aurora, Buffalo, Gregory, Brule, Charles Mix, Douglas, Tripp, Lyman, Mellette, and Hughes

High Plains Regional Science and Engineering Fair

Dr. Karen S. Braman:
WEB SITE: <http://www.hpcnet.org/science>
Mathematics and Computer Science, South Dakota School of Mines & Technology, 501 E. St. Joseph Street, Rapid City, 57701
SPONSORS: South Dakota School of Mines & Technology
TERRITORY: the counties of Butte, Lawrence, Pennington, Custer, Fall River, Meade, Shannon, Haakon, Jackson, Bennett, and Todd



NASA Summer of Innovation Science Materials

NASA's education specialists have developed themed units and camps of NASA content to help make your summer programming both exciting and meaningful. The selected units and camps are specific, hands-on, problem-based activities that are appropriate for the summer learning setting. These units and camps are designed to actively engage your students by providing:

- Opportunities for students to explore what they know.
- Flexible schedules for the delivery of content.

- Achievable learning goals.
 - Opportunities for educators to become more comfortable delivering NASA content.
 - A greater connection to NASA's mission and its educational resources.
- The Educator Resources section will help you select the themes and lessons most appropriate for your summer programming. The best place to start is to have a strong knowledge of your camp's needs and your students'

abilities.

http://www.nasa.gov/offices/education/programs/national/summer/education_resources/index.html

See "Food Preparation" below as an example.

"Food Preparation for Space" - grades K-4

"Gravity cannot be held responsible for people falling in love."

Albert Einstein

http://www.nasa.gov/audience/foreducators/topnav/materials/listbytype/Food_Preparation_Space.html—for downloadable directions

Every pound on a spacecraft raises the fuel consumption at liftoff. Eliminating as much weight as possible is important. Because the fuel cells on the space shuttle produce water as a

byproduct, water is easily attainable. Therefore, taking foods that can be rehydrated with this water makes sense because dehydrated food reduces the amount of weight on liftoff. In this activity, students can have a fun experience as they rehydrate instant pudding and instant drink mix.

skills but reading (labels) and math (calculating individual portions). The materials are easily to obtain and inexpensive. Students can also make sugar free varieties if you have a diabetic student in the classroom. Note: when making the pudding, you may want to use a little bit more powdered milk.

This activity uses not only science



Red cabbage can be used to produce a vast array of colors.

PBS—ZoomSci

<http://pbskids.org/zoom/activities/sci/>

Activities listed by category: Chemistry, Engineering, Forces, Life, Patterns, Sounds, Structures, and Water. Students can post some of their results and see what others posted. The materials are easy to obtain. There are

worksheets that can be downloaded too.

One of my favorite activities:

Cabbage Juice Indicator—in the Chemistry section. You just need some shredded red cabbage and place it in a cup of boiling water for about 10 minutes. Another suggestion: give the kids materi-

als placed in a cake pan to contain any spills and bubbling (if they mix vinegar and baking soda). As a challenge, have the kids create the rainbow. For complete directions go the following link: <http://pbskids.org/zoom/activities/sci/cabbagejuiceindicator.html>



TED Talks—www.TED.com

TED is a nonprofit devoted to Ideas Worth Spreading. It started out (in 1984) as a conference bringing together people from three worlds: **Technology, Entertainment, Design**. The talks bring together some of the most interesting people to share their ideas in 18 minutes or less—for free!

The talks can be viewed on a regular PC or you can get a free app. With the app, you can even download the videos for later viewing.

The over 900 talks available cover a wide variety of topics. You can search by tags, topics, new talks, inspire me, inspiring, funny, ingenious, and informa-

tive. The topic areas cover technology, entertainment, design, business, science, and global issues. You can even search by length of the talk.

You can even download a full listing in spreadsheet form. New talks are added daily.



TED Ideas worth spreading

A neutron walks into a cafe and orders two Cokes. As she is about to leave, she asks the waiter how much she owes. The waiter replies, "For you, no charge."

TED Ed—beta Lessons Worth Sharing

TED-Ed's commitment to creating lessons worth sharing is an extension of TED's mission of spreading great ideas. Within the growing TED-Ed video library, you will find carefully curated educational videos, many of which represent collaborations between talented educators and animators nominated through the TED-Ed platform.

This platform also allows users to take any useful educational video, not just TED's, and easily create a customized lesson around the video. Users can distribute the lessons, publicly or privately, and track their impact on the world, a class, or an individual student. <http://ed.ted.com/tour>—Use engaging videos to create customized lessons.

You can use, tweak, or completely redo any lesson featured on TED-Ed, or create lessons from scratch based on any video from YouTube. You can search the database that is there by subject,

Watch the video to learn how.
<http://ed.ted.com/tour>

The most exciting phrase to hear in science, the one that heralds new discoveries, is not 'Eureka!' but 'That's funny...'

Isaac Asimov

Some TED ideas to get you started:

Paul Root—It's Time to Question Biogengineering—a very good overview of what they have done (i.e. glowing dogs, cats, and monkeys) to cloning human genes in bacteria and the future/

Marco Tempest—The Magic of Truth and Lies—not really science but a good introduction to TED. Marco uses iPods and sleight of hand while talking about truth and lies.

Elizabeth Murchison—Fighting a Contagious Cancer—Elizabeth

talks about the cellular induced cancer that threatens to wipe out the Tasmanian Devil.

Jack Horner—Building a Dinosaur from a Chicken—Great speaker on how he is able to turn genes back on in chickens so they develop teeth and a tail.

John Kasaona—How Poachers Became Caretakers—a program in Africa that trains former poachers to have a stake in taking care of the animals they once poached.

Adam Sadowsky—Engineers a Viral Music Video—the Rock group OKGo sings a hit song with a very large Rube Goldberg machine they engineered in a warehouse.

David Blaine—How I Held My Breath for 17 Minutes—the magician David Blaine and his methods.

Bill Gates—On Energy, Innovating to Zero—Bill Gates talks about energy and the green alternatives



Read more at http://www.brainyquote.com/quotes/topics/topic_science.html#rJXtGmOZm54ojFbM.99

To Huron, or Not to Huron. That is the Question!

By Jean Gomer, Conference Coordinator

Every year, someone asks the question, "Why is the joint math and science conference always in Huron?" That someone is obviously not on the Joint Conference Board as they all know what I am going to respond. There are several reasons including it is easier, it is cheaper, and Huron is so accommodating.

First of all, for the past 20 years, the Huron Chamber of Commerce, the Crossroads Hotel, and now the Huron Events Center has gone out of their way to accommodate the needs of an ever changing conference. SDCTM had its conference in Huron for a few years before the consolidation with SDSTA for the purpose of putting on a better conference. In those first years, when our attendance went from 200 to over 700 in one year, the HCC/Crossroads found us 14 extra meeting rooms within walking distance of the Crossroads at no extra cost to us. This included a long standing agreement with the Presbyterian Church that ended only when the new Events Center was completed. They also helped us scale back when the NSF money disappeared and we struggled to make ends meet and still keep a quality conference. Our liaisons with the Crossroads, especially Brenda and Millie, have helped us do what it takes to meet the needs of our organizations.

Another reason we stay in Huron is that it is just plain easier. SDSTA and SDCTM are organizations that are run by volunteers. We all know that doing something the second time is easier than figuring out how to do it the first time. Imagine trying to allocate space for sessions in a strange facility, or coordinating meals with someone you don't know, or straightening out the room situation when you discover that a featured speaker doesn't have a room with the third desk clerk you have talked to in two days. These are all things that the Joint Conference Committee does not have to deal with. One phone call or email usually takes care of any "crisis."

Finally, the bottom line usually ends up being money, and this is not an exception. About every three years, Sioux Falls, Aberdeen, Pierre and Rapid City contacts us trying to lure us away from Huron. What I do is send them a list of the things that Huron provides and ask them what incentive they can offer to make us consider changing our venue. Sometimes they don't even respond. Most of the time, they send me a polite note, suggesting that I am exaggerating what we get from the Crossroads/Huron Events Center. Trust me I am not. We pay nothing for meeting rooms, get reasonable rates on our meals, provide all

available sleeping rooms at the Crossroads to our participants at the same rate, and we get complimentary suites to use as office space.. Until the last couple of years when we had so many requests for LCD projectors, they also provided all AV equipment free. Even now, thanks to TIE and the HEC we still do not pay for AV equipment. Many national conferences now pass that cost on to presenters at anywhere from \$25-50/hour for the use of an LCD projector. These things add up to big dollars in the overall budget. Since we need this conference to be self-supporting, money has to be a factor in our decision making process. That is why we stay in Huron.

I realize that this is more information than some of you really need or want, but I think that it is important to address a question that doesn't seem to go away. I think you also need to go out of your way to thank any SDCTM or SDSTA Board member that you see for the time and energy that they put into making this Joint Conference such a great event. We, in SD, are unique in having an annual Joint Conference, especially one that is coordinated by volunteers. What is even more important is the quality of that conference. See you there in February of 2013.

Scholarship or Stipend available to assist in attending Conference

"The Jim Goehring / Ann Veitz Scholarship for Future Leaders" has been established to encourage new teachers of math and science to become professionally involved on the state level. The scholarship, which is good for a free one or two day registration at the Joint Conference of the SD Council of Teachers of Mathematics and the SD Science Teachers Association, is available to any teacher who meets each of the following two criteria. (1) Is a K-12 teacher of math or science who is in the first year of teaching in SD & (2) Belongs to SDCTM and/or SDSTA. Applicants must pay their own dues to the chosen organization. See SDSTA.org or SDCTM.org for the form.

Marian Fillbrandt graduated from South Dakota State in 1933 with a Mathematics major. She spent many years teaching math and science. She established the Fillbrandt Endowment at SDSU to help SD math and science teachers. A committee of faculty, along with Jeff Nelson with the SDSU Foundation, has determined that this endowment can be best utilized by providing \$400 stipends to second through fifth year math and science teachers to attend the SDSTA/SDCTM conference. This will allow new teachers in rural areas to interact with their colleagues with similar interests.

The \$400 stipend intends to defray the costs of conference registration, accommodations, a substitute teacher for the Friday of the conference if a district will not pro-

vide one, and other costs associated with conference attendance.

If you are selected for this stipend, you will be required to write a brief report at the end of the conference stating how the stipend benefited you and what you learned at the conference that you plan to use in your classroom. If you are selected, but are unable to attend for some reason, the stipend money will be returned to the endowment fund. The selection committee will take financial need into account during the selection process.

The application deadline is December 1st. To apply, go to <http://Fillbrandt-Teacher-Stipend.questionpro.com>

2013 SDCTM/SDSTA JOINT CONFERENCE

Crossroads Events Center, Huron South Dakota
February 7-9, 2013 1-800-876-5858

Conference information and program
booklets will be available online at
www.sdctm.org and www.sdsta.org

ADVANCE REGISTRATION --

Please print clearly. Postmark by January 20, 2013. After this date, please register on-site.

Name _____
 Address _____
 City, State, Zip _____
 School/District _____ E-mail _____
 Home phone _____ School Phone _____

Please check the appropriate categories for membership, conference registration, and payment.

1. SDCTM/SDSTA MEMBERSHIP(s) and DUES

Please check the appropriate categories. You may join one, both, or neither organization.

Begin/renew SDCTM (math) for one year

- Elementary \$5
- Middle School \$20
- High School \$20
- Post-Secondary \$20
- Student \$5
- Retired \$5
- Other \$20

Begin/renew SDSTA (science) for one year

- Elementary \$5
- Middle School \$20
- High School \$20
- Post-Secondary \$20
- Student \$5
- Retired \$5
- Other \$20

2. CONFERENCE REGISTRATION

Please check the appropriate categories. Noon luncheon is included for each day that you register.

NOTE: The Friday night banquet is NOT included. Banquet tickets may be purchased for \$25 each.

I will attend the conference on (check one):

Friday

Saturday

Both days

SDCTM or SDSTA Member

- One day \$50
- Two days \$75

Non-Member

- One day \$100
- Two days \$125

Student Member

- One day \$15
- Two days \$25

College credit will be available; information/registration will be available at the conference registration table.

3. PAYMENT

Make checks payable to SDCTM.

Purchase orders will NOT be accepted.

Membership(s) total \$

Registration \$

Friday Night Banquet (\$25 each) \$

TOTAL ENCLOSED \$

Requests for refunds must be received by January 20, 2013

4. SEND THIS FORM WITH PAYMENT

Steve Caron

907 South 16th Street School phone (605) 725-8208
Aberdeen, SD 57401 Home phone (605) 226-2292

Email: steve.caron@k12.sd.us

*Advance registration must be postmarked by January 20, 2013.
After this date, please register on-site.*

Please check here if you have also submitted a
speaker proposal form for the 2013 Conference.

Contact SDCTM with any special needs requests as defined by ADA by emailing Jean Gomer at jean.gomer@k12.sd.us by January 13, 2013

SDSTA Winter Business Meeting; in Huron, SD February 3, 2012

Call to Order: Meeting called to order by President Molly TenBroek
Secretary's minutes from fall DDN Meeting read aloud

Move to accept minutes by Ken, seconded by Larry, All in favor

Treasurer's report

Presented by James

Matt Miller move to approve; Landra Knodel Second; All in favor

Old Business

Newsletter

Submission requests for opportunities for Professional Development and grants (similar to NSTA sections with freebies and upcoming events).

Discussed web v. mailing – most attendees nodded to agree with Molly that a mailing was preferred even though there is cost associated.

New Business

Conference Speakers

Discussed need for increased presentations for/from elementary teachers – please encourage elementary attendance and presentation!

Summer Meeting

September 5th Central Time – email an officer to be part of the DDN

Sam Shaw – Curriculum Specialist for DOE gave Standards Update (Next Generation Science Standards)

Julie Olson on writing committee

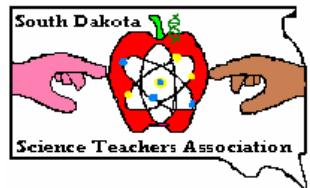
Sam working with large committee with edits

Email Sam to get on DOE Science List serve or to get Framework for K-12 Science

Education PDF (which is used to inform science standards)

Sam's Contact Info: sam.shaw@state.sd.us, phone: 605.773.5229

Ramona Lundberg – NSTA District Representative shared information about NSTA She shared that NSTA tries to listen to all and make changes based on contacts and recommendations – responding to members. One of the things she learned was that we could bring a past, current, or president elect of NSTA to our regional conference for free – all attendees were excited about the idea of having someone come out.



Distinguished Service Award

Will be presented to Bobbie Traxinger's family and school at the Banquet

Marci & Mark (Hospitality and Vendor Coordinators) retiring their post, suggestions of individuals to take these positions were made – each of them had suggestions and will discuss with these people at the conference. They have done a great job and will be greatly missed at each of their posts.

Election of Officers

President Elect

Julie Olson Nominated

Motion to cease nominations –
Seconded by Ken
All in favor
Julie Olson = New President Elect

Treasurer

James Nominated to continue on as Treasurer
Motion to cease nominations –

Seconded by Mark F.

All in Favor

James will continue as treasurer

Secretary

Liz McMillan nominated to continue serving as secretary

Arnie moved to cease nominations – seconded

All in favor

Liz will serve as secretary.

Adjourn

Matt Move; Ken Second; All in Favor



NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

Doing Science with a Spacecraft's Signal

By David Doody

Mariner 2 to Venus, the first interplanetary flight, was launched August 27 fifty years ago. This was a time when scientists were first learning that Venus might not harbor jungles under its thick atmosphere after all. A Russian scientist had discovered that atmosphere during the rare Venus transit of 1761, because of the effects of sunlight from behind.

Mariner 2 proved interplanetary flight was possible, and our ability to take close-up images of other planets would be richly rewarding in scientific return. But it also meant we could use the spacecraft itself as a “light” source, planting it behind an object of our choosing and making direct measurements.

Mariner 4 did the first occultation experiment of this sort when it passed behind Mars as seen from Earth in July 1965. But, instead of visible light from the Sun, this occultation

experiment used the spacecraft’s approximately 2-GHz radio signal.

The Mariner 4 experiment revealed Mars’ thin atmosphere. Since then, successful radio science occultation experiments have been conducted at every planet and many large moons. And another one is on schedule to investigate Pluto and its companion Charon, when the New Horizons spacecraft flies by in July 2015. Also, during that flyby, a different kind of radio science occultation experiment will investigate the gravitational field.

The most recent radio science occultation experiment took place September 2, 2012, when the Cassini spacecraft carried its three transmitters behind Saturn. These three different frequencies are all kept precisely “in tune” with one another, based on a reference frequency sent from Earth. Compared to observations of the free space for

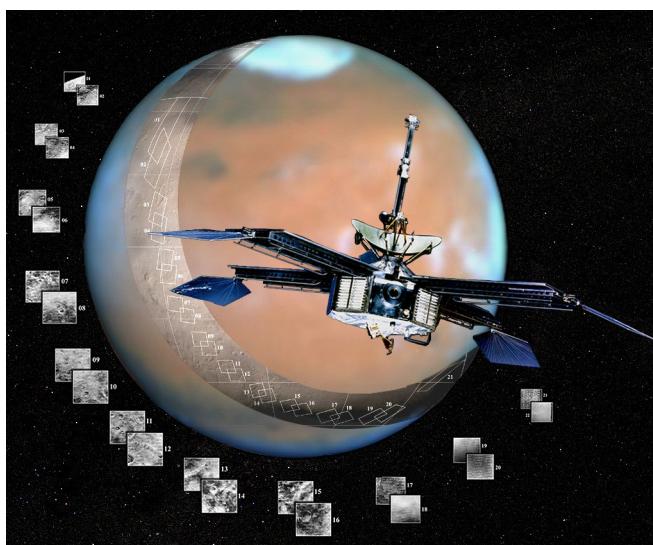
calibration just before ingress to occultation, the experiment makes it possible to tease out a wide variety of compo-



nents in Saturn's ionosphere and atmosphere.

Occultation experiments comprise only one of many categories of radio science experiments. Others include tests of General Relativity, studying the solar corona, mapping gravity fields, determining mass, and more. They all rely on NASA’s Deep Space Network to capture the signals, which are then archived and studied.

Find out more about spacecraft science experiments in “Basics of Space Flight,” a website and book by this author, <http://jpl.nasa.gov/basics>. Kids can learn all about NASA’s Deep Space Network by playing the “Uplink-Downlink” game at <http://spaceplace.nasa.gov/dsn-game>.



Mariner 4 was the first mission to include a radio occultation experiment.

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



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- ISEF continued from page 2- also offered the ISEF finalists tours of what their great city has to offer, including a dinner and mixer event held at Heinz Field, home of the Pittsburgh Steelers, and the Carnegie Science Center.

Above all, during the week in Pittsburgh, I was with my teacher, Mrs. Julie Steen. She has been not only my seventh grade science teacher and school-level science fair coordinator, but also a great mentor who always encourages me and offers assistance whenever I need. Since seventh grade, she has believed in me, and encouraged me in my science fair endeavors. Her presence and advice during the two tough judging days, as well as the entire week, made the experience at the ISEF enjoyable and comforting. I'm very grateful for all that she has done for me, and her support and encouragement will always be remembered. I would also like to thank the Brookings School District, especially Superintendent Dr. DeGroot for the opportunity to conduct my research and the School Psychologist, Ms. Nicole Anderson for her great assistance and cooperation during the experimentation.

Overall, the Intel International Science and Engineering Fair 2012 was one of

the most exciting and enjoyable experiences and achievement of my life. I encourage all young scientists to try and explore it for themselves, and hope that they, too, find the same pleasure, excitement and gratification I received from the Intel International Science and Engineering Fair.

Zarin Rahman

The SDSTA Newsletter is published four times a year. The September issue (this one) is mailed to 140 paid members, and several school science departments.

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 \$100 per page (or 3 to 4 quarter pages) or insert per issue or \$300 per page to place an ad in four consecutive issues.

If any of the high school teachers are interested, the on-line Green Chemistry course is being offered Oct. 12 till Nov. 16. For full details, see <http://www.beyondbenign.org/professional/Fall%202012%20Green%20Chem%20Online%20Course%20Flyer.pdf> (or contact Matt.Miller@SDState.edu or Douglas.Raynie@SDState.edu for more info or if you have problems getting the above link to open.)

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



\$ 5 Student

\$ 5 K - 6

\$ 5 Retired

\$ 20 All Others

Name _____ Home Phone _____

Home Address _____ E-mail: _____

City _____ State _____ Zip _____

Your School _____ School Phone _____

School Address _____

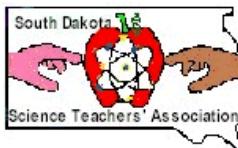
City _____ State _____ Zip _____

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

(circle one)

Referred by _____

South Dakota Science Teachers' Association
Julie Olson and James Stearns
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Calendar of Events Calendar of Events

- Calendar of Events** **Calendar of Events** **Calendar of Events**
- October 1 Wards rewards you w/\$15 per lesson plan—wardsci.com/article.asp?ai=1625
October 8 Deadline for Earth Day MiniGrant - www.sd-discovery.com/ee.shtml
October 9, 23 & Nov 6 Free NSTA webinars
October 12-November 16 Online GREEN Chemistry kate_anderson@beyondbenign.org
October 15 Speaker/Presenter application deadline
October 23 Mole Day, from 6:02 AM and 6:02 PM
October 24 Cassini Scientist for a Day Essay Contest - scientistforaday@jpl.nasa.gov
November 4 Fall back one hour - Daylight Saving Time ends
December 1 Deadline for 2-5 year teachers to apply for conference stipend
December 14 EcyberMission Team Registration ends - www.ecybermission.com
January 15 Deadline to enter SDAAPT Photo Contest - <http://sdaapt.sdsta.org/>
January 20 Deadline for Advance Registration to be mailed by — see either Math or
Science website for the form or watch for brochure mailing in December
- February 7—9, 2013** 21st Annual Joint Math & Science Conference - Huron, SD
- March 23 South Dakota Science Olympiad State Tournament—
<http://orgs.usd.edu/~sdscioly/elementary.htm>
- Homepage Located At <http://www.sdsta.org>**



Summary

eCYBERMISSION (eCM) is a free, web-based STEM competition for students in grades 6-9. eCM challenges students to think about real-world applications of STEM by working in teams to identify a problem in their community and use the scientific method, scientific inquiry or engineering design process to find a solution. Students compete for state, regional and national awards, with potential winnings of up to \$8,000 (maturity value) in US Savings Bonds.

Sponsors/Partnerships

U.S. Army – part of the Army Educational Outreach Program (AEOP): Army-sponsored research, education competitions, internships and practical experiences designed to engage and guide students and teachers in STEM education

NSTA joins the consortium of the Youth Science Cooperative Outreach Agreement (YSCOA) under lead of Virginia Tech

Program Themes

Student teams must choose one of the following 7 Mission Challenges:

- Alternative Sources of Energy
- Environment
- Food, Health and Fitness
- Forces & Motion
- National Security & Safety
- Robotics
- Technology

Participants

Students: Grades 6-9

Team Advisors: teachers, coaches, counselors or leaders in youth organizations

Ambassadors: civilian or military volunteers who promote eCM in their community

CyberGuides: civilian or military volunteers who provide online assistance to eCM teams and promote the program in their local community

Virtual Judges: independently score Mission Folders submitted by the student teams

Dates

Oct 15	Early reg deadline	Dec 14	Team reg deadline
Feb 1	CyberGuide reg deadline	Mar 1	Submission deadline
Mar 4-27	Virtual Judging	Apr 1	State winners announced
Apr 22-26	Regional Judging	Mid-June	National Judging and Education Event

Registration (Early Registration deadline is October 15.)

In order for **SDSTA** to be credited for registrations and submissions, please make sure that everyone that your chapter registers selects:

"NSTA: referred by NSTA State Chapter" in the dropdown box for Registration Code

They will then select **South Dakota** later in the registration process. Registrations without this will not be properly credited to your association.