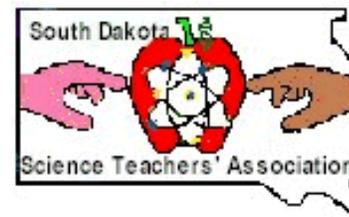
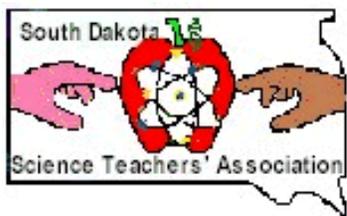


South Dakota Science Teachers' Association



Fall 2016

September 2016 Volume 142

Welcome back to school 2016! Hope you're all off to an exciting new year. The McMillan household welcomed baby #2 into our lives (Emmett Thomas born Aug 14, 2016) so I have the fortune of being home for a few weeks to enjoy him.

Rapid City were awarded the Presidential Award for Science. They spent time in DC in early September and we look forward to seeing pictures and hearing their account of their experience at the conference in February. I would personally like to recognize their efforts and also the efforts of all of the applicants and nominees. Please consider applying again or for the first time if you have not yet been recognized – it's so great for people across the country to learn what our SD Science teachers have to offer! Thank you Roby and Jen for representing us and **Congratulations** on your well-deserved award. (you can learn more about them both and the 2016 Math awardees by visiting the finalist profiles at: [https://recognition.paemst.org/awardees by state all](https://recognition.paemst.org/awardees%20by%20state%20all))

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As we ramp up for SDSTA/SDCTM in 2017 you may notice a few changes... thanks to the help and knowledge of the officers we have transitioned the registration, presentation, and vendor forms to electronic forms. ([Speaker Form](#) and [Registration Form](#)). As members you are also invited to join us through video conference for our fall meeting on September 22 4:30pm-5:30pm Eastern Time, we will discuss the 2017 Conference – including featured speakers. If you have suggestions or recommendations for the conference please do not hesitate to connect with me directly or with all the officers at Officers@SDSTA.org.

The highlight I'd like to provide this month is the recognition of the PAEMST Awardees. We are finally caught up with the announcements of two of each math and science. Roby Johnson of Aberdeen and Jennifer Fowler of

We will have one more newsletter ahead of the conference in February, if you have ideas for content or would like to write an article please connect with Julie Olson or James Stearns or send an email to all officers. Have a great start to the school year.

Sincerely, *~LIZ McMillan*
SDSTA President, 2016-2018

Student Competitions

Science Olympiad—

Students compete for awards in teams of two/ three 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 Mar. 19, 2016. Go to the South Dakota Science Olympiad website at <http://sites.usd.edu/sdscienceolympiad/home> for more information and team entry forms.



ISEF Affiliated Fairs

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 Los Angeles, California this year .

Northern South Dakota Science and Math Fair - March 23, 2017

Dr. Jodie Ramsay: www.northern.edu/academics/schools/CAS/Pages/sciencefair.aspx
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 - March 21, 2017

Mr. Brad Blaha: WEB SITE: <http://www.sdstate.edu/science-and-engineering-fair>
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 - March 21, 2017

Mrs. Jody A Strand: WEB SITE: <http://www.dwusciencefair.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 - March 28, 2017

Jade Herman, <http://www.sdsmt.edu/ScienceFair/>
South Dakota School of Mines & Technology. 501 E. St. Joseph Street Rapid City, SD 57701
Sponsor: South Dakota School of Mines & Technology **Territory:** the counties of Butte, Lawrence, Pennington, Custer, Fall River, Meade, Shannon, Haakon, Jackson, and Bennett



SDSTA sponsors an award for each of the science fairs in South Dakota. The winners' abstracts are printed in the newsletter.

EDUCATOR ACADEMY

How to Guide Students in Developing Award Winning Research for Science Fairs

The SD EPSCoR **EDUCATOR ACADEMY** is a no-cost two day hands-on workshop designed to provide teachers the knowledge, skills and resources to assist students in the development of hypothesis-driven research projects for participation in one of four South Dakota regional science fairs. Through the **ACADEMY**, teachers will actively participate in the process of developing a research project, gain deeper understanding of implementing the scientific method and develop resources to assist students in designing award-winning research projects.

All **ACADEMY** participants will receive a USB thumb drive containing all the information presented at the **ACADEMY** including a step-by-step guide to help students in developing research projects. Two classroom resource guides developed by teachers who have over 15 years' experience with students consistently winning major awards at the Intel International Science and Engineering Fair will be included. In addition, attendees will receive information regarding how teachers can win more than \$9,000 in awards provided annually by SD EPSCoR at each of the South Dakota's four regional fairs to strengthen their classroom laboratories.

The **EDUCATOR ACADEMY** is being held from 8:30 a.m. – 4:00 p.m. at the following locations for your convenience:

September 15th & 16th on the SDSU campus

September 20th & 21st on the NSU campus

September 22nd & 23rd on the DWU campus

September 26th & 27th on the SDSM&T campus

September 29th & 30th on the Sinte Gleska University campus

October 6th & 7th on the Sisseton Wahpeton College campus

October 19th & 20th on the Oglala Lakota college campus

Register for one of the EDUCATOR ACADEMY locations at:

www.online-registration-system.com/sd/epscor/ea

Workshops are limited to 26 participants

Travel and lodging will be reimbursed to those who travel more than 40 miles one way to the ACADEMY

Continental breakfast and lunch will be provided each day

For more information contact: phillip.huebner@sdsstate.edu

Verizon Learning App Challenge:

The [Verizon Innovative Learning App Challenge](#), a program of the Verizon Foundation in partnership with the Technology Student Association is underway. With an attractive grand prize for eight “Best in Nation” schools (\$20,000 for each national winning school), this competition has become extremely popular. Submissions have come from all disciplines – from STEM-focused groups to language arts and the humanities. **This contest has been increasingly attractive because it does NOT require technology experience or computer programming –** just creativity and communication skills to come up with a novel app idea.

Since this NASSP approved student contest launched in 2012, almost 3,500 middle and high school teams from all 50 states and the District of Columbia have submitted app concepts. The competition has engaged more than 24,000 boys and girls in urban, suburban, and rural areas, including many underserved communities. About half the winning students are female.

Please visit the [website](#) and view the [App Challenge FAQ flyer](#) for more information. Get the word out now, **REGISTRATION CLOSING NOVEMBER 18, 2016**. <http://appchallenge.tsaweb.org/>



3M—Discovery Communications Young Scientist Challenge

Students, grades 5-8, are invited to create a 1-2 minute video describing a new, innovative solution that could solve an everyday problem. Ten finalists will be chosen for their passion for science, spirit of innovation and ingenuity, and effective communication skills. <http://www.youngscientistchallenge.com/2016-challenge>



eCYBERMISSION

eCYBERMISSION is a web-based Science, Technology, Engineering and Mathematics competition for 6th, 7th, 8th and 9th grade teams. Your team will propose a solution to a real problem in your community and compete for State, Regional and National Awards.

eCYBERMISSION challenges you to explore how Science, Technology, Engineering and Mathematics work in your world.

<https://www.ecybermission.com/>

[Mission Challenges](#)

- [Alternative Energy Sources](#)
- [Environment](#)
- [Food, Health & Fitness](#)
- [Forces & Motion](#)
- [National Security & Safety](#)
- [Robotics](#)

Future City starts with a question—how can we make the world a better place? To answer it, 6th, 7th, and 8th grade students imagine, research, design, and build cities of the future that showcase their solution to a citywide sustainability issue. Past topics include stormwater management, urban agriculture, and green energy. The 2016-2017 topic is the Power of Public Space.

Students present their solutions via a virtual city design (using SimCity); a 1,500-word city essay; a scale model; a project plan, and a presentation to judges at Regional Competitions in January. Regional winners represent their region at the National Finals in Washington, DC in February. After the competition is over, student participants are not only prepared to be citizens of today's complex and technical world, they are poised to become the drivers of tomorrow.





Call for Outstanding Biology Teacher of the Year Nominations

Two cats on a tin roof.
Which one slides off
first?

The one with the lowest
mew.



Please nominate a deserving teacher for the Outstanding Biology Teacher Award (can be a life science teacher grades 6-12) .

As with most small schools, teachers have many different assignments so for this award, at least one of their assignments must be in the life sciences. They have to have taught and are currently teaching life science for three years or more. There are many deserving teachers

out there that need to be recognized.

The award comes with a \$1000 award sponsored by Sanford Health and is to be used to attend the National Association of Biology Teachers annual national conference or for materials for their classroom. Send an email with your name and email along with the nominee, their email and school to Julie Olson at julie.olson@k12.sd.us.

“Two red blood cells met and fell in love. Alas, it was all in vein.”

Fulbright Distinguished Awards in Teaching

Announcing the launch of the 2017-2018 Fulbright Distinguished Awards in Teaching (DA) Program Online Application for K-12 teachers!

Are you a U.S.:

Primary and/or secondary classroom teacher?

Guidance counselor?

Curriculum specialist?

Curriculum head?

Talented and Gifted coordinator?

Special Education coordinator?

Media specialist/librarian?

You may be eligible to participate in a unique international professional development opportunity for 3-6 months through the Fulbright Program!

By conducting educational research abroad, U.S. teachers gain new skills, learn new instructional methods and assessment methodologies and share best practices with international colleagues and students. Teachers also have the opportunity to expand their understanding of other cultures and international education systems that will enrich their U.S. schools and local communities with global perspectives.

Teachers may travel to: Botswana, Finland, India, Israel, Mexico, Morocco, the Netherlands, New Zealand, the Palestinian Territories, Singapore, Taiwan, the United Kingdom, and Vietnam *Countries are still pending and may change. Please visit the program website for updates. Application deadline: December 1, 2016

Eligibility Requirements: www.fulbrightteacherexchange.org

This program is sponsored by the U.S. Department of State, Bureau of Educational and Cultural Affairs and is administered by the Institute of International Education.

Congratulations Presidential Awardees for Excellence in Math and Science Teaching



Jennifer Fowler— Secondary Education—PAEMST 2015

Jennifer Fowler has been an educator for 17 years, teaching 8th grade science and enrichment science at South Middle School for 11 years. Previously, she taught at Eagle Rock Junior High in Idaho Falls, ID and at Custer Youth Correction Center in Custer, SD.

Jennifer's students follow the classroom motto, "Be Professional," and they are avid learners and scientists asking questions and solving problems through hands-on and minds-on investigations. As her school's Department Head and member of her district's Middle School Science Leadership Team, she facilitates the incorporation of new state standards and science practices with her colleagues.

As a South Dakota Science Teacher Association Executive Board Member, Jennifer builds on her classroom practice and passion for science education through planning and implementing the joint math and science conference. She also created three biological educator guides for South Dakota Game, Fish, and Parks as a legacy for teachers to share topics on wildlife diversity.

Jennifer earned a B.S. in biology and a Master's of Professional Studies in environmental interpretation from State University of New York College of Environmental Science and Forestry. She also received her K-12 Science Specialist endorsement from Black Hills State University. Jennifer is certified in grades 7-12 science and 5th through 8th grade science, mathematics, and social studies.



Roby Johnson—Elementary Science—PAEMST 2014

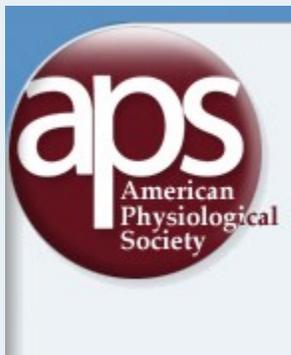
Roby Johnson taught science for 15 years. He started his career at Yuma Middle School teaching sixth, seventh, and eighth grade, then moved to Holgate Middle School, where he taught integrated science in sixth grade for 10 years. Most recently, he began working in the Warner School District as the kindergarten through eighth grade principal.

Roby utilized a diverse assortment of educational techniques to encourage students to approach novel phenomena from a variety of perspectives. Working with students to build sound scientific practices while applying crosscutting concepts helped students open the world of discovery. Students quickly discovered Roby's passion for science!

Roby was a participant in Governor Dugaard's Investing in Teachers initiative and later worked with the South Dakota Department of Education as a middle and high school science teacher-trainer. He served on the South Dakota Science Standards writing work group and later helped draft recommended science course pathways for the South Dakota Department of Education.

Roby earned a B.S., cum laude, in elementary education from Dickinson State University; a M.S. in science education from Montana State University; and an endorsement in educational leadership from Northern State University. He is certified in elementary and middle school science along with elementary and middle school administration





“I read a book
on anti-gravity.
I couldn’t put it
down.”

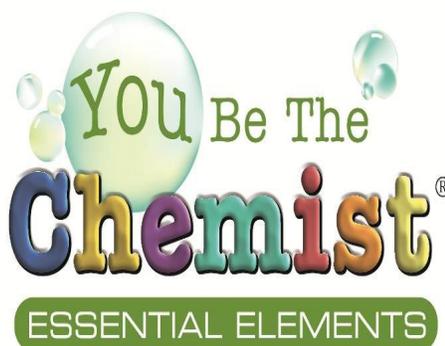
SIX STAR SCIENCE ONLINE TEACHER (OT) PROFESSIONAL DEVELOPMENT PROGRAM

SIX STAR SCIENCE ONLINE TEACHER (OT) PROFESSIONAL DEVELOPMENT PROGRAM

The Six Star Science OT is a 10-month online professional development program that focuses on the three Dimensions in the Next Generation Science Standards and expanding teacher skills in three major areas: 1) Updating Teacher Content and Pedagogy Knowledge; 2) Understanding the Research Process; and 3) Applying Six Star Science in the Classroom.

Online Teacher (OT) Fellows participate in a dynamic and interactive virtual learning community that focuses on exploring effective teaching strategies, understanding the research process, and enhancing classroom materials. Fellows **receive a stipend** for completion of their online work and **graduate credit is available**.

Application deadline: January 31, 2017 More info on this program can be found at: www.frontiersinphys.org



Saturday Oct. 8, 2016
MCTEA Building – science room
821 N. Capital St., Mitchell, SD
10 AM - 2 PM Light lunch and 3
hours CEU credit provided

You Be The Chemist[®] Essential Elements (Essential Elements) is a professional development program created by the Chemical Educational Foundation[®] (CEF). Essential Elements is designed to assist K–8 educators—our “essential elements” in education—in teaching chemistry concepts through hands-on learning and connecting those concepts to students’ everyday lives .

Essential Elements is based on the **5E constructivist learning cycle approach** to teaching. This cycle allows students to build their own understanding of new concepts from both old ideas and their own experiences. During an Essential Elements workshop, an instructor will lead educators through a full 5E learning cycle, utilizing an exciting lesson from CEF’s YBTC Activity Guides. **All teachers will receive a flash drive containing all of CEF’s Activity Guides and a certificate for 3 hours of Continuing Education Credit.**

Register at: <http://www.chemed.org/programs/essential-elements/workshops/?ee=97>

E-mail us at jlsernyk@att.net

Or visit our website at www.chemed.org for more information.

Liquid Drop Microscope

By Larry Browning, SDSU Physics Department

Caution: This project uses a laser. Laser light can damage the retina of an eye so be careful that the beam is not directed or reflected into an eye. For safety reasons, a low power laser (Class IIIa, under 5 mW or lower) is recommended.

Figure 1 Parts for Liquid Drop Microscope with a 6" ruler for scale.

Did you ever wonder what was living in a drop or pond water, or in your dog's water dish? Here is a great way to find out for not a lot of money or time. The goal is to suspend a drop of water (or other transparent liquid) in the path of a laser and look at the light projected on a wall or white surface. Of course, it also helps to be able to change the angle that the laser is projected so the scene is elevated a bit. This microscope does all of that and is affordable, easy, and can be assembled in a few minutes. Several ways of doing this have been suggested (for example: <http://makezine.com/projects/make-36-boards/laser-projection-microscope/> or on You-Tube: <https://youtu.be/IZZZMcmXQg>) but this is one design that I've had some success with in classes and workshops.

On a base of wood approximately 4" x 4" (the picture shows a scrap of baseboard cut to a 4" width) glue a wooden clothes pin parallel to and near one edge. This will be the holder for the laser and also serve as the "on" switch. On the opposite side drill two holes for the 4" long dowel pins. One hole should be near the corner and the other a little past half way. You may want to make the holes just slightly bigger than the diameter of the dowel pins. The idea is to have the dowel pins fit snugly but still be able to slide in the holes to adjust the angle of the beam of light. For the pictured model, the holes were 13/64" in diameter for dowel pins that were labeled as being 3/16" in diameter – of course wood is a natural material that does swell and shrink.

After inserting the dowels in the holes you have an adjustable stand and holder for the syringe. A rubber band wrapped around both dowel pins a few times will hold a syringe filled with your sample in place. The tension in the rubber band will also keep the dowel pins from slipping should the holes be a little too big.

The hard part is adjusting the syringe so that a drop of the water (or fluid) is in the laser beam. This is a little tricky, but with a little patience and steady hands, you will be rewarded with a magnified and live view of the contents of your sample. Be careful! Do NOT look in the laser beam directly or reflected from a shiny surface. Remember the laser is incredibly bright (although at one color only) and can easily cause permanent damage an eye that is exposed to it. To see where the laser beam is, in relation to the tip of the syringe, I typically use my finger as a "screen" holding it near and behind the syringe tip from the laser. That way I can see which way I need to move the syringe.

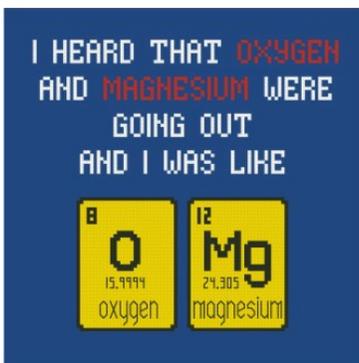
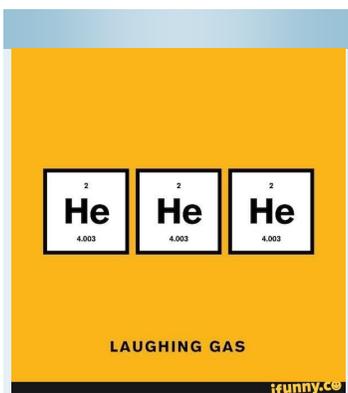
To keep expenses to a minimum, a "pet exerciser" laser (red) can usually be found near the cat food for about \$2. A syringe can be obtained from your pharmacist (they often give them to customers to administer medicine to infants) or at a farm supply store (for vaccinating cattle). Dowel pins are at the lumber or craft store as well as 1" x 4" lumber (or something thinner – like the scrap of baseboard). A green laser appears brighter, but the cost increases significantly and they would probably need to be ordered online.

The magnification depends on the closeness of the screen to the drop. Planinsic calculated that a screen two meters (six feet) from a drop of 2 mm diameter will magnify the contents 1000 times or more (see the reference below for details). With a red laser, it is difficult to be that far from the drop so the magnification would typically be less, but still impressive. Also a dark room is essential regardless of the color of the laser. At this magnification you can easily see diffraction patterns around paramecium and other small creatures or features. The interference and diffraction fringes do make the images less sharp, but that is a good lesson in physics (as well as biology).

Besides looking at microbes in water, why not try other liquids, like oil. Investigations of the optical properties of various oils could be carried out, and even used motor oil could be studied ("How big are the impurities there?"). One warning, if you test tap water you may not want to drink from the tap again. Remember it is safe, but that doesn't mean it is lifeless.

Reference: Gorazd Planinsic, "Water-Drop Projector," *The Physics Teacher*, vol. 39 (Feb. 2001, p. 18) available at: <http://www.fmf.uni-lj.si/~planinsic/articles/planin2.pdf>





Bundling the Standards:

What is bundling? "Bundles" are groups of standards arranged together to create the endpoints for units of instruction. Bundling is just one step in a curriculum development process; many other steps are required to create instructional materials designed for the NGSS.

Why bundle? Bundling is helpful step in implementing standards because it helps students see connections between concepts and can allow more efficient use of instructional time.

For example bundles, go to: <http://www.nextgenscience.org/resources/bundling-ngss>

SDSTA/SDCTM Speaker Proposal Forms go Digital

Save the date! The 25th Annual SDCTM/SDSTA Professional Development Conference will be held in Huron February 2-4, 2017.

Sessions presented by South Dakota's best (that's you) comprise a very large part of the success of this conference. If you have presented before, thank you. I hope that you will present again for the 2017 event. If you have not presented before, please consider it this year. Let others benefit from your ideas and experiences. You can present with partner(s) if you are hesitant to go it alone the first time. Presenting a session is a fun and rewarding experience. You can be certain that you will have a friendly audience! Speaker proposal forms are now available at https://docs.google.com/forms/d/e/1FAIpQLSfqD7NjdvKljRoXipDifh84wAJYJsjm9nKb_LfSdAmJ4nr14g/viewform

Forms will be submitted electronically this year; follow the links on the conference page. The submission deadline is **October 15**, but why wait until the last minute? I can't wait to see what you all have in mind for your sessions!



Sign Up Now to Receive *Science News* in High Schools for Free!

Sign up now for *Science News* in High Schools and, at no cost to you or your school, receive 10 hard copies of the biweekly magazine, free digital access for the entire faculty and student population and a teacher guide that provides questions, activities and links to the standards to support your classroom learning.

Science News, published since 1922, provides an approachable overview from all fields and applications of STEM. The magazine is written by a staff of experienced science journalists, many with Ph.Ds in scientific disciplines. Learn more at <https://www.societyforscience.org/science-news-high-schools>.

Resources, Collaborations and Classroom Visits from Augustana University



Augustana University Natural Science Division faculty members are excited to visit your classroom, share resources, and set up collaborative projects. Faculty and students in the biology department have visited K-12 classrooms to help those students explore a wide-array of topics through hands-on activities, such as skits on vaccines, physiology demonstrations, DNA modeling and isolation, and games about epigenetics. Members of the physics department have spoken to classes about dark matter, neutrinos, and astronomy. We encourage computer programming using LEGO robots and drones, and assist the SF school district with development of a modern physics course. Mathematics faculty and students have given demonstrations on tessellations, finite geometry, coding theory, and mathematical games. Chemistry faculty members are also excited to work with you and your students on a variety of topics.

For all the departments, many of the above topics can be adapted to the grade level of your students; we welcome requests to develop presentations on other topics. In addition to visiting your classroom, we would be happy to share resources or develop new lessons with you. Please contact Dr. Seassion Vitiello at Vitiello@augie.edu or (605)274-5525 for more information.

PROMISE Community Lecture Series

Science

minded individuals in our community can learn about the science research being performed in their own backyard! The PROMISE Community Lecture Series is a free, monthly seminar hosted on the second Thursday of each month of the Sanford Center in Sioux Falls, SD. Invited speakers are leaders in their respective fields of research representing academic institutions and industry in our region. Each scientist will share their recent research and discuss the implications of their work on society. Lectures are held from 5:30 to 6:30 pm. Student attendees may request a signature card for documentation of their attendance.

Lectures held the second Thursday of each month at the Sanford Center (2301 E 60th St N, Sioux Falls) starting at 5:30pm. Videocast of the seminars is available upon request. For more information or to RSVP to a lecture, please email sanfordoutreach@sanfordhealth.org or register for updates/emails at <http://www.sanfordresearch.org/education/community/promisecommunitylectureseries>

The logo for Sanford Research, featuring the word "SANFORD" in a large, white, serif font above the word "RESEARCH" in a smaller, white, sans-serif font. The logo is set against a dark blue background.

SANFORD
RESEARCH

Coming next summer

A banner for the ChemEd 2017 conference. The word "CHEM" is written in large, blue, block letters on a yellow background, and "ED" is written in large, white, block letters on a blue background. The letters are set against a background of autumn leaves. Below the letters, the text "South Dakota State University 2017" is written in white. To the right, there is a photograph of a tall, brick building with a white cupola. The text "Engaging the Next Generation." is written in white below the photograph. At the bottom, the dates "July 23 - July 27, 2017" are written in white. Below the dates, the text "Participate in the largest conference of its kind that brings together dedicated chemistry educators from across North America. High School and introductory chemistry educators are immersed in an environment where collaboration, support, exchanging ideas and inspiration are expected." is written in white. At the very bottom, the website "www.sdstate.edu/ChemEd2017" is written in white.

CHEM
ED

South Dakota State University
2017

Engaging the Next Generation.

July 23 - July 27, 2017

Participate in the largest conference of its kind that brings together dedicated chemistry educators from across North America. High School and introductory chemistry educators are immersed in an environment where collaboration, support, exchanging ideas and inspiration are expected.

www.sdstate.edu/ChemEd2017



EARTH SCIENCE WEEK

Here you can find suggested Earth science related activities. Most are categorized based on the [Next Generation Science Standards](#), and the earlier [National Science Education Standards](#). Activities are also marked with an appropriate grade level. These Earth science activities are fun and educational. To access these activities, click on the activity name in the chart below.

Find additional activities in our [Earth Science Week Activity Calendar](#) and [Teacher Learning Activity Manuals](#). Go to: <http://www.earthsciweek.org/classroom-activities>

Tips for New Teachers:

- Find someone in the district either by appointment or by you selecting them to be your “mentor”. There is a lot about a new district they forget to tell you and you need someone you can go to will all those silly questions without feeling judged. —Tiffany Kroeger
- Get to know the custodians! You’ll need them at some point and if you have a personal relationship with them, you’re requests will most likely be attended to quicker.—Lindsey Kortan
- Devise a plan for dealing with absences. Where will students look for paperwork? How will they submit it? Having a good plan for handling make-up work and a designated location for you to keep those make-up items (quizzes, tests, worksheets, etc) relieves a lot of stress on you.—L. Kortan
- Take advantage of Professional Development opportunities like the state conference to network. You will find some great mentors who are more than willing to share ideas and resources.—Julie Olson
- Don’t be afraid to try something new. Demonstrate your enthusiasm to your students. Even failures are learning experiences. - J. Olson

www.GEOect.com

GEOect's Discover Colorado's Geology Teacher Professional Development Learning Outcomes

This field experience has been developed to provide you with multiple opportunities to learn about the varied geology in Colorado. It is a wonderful location to learn about numerous geologic topics. During this trip, we will use an inquiry-based approach to examine rocks, minerals, fossils, the Rio Grande Rift, relative dating techniques, glacier features, horses and grabens, and stratigraphy. By using observations and inferences, you will piece together Colorado's geologic history and you will be able to describe how the Rocky Mountains formed. Time is set aside for you to collect rocks, minerals and fossils for you to take back to your classrooms.

This course is designed to incorporate a mixture of field excursions, min-field lectures, and classroom time where you will learn new activities to enhance your classrooms. Additionally, we will reflect as a group on what we are learning and discuss ways that we can "bring the field to the classroom."

"David A Buehler" <davidabuehler24@gmail.com>



ADVANCE REGISTRATION

Crossroads Events Center, Huron South Dakota
February 2-4, 2017 1-800-876-5858

Please print clearly. Postmark by January 20, 2017. After this date, please register on-site.

Name _____
Permanent Address _____
City _____ and 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 _____ Begin/renew SDSTA (science) for one year _____
Elementary \$5 _____ Elementary \$5 _____
Middle School \$20 _____ Middle School \$20 _____
High School \$25 _____ High School \$25 _____
Post-Secondary \$25 _____ Post-Secondary \$25 _____
Student \$5 _____ Student \$5 _____
Retiree \$5 _____ Retiree \$5 _____
Other \$20 _____ Other \$20 _____

2. CONFERENCE REGISTRATION

Please check the appropriate categories. 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 (check one): _____ Friday _____ Saturday _____ Both days

SDCTM or SDSTA Member	Non-Member	Student Member
_____ One day \$50	_____ One day \$100	_____ One day \$15
_____ Two days \$75	_____ Two days \$125	_____ Two days \$25

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

3. PAYMENT: By Check Only

Make checks payable to SDCTM.
SDCTM does NOT accept credit cards or purchase orders.

Membership(s) total \$ _____
Registration \$ _____
Friday Night Banquet (\$25 each) \$ _____

TOTAL ENCLOSED \$ _____

Requests for refunds must be received by January 20, 2017

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 questions to: steve.caron@k12.sd.us

Advance registration must be postmarked by January 20, 2017.
After this date, please register on-site.

NEW! Use online Registration form for 2017 Conference! Go to www.sdctm.org

NASA Space Place Gazette

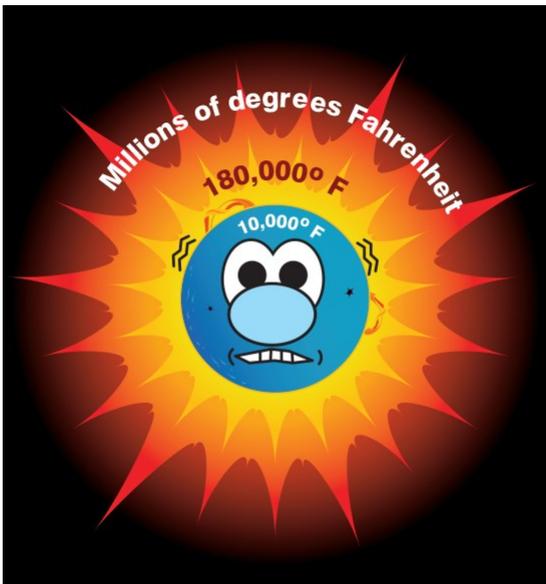


The Sun's Mysteriously Hot Atmosphere

There are many ways in which the sun is different than Earth. For one thing, the sun is a broiling mass of superheated gas. Earth is a cool, wet planet where life flourishes. But there are some similarities. For one, both the sun and Earth have an atmosphere.

On Earth, the atmosphere is a layer of gas surrounding its surface. It contains, among other things, the oxygen we breathe. On the sun, it is a wispy layer of hydrogen gas much less dense than the gas that makes up the sun's bright surface.

But contained within this solar atmosphere lies one of the great mysteries in science. The largest part of the sun's atmosphere is a layer called the corona. For some reason the corona is



The surface of the sun is cold compared to the super hot gas that makes up its atmosphere. And it gets hotter the further away you go! Nobody is quite sure why this happens.

Why is the Corona So Hot?

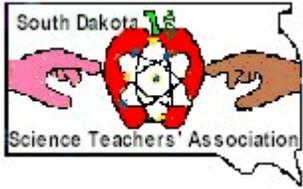
The surface of the sun is almost 10,000 degrees Fahrenheit. That's really hot. But the sun's corona is over 200 times hotter—millions of degrees Fahrenheit. That's like the actual flame of a fire being 200 times colder than the air around that fire.

Why would the area around a hot burning mass be hotter than something that is actually closer to the source of heat? And if the corona is so hot, then why doesn't it heat up the sun's surface to a similar temperature?

Well, the truth is that nobody knows for sure. Lots of scientists are hard at work trying to figure out the answer. One potential explanation is magnetic forces. All that superheated gas in the sun core creates a strong magnetic field—like Earth's magnetic field, but a whole lot stronger and more chaotic. Some scientists think that it is this magnetic field that gives the sun's corona energy.

If that were true, then powerful magnetic waves would be causing atoms in the gas surrounding the sun to move very quickly. The faster the atoms in something move, the hotter it is. That's all heat is—moving atoms.

It's very hard to study the sun, and scientists are still not entirely sure how magnetic force could produce heat, or why the surface of the sun is not heated by the hot corona. But that's the great thing about science—there's always some big mystery just waiting to be solved.



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We are excited to announce our East River Edcamp this Fall! If you could help get the word out that would be incredible. Would love for teachers and administrators to join us for this great day of learning.

East River Edcamp is back this fall on Oct. 15th, 2016. Come join us at Sioux Falls Christian for a day of learning together. This event you will not want to miss. Sign up today so you can get updates about the incredible things that will be happening at this event.

You can sign up [HERE](#)

https://www.eventbrite.com/e/east-river-edcamp-tickets-27363267269?utm_source=eb_email&utm_medium=email&utm_campaign=new_event_email&utm_term=viewmyevent_button

Travis Lape, Assistant Principal

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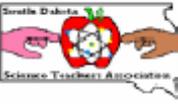
@travislope



Travis.lape@k12.sd.us



edcamp
South Dakota

Mail to: Deirdre Peck, SDSTA Treas 409 S. Kline Street Aberdeen, SD 57401			\$ 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 _____	State _____	Zip _____	
City _____	State _____	Zip _____	
Your area	K - 6	7 - 8	9 - 12
		(circle one)	College
Other _____			
Referred by _____			

SDSTA Business Meeting AGENDA

I. Attendees: Roll Call and Introductions

II. Updates and Reports

III. New Officers and Role Definitions

IV. Name Tags and Attire

V. SDSTA Logo and Swag

VI. Conference

A. Work Session Volunteers (Jean's House?)

Early Nov - Scheduling and Mid Dec - Reviews & Edits

B. Electronic Forms (Update and demo from Liz, Mark, Kevin)

C. Featured Speakers (Math does banquet this year):

Inviting NSTA Former President to host elementary science session. Recommendations for 2nd?

\$2500 Featured Speaker Budget

D. Distinguished Service and Friend of Science Awards

E. Math Election Year

VII. Newsletter