



SDSTA

South Dakota Science Teachers Association

Spring Issue | Date: March 21, 2020

Hi Science Friends!

For those of you who do not know me, I have been a middle school science teacher for 19 years at Hamlin. I was not elected into the position as president but that does not mean I will not do my best as president. Jennifer Fowler, who is now our SD State Science Specialist, was our president elect. Since she is no longer able to fulfill her duties as president, Mark was able to appoint me at our meeting held in February. Jen is now our DOE Liaison. We, along with the other SDSTA officers, will be working together to plan some sort of summer PD, which looks like we will most likely wait for the summer of 2021.

We had an awesome time at the 28th annual SD STEM Ed Conference in February. The conference continues to get better with each passing year. This year there were 90 science people out of the 250 registrants at the conference. Let's try to get the number up in 2021! (Yep, I am a bit competitive.) Did you know you could get your conference registration paid for if you submit to the newsletter (or given a presentation at the conference) and refer at least three new members? (Information about this and more is provided on the last page of each newsletter above the registration form.) We are so fortunate to have a joint conference that keeps the cost low, provides lunch on both days, and has phenomenal breakout sessions. I love seeing all the new faces and the familiar ones too. It is so fun to visit and collaborate with all of you. I know there is concern about having the conference closer to the west side of the state. Believe me when I tell you that I was confused too. I asked Cindy Kroon, the conference chair (head honcho), to take a minute to write down all of the reasons we have the conference in Huron. Well, she did more than take a minute.

Please look at her write-up on page 3. Hopefully that will clear-up any questions of why we have the conference in Huron. Are there any other thoughts or concerns you have about the joint conference? If so, please let me know. If I do not have the answer, I will do my best to find out.

I need your help in achieving one of my goals this year. Let's get some more members AND let's keep the members we have! We have many science teachers in the state but only 96 SDSTA members. I truly believe teachers are missing out on our science educator comradery we all seem to have. Why are you a member of SDSTA? If you are a member that is only active the years you attend the conference, why? What do you want from your membership? What activities could we or should we be pursuing to improve science education in South Dakota? What can we do to retain you as a member even if you don't attend the annual conference? How can SDSTA improve? What ideas do you have for recruiting new members?

Finally, I wish you a restful and stress free weekend. Take some time for yourself before the new week of virtual learning begins. You deserve it! Some of you have already started your virtual learning journey and some of you will begin next week. This is a confusing time for everyone but I am sure we will continue to do what all educators are good at: making our students feel safe, making learning fun, and keeping our relationships with our students strong.

Thank you for all you do in providing a quality education for each of your students!

Michelle Bartels
SDSTA President

Hello, science friends!

This is our time to shine as science educators. We are used to being asked so many questions because “you’re the science teacher” so let’s use these uncertain times as the opportunity to educate our students and their families. I am certain you have already been doing this, so thank you! Dr. Jones addressed the SD DOE staff on 3/13 beginning with the first line from the Rudyard Kipling poem IF... “If you can keep your head when all about you are losing theirs...” as a way for us to focus on the task at hand and not to escalate situations. I thought of one of my favorite weeks of the school year back when the 8th grade standards were earth science focused... Yellowstone Supervolcano Week! I designed a unit on the topic culminating in watching/studying the docudrama Supervolcano, which is highly accurate and the USGS Yellowstone Volcano Observatory was consulted on the making of it (find the movie on YouTube). I would remain calm during the entire week and reminded my students daily of our classroom motto “Be Professional” so they took the studies seriously. By the end, they were excited that if there was indeed another major eruption in their lifetime while living downwind of the ash fall, they felt they could aid others in understanding what was occurring and how to be safe, in a calm and intellectual manner.

Fortunately, humans have more control during a virus pandemic than a supervolcanic eruption, though the intensity of the hype may feel the same at times. It is our job to encourage others to stay informed with the facts, be prepared, and use our best “teacher skills” when sharing information with those who may need it the most. Just like if you want the most accurate weather forecast, you consult the National Weather Service, and when gathering details on COVID-19, keep these links available for the most current and accurate information from the scientists and officials:

Centers for Disease Control 

South Dakota Department of Health 

Information assisting K-12 science educators with online planning ideas and any news coming from SD DOE regarding instruction, assessments, etc will be shared on the DOE Science listserv. Be sure you are signed up and include colleagues as well using this link <https://www.k12.sd.us/MailingList/DOEScience>

Please let me know how I can assist you while navigating these rough waters...

~Jen
Jennifer.Fowler@state.sd.us

"It is our job to encourage others to stay informed with the facts, be prepared, and use our best 'teacher skills' when sharing information with those who may need it the most."



Join DOE Science Listserv

To join the DOE Science listserv use this link:
<https://www.k12.sd.us/MailingList/DOEScience>

National Youth Science Camp

Henry Heiberger (from Brandon Valley High School) and Harry Heiberger (from Brandon Valley High School) have been selected as delegates to represent South Dakota at the 2020 National Youth Science Camp. Casey Miller (from Mitchell High School) and Lyric Oslund (from Harrisburg High School) have been selected as alternates.

Though the National Youth Science Camp has been cancelled for 2020 due to public health concerns, the National Youth Science Foundation is discussing options for providing recognition and program opportunities for the students who were selected to attend this summer.

In its 57th year, the NYSCamp is a science, technology, engineering, and mathematics (STEM) program hosted in the eastern mountains of West Virginia. Students have an opportunity to conduct research at the nearby Green Bank Observatory and to explore the surrounding Monongahela National Forest through backpacking, mountain biking, caving, rock-climbing, and kayaking.

Support from the National Youth Science Foundation (<http://www.nysf.com>) allows Henry Heiberger and Harry Heiberger to attend the NYSCamp programming opportunities free of charge – transportation included.

For more information about the program, please see <http://www.nyscamp.org>. The application process for the 2021 National Youth Science Camp will open Fall 2020. 

SD STEM Ed Conference

Why is the SD STEM Ed Conference held in Huron?

Every year, someone asks the question, “Why is the SD STEM Ed Conference always in Huron?” There are several reasons including: it is easier; it is cheaper; and Huron is so accommodating. For the past 20+ years, the Huron Chamber of Commerce, the Crossroads Hotel, and now the Huron Events Center have gone out of their way to accommodate the needs of an ever-changing conference.

In previous 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 the Conference Committee. 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 dried up and we struggled to make ends meet and still keep a quality conference. Our liaisons with the Crossroads, especially Brenda and Maria, 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 no exception. About every three years, representatives from Sioux Falls, Aberdeen, Pierre and Rapid City contact 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 several years when we had so many requests for LCD projectors, they also provided all AV equipment, screens and microphones 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 MUST be a factor in our decision-making process.

That is why we stay in Huron. I realize that this may be more information than you really need or want, but I feel 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 the SD STEM Ed Conference such a great event. We, in South Dakota, 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 2021.

Cindy Kroon
Conference Chair



The **Black Hills Raptor Center** received the **2020 Friend of Science Award**.

SDSTA Friend of Science Award

SDSTA awarded the Black Hills Raptor Center with the 2020 Friend of Science Award. This award is presented annually to an individual, group, or organization that works with SDSTA to enhance science literacy, supports SD science teachers, and provides partnership and experiences for SD teachers and students in science.

The mission of the Black Hills Raptor Center is to conserve and protect native birds of prey and their natural habitats through education, rehabilitation, and research. They provide 125-150 educational programs annually using live raptors. They present in classrooms, at youth programs, in the community, and for special events.

The Black Hills Raptor Center is a not-for-profit organization and they are growing! Building is in progress for a new facility to house their education birds. Their long-term goal is to create a facility that can be visited by the public, will provide raptor rehabilitation services in western South Dakota, and will conduct scientific research on birds found in our region.



T
H
A
N
K
Y
O
U



SDSTA President, Mark Iverson, awarded **Michelle Bartels**, with the **2020 Distinguished Service Award**.

SDSTA Distinguished Service Award

This award recognizes the efforts and contributions from a member of SDSTA. This year's distinguished service goes to one of our most active members. Michelle has taken on several roles within the organization. She has presented at our conference for several years and held multiple offices within. She has also held multiple positions working at the state level in writing, evaluating and unpacking standards and worked on state assessments. She is constantly looking for ways to help out and make everyone around her better. Michelle has been an inspiration to educators across the state.

Perfection is not attainable, but if we chase perfection, we can catch **excellence**.

—Vince Lombardi

Presidential Awards for Excellence in Math and Science



Tiffany Kroeger
Montrose



Denise Clemens
Northwestern

Kelly Lane Earth and Space Science Grant



Michael Putnam
Brandon Valley Intermediate School

Julie Olson
Mitchell High School and
Second Chance Alternative School

Spencer Cody
Edmunds Central School District



Daniel Swets Robotics Materials Award



Aminah Hassoun
Oglala Lakota County 4-H
SDSU Extension in Rapid City
(\$4,900)



Luke Erfman
Central Meade County School
in Union Center
(\$1,920)



Ryan Gimbel
Timber Lake School
(\$2,000)

Not pictured:

- **Barbara Duchini** of Little Wound School in Kyle (\$570)
- **Tomi Jean Kusser** of Hanson School District in Alexandria (\$4,920)
- **Janver Stucky** of CORETECH Robotics Club in Freeman, SD (\$560)



**S
D
S
T
E
M**



**E
D
C
O
N
F
E
R
E
N
C
E**



Websites

Earthquake Hazards Program USGS - Significant Earthquakes Archive. Search Earthquake Catalog. The USGS Earthquake Hazards Program is part of the National Earthquake Hazards Reduction Program (NEHRP), established by Congress in 1977, and the USGS Advanced National Seismic System (ANSS) was established by Congress as a NEHRP facility. The USGS and its partners monitor and report earthquakes, assess earthquake impacts and hazards.



I like the real time data and details about each quake. The depth, location, and timing of an event explain the faulting and crustal movement and composition. ~Jen Fowler

PhET - Teachers have access to simulation-specific tips and video primers, resources for teaching with simulations, and activities shared by our teacher community.



It has simulations for tough to "see" concepts and there are pre-made lab write ups. These also work well as make-up labs for when kiddos are out on the day of a lab. ~Sabrina Henriksen

Science News for Students - Founded in 2003, Science News for Students is a free, award-winning online publication dedicated to providing age-appropriate science news to learners, parents and educators. The publication, as well as Science News magazine, are published by the Society for Science & the Public, a nonprofit 501(c)(3) membership organization dedicated to public engagement in scientific research and education. ~Ashley Armstrong



Newsela - Newsela provides current event-style articles that are written at various Lexile levels so that all of your students can access the content. Their science items are well-written and often have leveled quizzes available for students to practice their reading comprehension skills. You can assign articles digitally through several different learning management systems or print them off. Teachers can access a free membership, or purchase a paid membership for various upgrades. ~Alison Bowers



Social Media Sites

*I follow **NASA** on Twitter so I receive timely updates on launches, happenings on the ISS, and discoveries! - Jen Fowler*

*I follow the **SDSci** Facebook page. I can connect with other educators in the state to see what they are doing in their classrooms, hear about upcoming PD opportunities, and share/find interesting articles related to science and science education. ~Lindsay Kortan*

*I love Compound Interest **@compoundchem** on Twitter. I like it because each December they do a Chemistry Advent Calendar and regularly have amazing infographics on chemistry concepts, elements, and compounds. I use the infographics a lot with chemistry students. ~Beata Ferris*

*I follow Josie Bensko (**@maniacsinthemiddle**). Her passion for science and middle school education is clear and she shares great lesson ideas, classroom management strategies, and school-appropriate playlists. **@ChemKate.ck** on Instagram is a high school chemistry teacher who keeps her students thinking and engaged with a wide variety of lesson ideas, practice methods that AREN'T worksheets, and assessment strategies. ~Alison Bowers*

Elementary STEM Resources Vetted by NSTA

Plastic, Plastic Everywhere! - Grades 3-5 - NOAA



This lesson is intended to raise awareness of marine debris and its affect on our environment. Students will identify different types of marine debris and where they are likely to have originated, eventually focusing in on one of the most common types of marine debris— plastic bags.

Students will determine their own family's use of plastic shopping bags, and compare it with that of their classmates. They will calculate an estimate for total class, and possibly, total school usage. Students will then explore ways to reduce their use of plastic shopping bags.

Finally, students will complete independent research projects on plastics to share with their classmates and families. Armed with this information and insights gained from earlier activities, students will hopefully change their behaviors to reduce their impact the environment.



Improving Our Vanilla Bean Pollinators - Grades K-2

Jerri Faber (BetterLesson)

This lesson is part of a series of lessons on using the engineering design process to solve a problem. In the Ice Cream, You Scream We All Scream for Vanilla Ice Cream, the students were challenged to create a vanilla flower pollinator. They defined the problem, researched, got the specs and brainstormed a plan for this challenge. In the second part, Two Scoops Are Better Than One, students worked with a partner to choose, then develop their plan for their vanilla plant pollinator. In Building and Testing Our Vanilla Pollinators, the children built their pollinators according to their plans. They measured their pollinators. Then as a group, they tested their designs to check their effectiveness. The students recorded their data.



Circuits and Electric Lights - Grades 3-5

Students begin this lesson by examining the components of a portable light device- a battery operated flashlight. This initial exploration and the discussion it generates is used to begin a guided exploration of simple circuitry. Students attempt to light a bulb using a battery, a wire, and a light bulb. Students keep a record of each attempt using words and sketches, noting which ones are successful and which are not.



Special Events:

April 4, 2020

It's All About Science Festival - POSTPONED

Elmen Center, Augustana University, Sioux Falls, SD

May 15, 2020

10th Annual Great Plains Rare Disease Summit

Sanford Center, Sioux Falls, SD

July 25, 2020

Family Fest

W.H. Lyon Fairgrounds, Sioux Falls, SD

Summer Camps 2020:

June 15-19, 2020

Finding Your Roots Summer Camp (Middle School)

PROMISE Community Lab

Sanford Center, Sioux Falls, SD

July 13-16, 2020

Inside Out: a fitSTEM Experience (Middle School)

PROMISE Community Lab

Sanford Center, Sioux Falls, SD

Professional Development:

June 23-25, 2020

Expand Your Lab Skills (High School Educators)

PROMISE Community Lab

Sanford Center, Sioux Falls, SD

August 4-5, 2020

Enhance Your Science Instruction (Elementary Educators)

PROMISE Community Lab, Sanford Center, Sioux Falls, SD

Community Lecture Series:

April 7, 2020 | 5:30 p.m.

Arielle Selya, PhD:

Nicotine Use & Addiction Among Adolescents and the Implications of E-Cigarettes

Dakota Room, Sanford Center, Sioux Falls, SD

May 14, 2020 | 5:30 p.m.

Kickoff for the Great Plains Rare Disease Summit

Speaker TBA

Dakota Room, Sanford Center, Sioux Falls, SD

TOTALLY AWESOME SCIENCE



Contact Us

SanfordOutreach@sanfordhealth.org

research.sanfordhealth.org/academic-programs

PROMISE

SANFORD
RESEARCH



Professional Development

Oleander Initiative

Months after the atomic bomb was dropped over Hiroshima, Japan, a small patch of red oleander flowers bloomed out of the irradiated rubble. Since then, red oleander has symbolized both the dangers of nuclear war and the hope of a more peaceful future. In a similar spirit, the Oleander Initiative leverages the “power of place” of the city of Hiroshima – the first city to be devastated by nuclear weapons – to harness the power of education to promote more peaceful societies. The Oleander Initiative gathers educators from communities around the world to work together and transform the lessons of Hiroshima into relevant and impactful peace education activities for their students. The Oleander Initiative generates deep awareness of the catastrophic humanitarian impacts of nuclear weapons and equips participants with intellectual tools for conflict resolution and mutual understanding. From August 3 – August 11, 2020, up to 20 educators from the Middle East, North Africa, Japan and the US will gather together during the 75th anniversary of the atomic bombing of Hiroshima, today a vibrant metropolis known as the City of Peace. During the program, Oleander educators develop lesson plans for their students back home informed by interactions with atomic bomb survivors, schoolteachers from the city of Hiroshima, and from experts on the humanitarian impact of nuclear war to raise consciousness about the catastrophic global impacts of nuclear war and inspire our next generation to work locally to promote peaceful societies.

For educators in need of financial assistance, UME provides scholarships covering some or all program costs including instructor fees, internal travel within Japan, accommodations, meals, and events. Applications due March 29, 2020



SD Discovery Center Summer PD

STEM Research in the Classroom - Connecting Research to Students - June 11-12, 2020

Learn about the cutting edge research happening here in South Dakota and then collaborate with others to create exciting NGSS aligned lesson plans to bring the research to your students. The cost is \$25 dollars for non-member educators and \$15 for members. Educators from school districts with partnerships are free. 1 credit available for an extra fee. Registration opening Feb 22.



Exploring Badlands National Park - A Field Based PD- June 15-18, 2020

Go beyond hands-on to full immersion in this four day/three night field based PD in Badlands National Park. We spend one day in Wall (June 15) learning the protocols and then move to Sage Creek Campground which will be our base for field studies and exploring the park and its resources till Thursday noon.

This year's special theme will be using Google Earth tools to teach with stories told with maps, data, photos and more. We will also use BEETLES, iNaturalist and GLOBE for our field work. This cross curricular PD is designed to give you authentic, interesting experiences to bring to your classroom and equip you to meet standards using educational and fun resources.. All meals from Monday night to Thursday breakfast are provided. A limited amount of REI quality gear (sleeping bag, sleeping pad, tent) is available to rent. The cost is \$50 for South Dakota educators, \$100 for out of state educators. South Dakota Discovery Center members are \$25. Educators from school districts with partnerships (Pierre, Eagle Butte) are free! 2 credits available for an extra fee. For grades 4-12

Teaching about Healthy Soil - June 23-24 - Location TBA

Soil is the unsung hero of the natural world. In this two day professional development opportunity you will learn cross curricular ways for grades K-8 of teaching about what is healthy soil and why it matters to us. Attending teachers will be eligible to apply for a stipend opportunity to pilot the lessons in their classrooms.

Exploring Your Place - A Field Based PD - June 30 - July 1, 2020

Similar to our Badlands PD but shorter and without camping. Spend two days exploring one of the local nature areas near Pierre using iNaturalist, GLOBE, BEETLES and Google geo-education tools to help you meet standards with educational and fun resources. We'll have an optional evening kayaking opportunity. This PD is developed to provide you authentic, interesting lived experiences for you to integrate into your classroom.

The cost is \$25 dollars for non-member educators and \$15 for members. Educators from school districts with partnerships are free. 1 credit available for an extra fee

Professional Development

Implementing Three Dimensional Science Instruction

Sanford
Underground
Research
Facility



This 5-day workshop is designed for any teacher wishing to grow their understanding of the 3-dimensions of science teaching and learning. During this workshop you will: build your capacity to implement three-dimensional science experiences in your classroom, learn strategies to reveal student thinking & promote deep student learning, and discover opportunities to connect your classroom to the science happening at the Sanford Underground Research Facility. Preference will be given to applicants that have not previously attended a SURF 5-day summer workshop. A **\$500**

stipend will be awarded to participants who successfully complete the workshop. During the week, lunch will be provided. If needed, lodging will also be available at Black Hills State University.

Two hours of graduate credit will be offered at a reduced tuition rate through Black Hills State University. June 22--26, 2020 8:00-4:00. Register by March 31, 2020.



Ecology of Mixed Grass Prairie

BIOL 592: Ecology of Mixed Grass Prairie in the Missouri Coteau, 1 credit

- The class is geared toward teachers at all levels and all subject areas.
- Participants will take part in many different field activities useful in the classroom.
- Presentations from natural resource managers, researchers, professors and K-12 teachers.

When: June 5-6, 2020 in conjunction with the South Dakota Grassland Coalitions' Bird Tour

Where: Daybreak Ranch north of Highmore, SD

Cost for credit: \$40

Contact: For class registration information, contact Dr. Kristel Bakker at Kristel.bakker@dsu.edu.

Helium walks into a bar and asks for a drink. The bartender says, "Sorry, we don't serve noble gases here."

Helium doesn't react.



FDA Food Science PD

Foodborne disease outbreaks and food recalls frequent the news. What organisms cause these diseases? What can an individual do to protect themselves from these diseases? What measures are being taken by the federal government to prevent transmission of these diseases?

Teachers have an opportunity to provide inquiry-based lessons related to these outbreaks, recalls, and nutrition. Lessons can be found in the curriculum Science and Our Food Supply developed jointly by FDA and NSTA. And, in order to prepare teachers to use these lessons, FDA provides a free multidimensional professional development program that will take place July 12-18, 2020 in Washington, DC. Included in the program is transportation to and from Washington and all housing and meal expenses. Selected teachers are asked to implement the supplemental curriculum in their classrooms during the 2020 - 2021 school year and to do a hands-on workshop on the curriculum for other teachers.

Register by April 24th.



PROFESSIONAL DEVELOPMENT FOR K-12 SCIENCE TEACHERS

SUMMER 2020

WHAT

South Dakota EPSCoR is offering three-day teacher workshops at six locations around the state. Participants will strengthen their understanding of three-dimensional science teaching and receive support in meeting South Dakota's K-12 Science Standards.

Participants will also learn about science and engineering research underway at universities across our state and learn about newly developed K-12 curriculum modules.

WHO

Teachers of science across South Dakota: Elementary teachers; Middle School Science Teachers; and High School Science Teachers.

DETAILS

Participants will receive a stipend of \$100/day. Graduate credit will be available at discounted tuition. Space is limited in each session, so register early. Additional details and registration at: sdepacor.org/education

FEATURING • Phenomena-based instruction • Facilitation of classroom discourse • Attention to equity and cultural relevance • Access to new curriculum modules



WHERE

Black Hills State University
Spearfish
June 15 – 17

Sinte Gleska University
Mission
June 22 – 24

Sanford Research
Sioux Falls
June 29 – Jul 1

Northern State University
Aberdeen
July 13 – 15

Oglala Lakota College
Kyle
July 15 – 17

University of South Dakota
Vermillion
July 20 – 22

QUESTIONS

Ben Sayler
Black Hills State University
Ben.Sayler@bhsu.edu

Center for the
Advancement of Math and
Science Education
605.642.6873

Professional Development

Japan-US ICT Teacher Exchange

The Japan-U.S. Information and Communication Technology (ICT) Teacher Exchange Program provides the opportunity for U.S. grades 7-12 teachers to participate in a five-day conference in Hawaii in August 2020. For 2020, the theme is "Space and Earth - utilizing ICT in the classroom." During the conference, 15 U.S. teachers along with 15 Japanese teachers will work together in order to 1) gain multiple perspectives on the Japan-U.S. relationship focusing on the shared academic fields of interest between the two countries, 2) develop skills in incorporating ICT into their classroom teaching, and 3) form a group with both the U.S. and Japanese teachers to develop a collaborative project (lesson plan) and implement it upon return to home school.



The program is open to teachers from all disciplines, as long as applicants can demonstrate ability to apply "Space and Earth" to their own subject. Science and math teachers may have numerous examples of relevant applications, but the topic has many examples of cross-disciplinary approaches such as history, geography, food education, life science and more.

Lake & Stream Ecology and Water Quality Workshop

June 1-3 Waubay, SD

A three day workshop is offered for teachers and graduate students interested in earning graduate credit or continuing education units. Workshop activities include field trips to nearby streams, lakes and reservoirs to collect and identify aquatic invertebrates, hands-on use of basic water quality testing equipment; classroom activities that include the lake game, delineating watersheds, building a seechi disk and collecting sieve; and lectures on basic limnology and non-point source pollution identification and prevention. Participants will also take home a voucher collection of aquatic invertebrates collected during the workshop.

This workshop is FREE!! 

Workshop materials, meals, and lodging provided at no cost to participants! Participants wishing to earn graduate credit and/or continuing education units will need to pay the fees for these credits.



Global Education 101

How do you prepare students to be successful in a rapidly changing world? Globally competent students are those who can combine disciplinary content knowledge and ways of thinking that empower them to ask critical questions, analyze multiple perspectives, and solve problems. This means skills in critical thinking, understanding different points of view, working with people from different cultures, and adapting to rapidly changing environments.

Global Education 101 is an introductory course designed to support educators across the country to begin to understand global competence, how to grow as globally competent educators, and learn practical strategies for incorporating it into your classroom. Throughout the course you will hear directly from elementary and secondary teachers from urban and rural areas about global education in their classrooms. This self-paced multi-media course includes readings, videos, interactive group discussions, classroom activities, and quizzes.



Implementing Three Dimensional Science Instruction

June 22-26, 2020
Black Hills State University
Spearfish, SD

This 5-day workshop will build your capacity to develop and facilitate three dimensional science learning opportunities.

- ✓ *Integrating DCIs, SEPs and CCCs*
- ✓ *Three Dimensional Assessment*
- ✓ *Classroom Discourse*
- ✓ *Equitable Instruction*
- ✓ *Anchoring Events*
- ✓ *Something for every K-12 teacher*
- ✓ *Stipends for successful completion*

Explaining
Phenomena

Registration opens March 1st
<http://sanfordlab.org/event/pd2020>

Limited number of seats available.
Applications due by March 31

Designing
Solutions

Engaging
Students

For Further Information or Questions
Contact Julie Dahl at 605.722.6021 or
Julie.Dahl@bhsu.edu



Professional Development

K-8 Earth Science and STEM Teacher Leadership Academy

July 12-17, 2020

ExxonMobil Exploration and the American Geosciences Institute (AGI) are pleased to announce that they will be holding the 12th annual national Teacher Leadership Academy in Earth science and STEM for K-8 teachers on July 12-17, 2020. The program will be held in Houston and begins with a reception and dinner on Sunday, July 12 and concludes at noon on Friday, July 17.

The academy will provide teachers with Earth science content, access to and guides for hands-on activities, ready-to-use slides for professional development workshops, tours of some ExxonMobil facilities, hands-on activities, educational resources, and real-world science experiences that they can use with their students in the classroom and with their colleagues in professional development settings.

Academy-related travel, lodging, and subsistence costs will be reimbursable through a grant from ExxonMobil. We have space for up to 30 participants. While individual applicants will be considered, we encourage teams of two to four from across grade levels or science subject matter areas to apply from each state or school district, though individuals are also welcomed to apply.

The focus of the academy is first and foremost to prepare professionals to serve as Earth science and STEM education mentors/leaders among their colleagues. Therefore, we are looking for teachers who have the potential to become Earth science professional development providers and leaders in their home school systems. The applicant review process will start April 1, 2020 and continue until the academy is full. School administrators are encouraged to recommend teachers early.



HOW TO APPLY

School administrators can nominate one teacher or teams of two to four teachers by emailing nominee names and email addresses to

tla@americangeosciences.org using the subject line "**K-8 Teacher Leadership Academy Nominee(s)**"

Nominated teachers will be provided a URL link. The link will allow each teacher to complete an online application and upload the three required documents:

- **Current CV or Resume** that includes your contact information, teaching experiences, professional development training (received or lead).
- **A Letter of Recommendation** from a principal or other school administrator that includes support of post-academy workshops lead by teacher(s).
- **A Letter of Interest** explaining why you would like to attend the academy and the benefits you believe it will provide to you and the colleagues to whom you present in the next academic year.

Education is not the the filling of a pail - it is the lighting of a fire.

William Butler Yates

Resources

Talk Moves

From Julie Dahl

Sanford Lab Education and Outreach

Talk Moves are designed to create a classroom culture where students are regularly expected to speak, listen, and respond to one another. Just as their name implies, *Talk Moves* are different ways to *move* the academic conversation in order to keep it going. It gives students various ways to enter the conversation, deepen the discussion, and/or transition the thinking.

[Talk Moves Checklist](#)-try them all!

Wondering how to plan for more student talk in your classroom? This [flowchart](#) can help you think about different talk activities to try out for different pedagogical goals.



Compound Interest

Infographics created by Andy Brunning over a wide variety of topics including hand sanitizers, food dyes, functional groups, cannibinol, etc.

The graphics are shared under a Creative Commons-Attribution-NonCommercial-NoDerivatives licence. This means they can be freely shared as long as a few conditions are met.

Firstly, they must remain unaltered – this includes the cropping off of watermarks/credit on the graphics, or cropping out other parts of the graphic.

Secondly, they cannot be used for commercial purposes without prior permission.

Finally, attribution to Compound Interest must be given clearly when re-sharing the graphics, and the attribution should also include a link back to the post containing the graphic.



NSTA Position Paper on STEM Education

As the leading organization for science teaching and learning, NSTA asserts that educators, administrators, parents, and all stakeholders should consider the following recommendations as they develop and refine STEM education programs.

1. STEM education programs should be grounded in the tenets of constructivism supported by the findings of three decades of cognitive science.
2. High-quality K–12 STEM education is an essential, relevant, and continual endeavor for all students.
3. Schools and districts should recognize that STEM education begins as early as preschool and provide accessible educational experiences that span the preK–16 spectrum. This includes embracing new approaches to STEM teaching, creating new definitions of learning success, and considering new ideas about the physical structure of the educational environment so that it is more inclusive and conducive to exploration, discovery, and design iteration.

Go here  for more information.



Students Receive Training That Help Could Save a Life

Ashley Armstrong

Stop the Bleed training is a free course that gives students the necessary skills to help save the life of someone in need. According to stopthebleed.org, “The number 1 cause of preventable death after injury is bleeding.” Injuries can happen anywhere and knowing that the belt around your waist or the shirt off your back may be used to save someone in need, is an important lesson for student. Accidents can happen anywhere and knowing these skills could be a direct benefit to those who are busy in activities, learning to drive, working around the farm, and more.

Stop the Bleed began after the shootings at Sandy Hook Elementary School in Newtown, CT. After review of the medical records of victims, “results showed that the victims died from severe bleeding. Severe bleeding, that if controlled, could have probably kept them from going into shock until emergency help arrived on the scene” (stopthebleed.org/our-story). Upon these results, the U.S. Department of Defense initiated the *Stop the Bleed* program. The story of where this all began hits home with students and they realize knowing these skills could save someone they love.



In the course, students learn to recognize the signs of life-threatening bleeding emergencies and how initiating a response team and acting quickly can save a victim's life. Students are taught the importance of and skills behind these four actions: calling 911; applying pressure on the wound with hands; packing the wound and pressing; and applying a tourniquet (stopthebleed.org). The familiarity of knowing and having practiced these skills helps lessen the panic that can accompany emergency situations.

The only requirement for taking this course is being old enough to understand the concepts being taught and the interest of learning how to save someone's life. Once the course is complete, students are then approved instructors for teaching others. This is both empowering for students and a great help to the community. Students may then take the lessons and skills they learned to their family, community groups, and more. Equipment can be borrowed from local first responder agencies as well as medical and emergency facilities. The website also sells *Stop the Bleed* kits, which may be placed around schools, in churches, in community buildings, etc.



References

- Get Trained: Stop The Bleed. Retrieved from <https://www.stopthebleed.org/training>.
Our Story: Stop The Bleed. Retrieved from <https://www.stopthebleed.org/our-story>
Stop The Bleed. Retrieved from <https://www.stopthebleed.org/>

Resources

GE Additive Education Grant

GE Additive has made a significant financial commitment over five years to invest in educational programs to deliver polymer 3D printers to primary and secondary schools. To date, the program has donated over 1,400 polymer 3D printers, to 1,000 schools in 30 countries, providing access to technology and curriculum to more than 500,000 students.

Enabling educational institutions to provide access to 3D printers will help develop the ecosystem and accelerate the adoption of additive manufacturing worldwide. Packages awarded include a Polar Cloud premium account, a Polar Cloud enabled 3D printer from Dremel, Flashforge or Monoprice, rolls of filament, and a range of learning and software resources from Autodesk. Use the link to register your school/district by March 31st.



GE Additive



HHMI BioInteractive

Good science begins with good questions. This newsletter features new resources that get students to engage with scientific questions and examine evidence addressing these questions. Be sure to check out our new interactive case study that asks students to propose strategies for collecting evidence linking a genetic disease with particular mutations; two new Educator Voices videos that ask students to think like a scientist about topics in ecology and evolution; and a new Phenomenal Image resource that has students ponder, "Why are there so many wildebeests?"

New resources include:

- Retinitis pigmentosa investigations and treatments
- using dog genomics resources to study species richness and diversity
- "[Science News](#)" feature, including articles on climate change and infectious disease, from news outlets such as the Associated Press and The Atlantic.



Periodic Table of Candy!

Wards Scientific Activity

Which of these things doesn't belong: Skittles, gummy bears, jelly beans, gum drops, and the periodic table of elements? That's a trick question at Ward's World, because in this lesson plan they all go together.

This simple 15-minute activity for middle- and high-schoolers asks students to organize candies according to different properties. As they do, they'll face some of the same challenges that Dmitri Mendeleev, the Father of the Periodic Table, faced when trying to organize the chemical elements over 150 years ago.



Canadian Wildlife Federation - Below Zero Materials

Where do dragonflies go when the snow flies? What keeps wood frogs from croaking in winter? How do polar bears find cold comfort in Arctic climes? Most Canadians live with snow and ice for at least five months of the year, yet we know surprisingly little about life in frozen environments. Put on your long-johns and join us on an amazing sub-zero safari into the winter world of wildlife.

Below Zero is an educational program designed to promote understanding of wildlife under winter conditions. Developed by CWF and launched in 2003, it features 46 complete lesson plans that can each be adapted for any age, grade or subject.



IT'S ALL ABOUT Science

2020 FESTIVAL

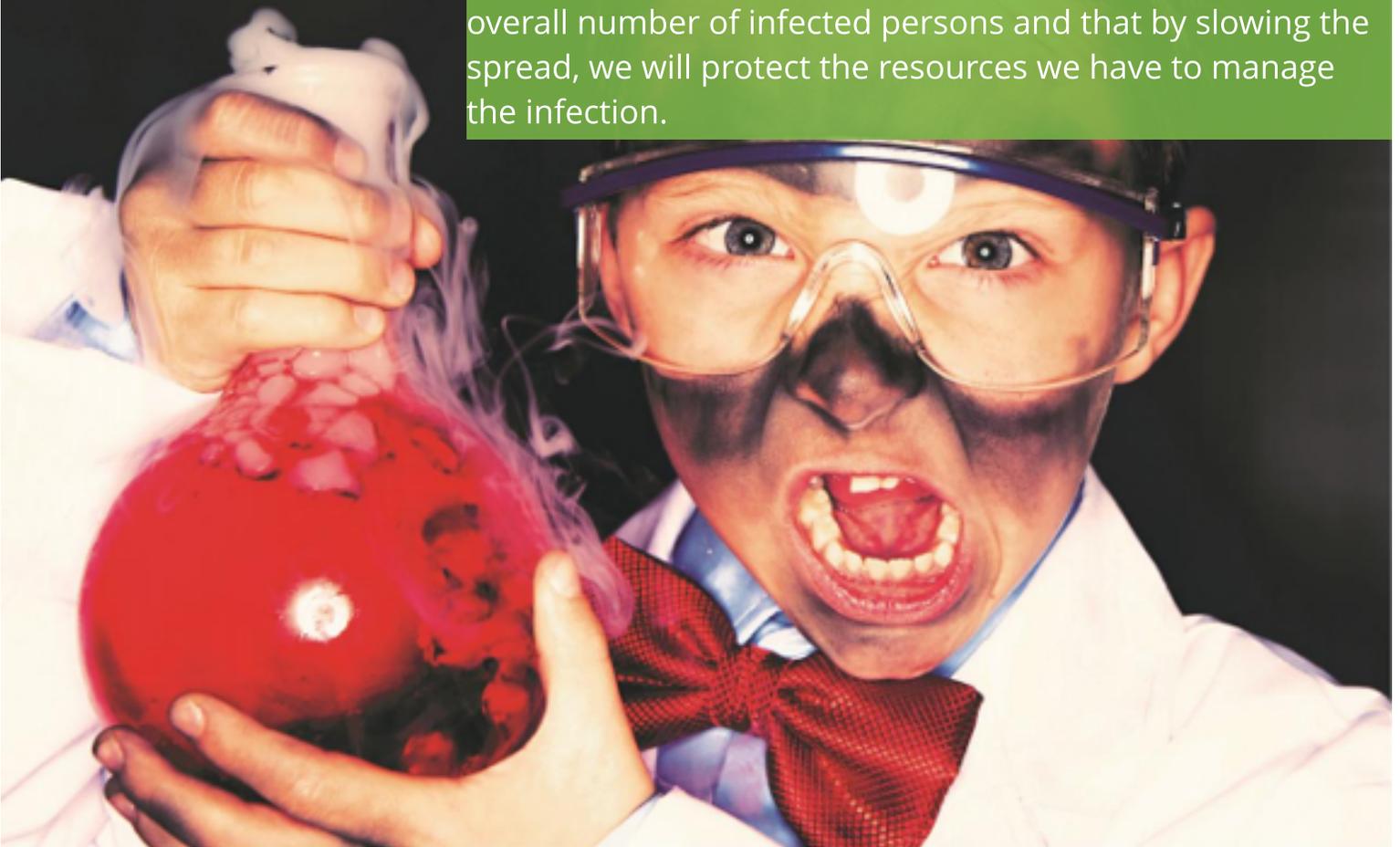
SANFORD
HEALTH

Go mad for science.

April 4, 2020

POSTPONED:

We know you were looking forward to this event and thank you for your understanding that for the health and well-being of our community we need to reschedule our event. The lessons that we're learning from the countries where COVID-19 first spread, are that social distancing and responsible event management are key to reducing the overall number of infected persons and that by slowing the spread, we will protect the resources we have to manage the infection.



Student Opportunities

Attention girls, teachers, scout leaders, parents, etc:



Women in Science 2020 Conference

Postponed **Save the Date**

Tue 2020 | Open to all Girls in Middle and High School
March 31 | Ramkota, 920 W. Sioux Avenue, Pierre, SD

Discover Opportunities Beyond School in Science, Technology, Engineering, and Math (STEM)
Fun, Hands-on Sessions, Opportunities to Meet and Talk with University, Technical Institutions, and other STEM Professionals, Keynote Speaker.

Registration opens February 17, 2020
Register online @ www.sd-discovery.org

Sponsored in part by:

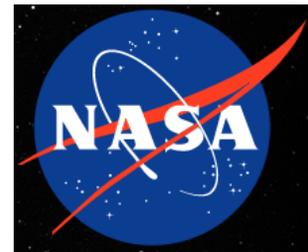


How To Be an Astronaut

Do you wonder what you should do to become a NASA astronaut? Do you wonder what classes to take or which degree is best? Learn from those who know the answers because they have accomplished their dream of becoming a NASA astronaut. Read articles and watch videos to help you prepare if becoming an astronaut is your dream job.

How to #BeAnAstronaut?

- **U.S. Citizen**
- **Master's degree in STEM field**
- **Two years related professional experience**
- **Pass NASA astronaut physical**



USD Healthcare Careers Summer Camp

The Healthcare Careers Summer Camp is for high school students interested in exploring health care professions. The program is open to students who will be juniors and seniors in high school in fall 2020.

At camp, you will:

- Meet health care professionals and other students interested in health care
- Get hands-on experience and see medical demonstrations
- Tour nearby medical facilities
- Get a taste of college life by living on USD's campus

Dates: June 14-19, 2020

Location: Lee Medical Building in Vermillion

Cost: Tuition is \$100 per student. A limited amount of financial aid is awarded on a need basis. Tuition includes meals, lodging and all educational and recreational activities.



Online Teaching

Objective Responsibility Expectation Organization

Asynchronous learning



Teachers create learning experiences for students to work at their own pace and take time to absorb content



Synchronous learning



Teachers and students meet online in real time through videoconferencing or live chatting

Do This



Less is more



Assignments likely take twice as long to complete at home because of different factors; prioritize and be realistic

Give explicit instructions



Outline deliberate instructions and specify the length of time to complete the session of learning

Specify expectations



Specify task requirements and length clearly (e.g. 2 minute audio recording with a bulleted checklist)

Not That



Being unrealistic



Assign "class work" and "homework" every day and request students to complete according to short timelines

Being unclear and vague



Communicate in lengthy paragraphs with instructions that may be difficult to follow or tasks that are overly vague

Being too open-ended



Assign tasks that are too open ended (e.g. make a video about the moon; write an essay about pollution)

Virtual Learning - Do This Not That Continued



Be empathetic

Assign a reasonable workload; encourage students to balance online with offline and connect with one another



Communicate consistently

All instructions and assignments **must** be communicated via ManageBac, our online hub



Be online for 'office hours'

Be online during office hours to provide support, answer questions, or clarify confusion via a *system*.



Seek student feedback

Seek student feedback about their workload, emotional state, learning preferences, and learning pace



Boost learning retention

Curate multimedia materials to boost learning retention and use digital tools to create interactive lessons



Identify lesson objectives

Be intentional and identify clear learning objectives and assessment outcomes (formative and summative)



Be overly task-oriented

Assign online classwork followed by extra homework without a clear focus on student wellbeing



Mixed communication

Use multiple platforms inconsistently (e.g. email followed by Google Classroom w/ MB submission)



Stand by at all times

Respond to every email right away and leave no break for yourself (unless it's urgent, it can wait until office hours)



Use the same approach

Teach in a way that does not give students voice and/or choice, leaving them feeling overwhelmed



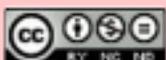
Try new & unused tools

Trying new tools that you've never used may lead to technological difficulties and increase challenge



Give random activities

Keep students busy doing online activities and do not think about the lesson objectives and assessments



Alison Yang

Online Teaching: Do This, Not That by Alison Yang is licensed under a [Creative Commons Attribution-NonCommercial 4.0 International License](https://creativecommons.org/licenses/by-nc/4.0/). In short, you can share the work, but you must attribute the work. The work is no derivative and not for commercial purposes.

Virtual Learning Resources

NSTA Interactive eBooks+

NSTA is here to help you stay informed and on-track with free access to our Interactive eBooks+ during school closures.

Interactive eBooks+ provide learning experiences that are both engaging and inspiring. Animations, simulations, and videos bring content to life, while pop-up review questions and special notes help underscore the most crucial points of knowledge.

OpenSciEd - Launched to improve the supply of and address demand for high-quality, open-source, full-course science instructional materials, while at the same time supporting the implementation of middle school science instructional units.

Edpuzzle - Introduce students to self-paced learning with interactive video lessons. It's easy to add your own voice narration and questions! Use videos from YouTube, Khan Academy, Crash Course and more. If you'd rather record and upload your own video, go for it!

South Dakota Public Broadcasting -

Explore natural phenomena and scientific practices with videos, lesson plans, and interactive tools.

PhET Interactive Simulations - Free interactive math and science simulations. PhET sims are based on extensive education research and engage students through an intuitive, game-like environment where students learn through exploration and discovery.

South Dakota Discovery Center -

Be an Explorer Science Blasts on FB Live. Join at 10 AM CT!



AACT Connect - Chemistry Resources

These resources include activities, animations, projects, simulations, videos and more for elementary school, middle school, high school, and Advanced Placement/general chemistry.



Newsela - You don't have to choose between engaging content and delivering standards-aligned instruction. Every teacher should have accessible, standards-aligned content that excites at their fingertips so they can focus on what matters - inspiring a love of learning for life.



Schoology - Schoology brings together the best K-12 learning management system with assessment management to improve student performance, foster collaboration, and personalize learning.



ABC Mouse - : ABCmouse for Teachers and ABCmouse for Schools are always free for all schools and teachers in the U.S.



Brain Pop - BrainPop offers in-depth learning on topics across the curriculum for upper elementary and middle school students. Each topic includes videos, quizzes, related reading, and even coding activities. Teachers have access to planning and tracking resources too. They also offer BrainPop Jr., specially designed for younger kids.



Elementari - Turn writing assignments into something amazing with the illustrations, animations, and sound effects available. Kids can even write their own choose-your-own-adventure story!





 **NASA EXPRESS**
your STEM connection

 **SUBSCRIBE**
Get NASA EXPRESS in Your Inbox

<https://blogs.nasa.gov/educationexpress/>



What's new?



Watch the video of Alexander Mather, a 13-year-old student from Virginia who submitted the winning name, explain why he chose Perseverance as the name of NASA's next robotic scientist to visit the Red Planet.

NASA's Next Mars Rover Has a New Name: Perseverance

Alexander Mather, a 13-year-old student from Virginia, submitted the winning name.

The name was announced Thursday, March 5th, by Thomas Zurbuchen, associate administrator of the Science Mission Directorate, during a celebration at Lake Braddock Secondary School in Burke, Virginia. Zurbuchen was at the school to congratulate seventh grader Alexander Mather, who submitted the winning entry to the agency's "Name the Rover" essay contest, which received 28,000 entries from K-12 students from every U.S. state and territory.

"Alex's entry captured the spirit of exploration," said Zurbuchen. "Like every exploration mission before, our rover is going to face challenges, and it's going to make amazing discoveries. It's already surmounted many obstacles to get us to the point where we are today – processing for launch. Alex and his classmates are the Artemis Generation, and they're going to be taking the next steps into space that lead to Mars. That inspiring work will always require perseverance. We can't wait to see that nameplate on Mars."

Perseverance is the latest in a long line of Red Planet rovers to be named by school-age children, from Sojourner in 1997 to the Spirit and Opportunity rovers, which landed on Mars in 2004, to Curiosity, which has been exploring Mars since 2012. In each case, the name was selected following a nationwide contest.

The contest that resulted in Alex's winning entry of Perseverance began Aug. 28, 2019. Nearly 4,700 volunteer judges – educators, professionals and space enthusiasts from around the country – reviewed submissions to help narrow the pool down to **155 semifinalists**. Once that group was whittled down to **nine finalists**, the public had five days to weigh in on their favorites, logging more than 770,000 votes online, with the results submitted to NASA for consideration. The nine finalists also talked with a panel of experts, including **Lori Glaze**, director of NASA's Planetary Science Division; NASA astronaut **Jessica Watkins**; rover driver **Nick Wiltzie** at NASA's Jet Propulsion Laboratory (JPL) in Pasadena, California; and **Clara Ma**, who, as a sixth grade student in 2009, named Curiosity. **Finish the story...**

The NASA EXPRESS message features updates from NASA and STEM associates about workshops, internships, and fellowships; applications for grants or collaborations; promotions for student and educator opportunities; online professional development; and other announcements.

I saw a 1 star review for Mars on Tripadvisor. They said it lacked atmosphere.

Officers

President:

Michelle Bartels

Michelle.Bartels@k12.sd.us

Past-President:

Mark Iverson

Mark.A.Iverson@k12.sd.us

President-Elect:

Ashley Armstrong

Ashley.Armstrong@k12.sd.us

Secretary:

Tiffany Kroeger

Tiffany.Kroeger@k12.sd.us

Treasurer:

James Stearns

James.Stearns@k12.sd.us

Newsletter Editor:

Julie Olson

Julie.Olson@k12.sd.us

Assistant to the Editor:

Michelle Bartels

Michelle.Bartels@k12.sd.us

Science Liasons:

Jennifer Fowler (DOE)

Jennifer.Fowler@state.sd.us

Larry Browning (SDSU)

Larry.Browning@sdstate.edu

Jeff Peterson

Jeff.Peterson@k12.sd.us

Alison Bowers

Alison.Bowers@k12.sd.us

Sabrina Henriksen

Sabrina.Henriksen@k12.sd.us

Lindsay Kortan

LKortan@ysd.k12.sd.us

PAEMST Contact:

Jennifer Fowler

Jennifer.Fowler@state.sd.us

UPCOMING EVENTS

April 4

Postponed

It's All About Science Festival

Sioux Falls, SD

April 22

Earth Day

April 25

DNA Day

July 11

Neutrino Day

Lead, SD

February 4-6, 2021

SD STEM Ed Conference

Huron, SD



The SDSTA Newsletter is published four times a year and is e-mailed to 96 paid members. The membership year in SDSTA starts with the February conference and ends the thirty-first of January. 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 paid conference registration may be given 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% finder's fee for any science related ads placed in the newsletter. Our rates are \$50 per page (or 3 to 4 quarter pages).



Become a Member!

\$5 Student, K-6, Retired **\$20** All Others

Mail to:

James Stearns, SDSTA Treasurer

15 North Fifth Street

Groton, SD 57445-2024

Name _____ Home Phone _____

Home Address _____ E-mail _____

City _____ State _____ Zip _____

Your School _____ School Phone _____

School Address _____

Your area (circle one) K-6 7-8 9-12 College Other _____

Referred by _____