

SDSTA

South Dakota Science Teaching Association

Spring Issue | Date: April 7, 2021

Dear Members,

I've always thought that everything happens for a reason. It's hard sometimes to think that way, especially with the year we have had, but look for the positive in everything. Without the pandemic, we probably would not have had the awesome, first time ever, virtual science day. I know it wasn't the same as seeing everyone in person but we sure had awesome speakers and sessions! Thank you so much Jen Fowler, Julie Olson, and Ashley Armstrong for coming up with the idea of having the virtual conference and then making it happen!

I would like the virtual conference to become an annual occurrence. From the feedback we received, I think you would like that too. We won't have it on the same date because we have our STEM Ed. conference at that time, but we will get a date figured out.

During our virtual conference, Paul Andersen showed us how to break down the cross cutting concepts into mini lessons, Steph Arne taught us about the conservation efforts to save penguins, and Sarah McAnulty explained how we can get scientists into our classrooms virtually. I could listen to each of them again and again because they each had an abundance of interesting and useful information to share.

On the subject of speakers, who would you like to see in person or virtually? We are always looking for ideas for our STEM Ed. Conference and now we

need ideas for our virtual conference too. Please fill out this **survey** to let us know.

It's exciting to see that quite a few professional development opportunities are being held this summer, not only virtually, but in person as well. Make sure you take a look at the PD starting on page ten. Some of the deadlines to register are coming up soon. (You would have had a little more time if someone would have gotten her butt in gear and wrote this letter! Thank you all for being so very patient!!)

If you would like to submit something to be included in the June newsletter, please email the information to Julie.Olson@k12.sd.us and/or michelle.bartels@k12.sd.us by June 12th. 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.)

Continue being resilient in our fight to educate by 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

"As the seasons are changing, find some places to explore and notice what is emerging and arriving."



Join DOE Science Listserv

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

Hello Science Friends!

Welcome, Vernal Equinox!

There is a specific time in my career I correlate with the word vernal. Years ago, I was teaching middle school science in Idaho, and one summer, I worked for the Bureau of Land Management as a fisheries technician and often assisted the hydrology team. We spent time in the Little Lost River Valley documenting the status of vernal ponds we located on maps as dashed circles. These areas are intermittent, just like the ones we find here in South Dakota from snowmelt and spring rains. Imagine all the flora and fauna that rely on these water bodies, especially the amphibians that lay their eggs in the shallow waters. The species of plants that grow due to the temporary water spots are often unique to those low-lying areas. As the seasons are changing, find some places to explore and notice what is emerging and arriving. There are so many physical, life, and earth science connections to make in these dynamic locations. Maybe even find a summer job to be outside and make some connections to apply to your classroom!

Take care and embrace the natural changes around you!

~Jen



SD DOE Summer PD Opportunities

Details coming soon on the DOE Science Listserv!

Ambitious Science Teaching

Get ready for eight weeks of designated time to think about how to engage all your students and have quality science practices as an outcome. The book, *Ambitious Science Teaching* addresses intellectual engagement and attention to equity. The four core aspects of the **Ambitious Science Teaching Framework** are foundational for this online course.

This course is designed for K-12 science educators interested in planning student engagement with big ideas, eliciting students' ideas, supporting ongoing changes in students' thinking, and drawing together evidence-based explanations. Join us to spend quality time through your collaborative learning, reflection, discussion, and planning implementation of learned information in your classroom.

Summer of Science Series

The Interstate Science Collaborative (ID, WY, SD, NE, KS, & MO) brings you 12 two-hour virtual sessions in June and July. Join one, join all! The session topics resulted from the professional development surveys that you submitted. Significant time each session will be dedicated to collaborating with grade-level colleagues. The audience is anyone working with the K-12 science standards, mainly teachers, and also inviting administrators.

Topics include phenomena, standards 101, planning three-dimensional lessons and units, designing meaningful formative assessments, and many more!

Science Teacher Google Doc

[This Science Teacher Conversations Google Doc](#) is **an awesome place** to pose a question and maintain documentation of the responses. Please consider following the directions on it when you have a question for the listserv. There are several conversations started and it is nice to see all the responses and the ability to revisit them as needed.



SDSTA Distinguished Service Award

Jennifer Fowler (left) was awarded with the **2021 Distinguished Service Award**.

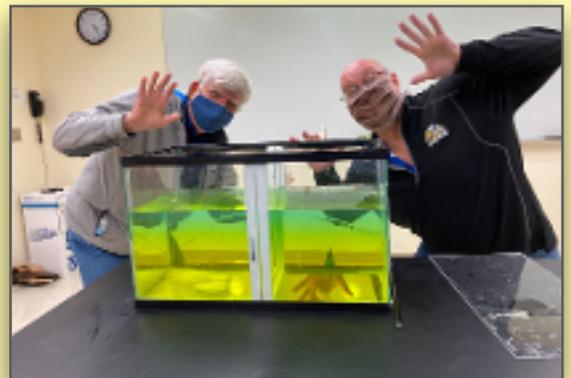
This award recognizes the efforts and contributions from a member of SDSTA. Jen has been active in the South Dakota Science Teaching Association by taking on several roles which include PAEMST Contact, President Elect, Science Liaison, and hospitality coordinator. The first ever SDSTA Virtual Science Day would not have taken place without her many hours of work to make it happen. Jen is extremely involved in science teaching. She is constantly looking for ways to help out and make everyone around her better. Jen has a passion for science, science teaching, and for the learning of every student. She is continuously looking for ways to help teachers so that they can help their students. Jen teaches classes for science teachers with a focus on three dimensional teaching. She is an inspiration to educators across the state.

SDSTA Friend of Science Award

SDSTA awarded **Larry Browning** and **Matt Miller** with the 2021 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.

Larry and Matt have taught professional development for many years and have presented in classrooms around the state. Matt has been a part of the state science standards revision work group and Larry is part of the SD DOE Science Advisory Council. Larry and Matt are fun, intriguing, intelligent, creative, encourage WONDER, and make science something we can do, and want to do! Arriving early at their conference sessions is a must because the room overflows with people fast since their presentations are not just a power point and handouts. They bring lots of boxes full of supplies to help with their presentations which are full of hands on activities that we can do with our classrooms now. Their dedication to science methods instruction for pre-service teachers is amazing. Thanks also to SDSU for allowing them to have the flexibility in their schedules to provide opportunities for teachers and their students! We love their science with a smile and their humor! **Thank you Matt and Larry for all of the unforgettable experiences you have given to all of us.**

Dr. Larry Browning and Dr. Matt Miller received the **2021 Friend of Science Award**.



Filled with surprise, Larry and Matt look over an experiment where salt water (blue) is denser than fresh water (yellow).



Making sure to social distance at the required six feet.



3D Science Lessons for the Elementary Classroom
 Ashley Armstrong SDSTA President-Elect and Lindsay Kortan Liason



Larry and Matt – DAH!
 Larry Browning and Matt Miller (SDSU)



A day in the life of a Sanford Scientist!
 Julie Dahl SURF



Hands-on inquiry Science At Home
 Chad Ronish STEAM Guru



Dr. Sarah McAnulty

SKYPE A SCIENTIST

WANT TO TALK TO A SCIENTIST? YOU'VE COME TO THE RIGHT PLACE.



Paul Andersen

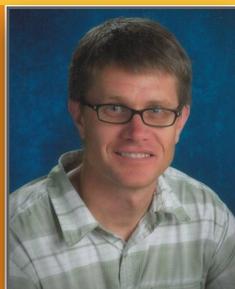


After our Virtual Science Conference in February I checked out Paul Anderson's website <https://thewonderofscience.com/>. This website has printable cards for lesson planning as well as graphic organizers for the Science and Engineering Practices and Cross Cutting Concepts. Paul has phenomenon, mini lessons and assessments for a variety of grade levels and subjects. All of his resources are free and are able to be downloaded/printed in a variety of platforms. I was highly impressed by his sharing at the virtual conference and by his thoughtfulness in his website. I have bookmarked this site for planning and use.

Stephanie Arne

Resources:

- [Stephanie Arne's Website](#)
- [Save the Penguins Website](#)
- [Mark Iverson's Project Info](#)
- [STEM Teaching Kit](#)

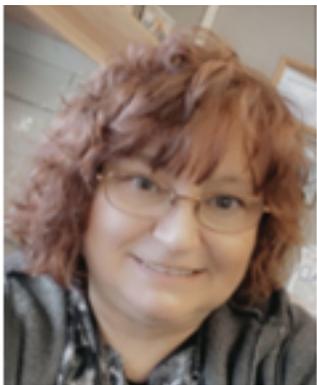


Submitted by
Sabrina Henrikson-liaison

SD Space Grant Consortium Awards



Lynne Jones & Brett Cooper



LaNessa Hof



David Souhrada



Spencer Cody

Kelly Lane Earth and Space Science Grant

Congratulations to Jennifer Ekstrum, Kimball Middle School; Brenda Mizenko, St. Elizabeth Seton Elementary School (Rapid City); and Chad Ronish, Hill City High School! They have been awarded \$5,000 Kelly Lane Earth and Space Science grants, provided by the NASA South Dakota Space Grant Consortium. The purpose of these grants is to improve STEM education in the state through the support of innovative programs in pre-college education. Preference is given to applications focusing on topics pertaining to space science, earth science, and/or the use of geospatial technology.

Daniel Swets Robotics Materials Award

Congratulations to Lynne Jones and Brett Cooper, Washington Pavilion Action Arts and Science Program (Sioux Falls); LaNessa Hof, St. Mary's School (Dell Rapids); David Souhrada, Wakpala Middle School; and Spencer Cody, Edmunds Central Middle and High School (Roscoe)! They have received Daniel Swets Robotics Materials Awards. This funding is open to South Dakota educators who either have: A) taken robotics training or plan to take robotics training and want to begin new robotics programs and teams, or B) have sustained robotics programs/curriculum in their classrooms or at their schools that are in need of additional support due to growth in the number of student participants or aging robotics materials.



Jennifer Ekstrum



Brenda Mizenko



Chad Ronish

2021 Grosvenor Teacher Fellows

Congratulations!



**National Geographic Society and
Lindblad Expeditions announce the
14th Annual Cohort of Grosvenor Fellows**



These exemplary educators complete a series of deliverables that enable them to transfer their onboard experience into new ways to teach students and engage colleagues. Through this opportunity, Grosvenor Teacher Fellows bring new geographic awareness into their learning. Fifty exemplary educators were selected to receive a Grosvenor Teacher Fellowship, a field-based professional development opportunity made possible by a partnership between National Geographic and Lindblad Expeditions. The Fellows were selected from a competitive applicant pool of pre-K–12 educators from all 50 U.S. states, the District of Columbia, Puerto Rico, Canada, and Department of Defense Education Activity schools for this life-changing professional development opportunity. The formal and informal educators in this group were chosen for their impactful work to further students' understanding of the planet and its people, empowering them to generate solutions for a healthier and more sustainable future.

Travel is still on hold, but once conditions allow, each Fellow will embark on a one- to three-week voyage aboard a Lindblad Expeditions ship, a fleet that includes National Geographic Explorer, National Geographic Endeavour II, National Geographic Orion, or National Geographic Quest. Fellows will travel in small groups to some of the world's most remote and extraordinary environments—such as the high Arctic, southeast Alaska, Central America, Antarctica, or the Galápagos Islands. Throughout their journey, they will encounter wildlife and explore breathtaking landscapes while accompanied by a team of Lindblad Expeditions naturalists, including marine biologists, geologists, historians, undersea specialists and National Geographic photographers. Each will return home with an experience they will translate into reimagined curricula that inspire their students, colleagues and communities to care more deeply about the planet and take action on global issues.

The Grosvenor Teacher Fellowship (GTF) is a professional development opportunity for pre-K–12 educators made possible by a partnership between Lindblad Expeditions and the National Geographic Society. An annual competitive application process is used to select educators and host them aboard Lindblad Expeditions' voyages for a life-changing, field-based experience. [Read more about the Grosvenor Fellowship.](#)

Officer Submissions

Coffee Science

From the American Chemical Society:

With all the coffee options available, and more and more teens drinking the caffeinated beverage to help them perk up, we delve into what makes cold brew coffee different from its iced counterpart.

Is Cold Brew Different from Iced Coffee? -

Teacher's Guide and Puzzle



Black Coffee: The Irresistible Bean

(three-part video series about coffee from PBS) on YouTube

Espresso, Café Latte, Cappuccino...A Complex Brew (teachers guide)



Lab packet:

PBS The History of Coffee -



Submitted by Julie Olson

Fiber Forensics

From the Museum of Science and Industry Chicago

Fibers, strands of thread that make up yarn, are all around us. Fibers make up thousands of products, including clothing, upholstery, carpet, rope and building components. As you interact with these products loose fibers become attached to your body and clothes. When you enter a room, you pick up some of the fibers present in the room. Therefore, the fiber evidence you are carrying can often provide information about where people have been.



The History of Daylight Saving Time - Ashley Armstrong SDSTA President-Elect

Do you feel like you're in the 7th inning stretch of the most difficult year of teaching? To complicate the issue, we recently lost an hour of sleep and had our schedules changed due to daylight saving time. Here are some fun facts that you may not have known.

1. It's not plural! The correct grammar is "daylight saving time."
2. The practice started as a goal to change sleep schedules, not time itself. I know some teachers who follow this - "early to bed and early to rise."
3. The first country to implement daylight saving time was Germany, in 1916.
4. Farmers were the first to oppose daylight saving time as it was disruptive to their schedule of operations.
5. After the daylight saving time repeal in 1919, cities made the decision to change or not change their clocks. This left some states *in the dark!* It wasn't until 1966 when the time change became uniform.
6. Arizona and Hawaii are the only US states that do not participate in daylight saving time.
7. Retailers (not for the purpose of energy conservation) are the biggest advocates for daylight saving time because of the extended daylight shopping hours.



Reference:



Officer Submissions

The Dangers of DHMO - Lindsay Kortan, SDSTA Liaison



“DHMO is a constituent of many known toxic substances, diseases and disease-causing agents, environmental hazards and can even be lethal to humans.” The DHMO.org website includes this excerpt as well as a list of the potential dangers of dihydrogen monoxide: DHMO is a main component of acid rain, reduces automobile brake effectiveness, is lethal by inhalation, burns in its gaseous state, contributes to deadly hurricanes, short circuits electrical systems, and many more. Once students have a chance to investigate the information provided by this website, I tell them that DHMO is found in the cafeteria food and even the drinking fountains at school and ask them to sign a petition to ban the use of dihydrogen monoxide at school. We then discuss how to name and write formulas and students learn that dihydrogen monoxide (DHMO) is written as H₂O. We then revisit the website and determine that all of the information was true about water. This always leads to a good discussion of how important it is to be critical consumers of information, especially on the internet and social media, because even factual information can be construed to mislead you. We then use this time to discuss the importance of being informed citizens and that all knowledge is beneficial because you never know when you’ll find out the answer to the “When am I ever going to use this?” question.

Does g depend on mass? - (a Phyphox activity)

By Kaylan Untiedt and Larry Browning

I recently got a request for help from a student teacher, Kaylan Untiedt, on how to help students understand acceleration and motion. I pointed Kaylan to some of the Phyphox activities. One of them was the study of the acceleration of gravity “g” using the acoustic stopwatch in Phyphox. How it works is you put a marble, pebble, or steel ball in a balloon, hold it at different heights above the ground, pop the balloon and wait for the pebble to hit the ground. Phyphox uses the microphone in a smart phone to start and stop a timer – start when the balloon pops and stop when the pebble hits. This gives an accurate measure of the time of fall. You can then plot the time of fall on the x-axis and the height on the y-axis and compare it to $d = 4.9t^2$. This is a great activity for a large class and can get everyone involved for the cost of a few balloons.

Kaylan modified the procedure by using different masses and keeping the height the same. This allowed her to show that the mass doesn’t matter. Here is her message:

I thought you should know that my seniors really enjoyed the balloon activity with the acoustic stopwatch. I gave them 10 items of different masses and they had to use the activity to prove that gravity’s effects do not rely on mass, using the $d = 4.9t^2$ equation to support their evidence.

Even though we keep telling student the mass doesn’t matter (with the warning that air resistance must be small) I thought this was a great way to make this have more meaning for our learners.



Volunteer Research Participants Needed!

My name is Tatiana Height and I am a doctoral candidate at North Carolina State University in the College of Agriculture and Life Sciences.

As a part of my research, I am conducting a study about how environmental educators understand, use, and operationalize pedagogical techniques for working with diverse audiences. As a part of this study, I am querying environmental educators about their teaching practices. As a fellow environmental educator, I am seeking your input for my research on a volunteer basis.

Participants will be asked to complete a 20-45 minute survey and will have the opportunity to opt-in to a follow-up interview of around one hour. Any input given as a part of this research will be reported with names and all directly identifiable information redacted. Re-identifiable data will be shared as a part of my dissertation, but will be published in aggregate or with quotes with names removed to protect the privacy of participants.

There is minimal risk associated with participation and no direct benefit to participants. Your participation is greatly appreciated! Those who complete all research activities will be entered into a drawing for a chance to win a \$25 electronic gift card.

To participate, please click the link to access the consent form and survey:

https://ncsu.qualtrics.com/jfe/form/SV_3KmsAIRW7MknFNY

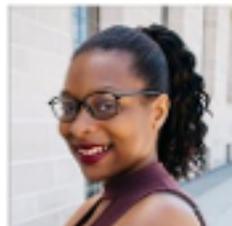
If you have questions about participating in this research study, contact the principal investigator or faculty advisor.

Principal Investigator

Tatiana Height, MCRP, CNP

tcheight@ncsu.edu

252-558-9380



Faculty Advisor

Dr. Maru Gonzalez

Mgonza22@ncsu.edu

919-515-9269



Three-Dimensional Science Instruction

June 14-18, 2021

Black Hills State University
or from the comfort of you own home

This 5-day workshop is specifically designed for teachers who have a fundamental understanding of the 3-dimensions of science teaching and learning. During this workshop you will: build your capacity to support and sustain 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.

DETAILS

A \$500 stipend will be awarded to participants who successfully complete the workshop. For those onsite, 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.

Application and Notification Process

South Dakota teachers in grades K-12 are encouraged to apply.

Limited number of seats available.

<https://www.sanfordlab.org/pd21>

Teachers will be notified of their application status **by April 15th.**



Connect with Peers
Explore Strategies
Access Resources

Professional Development

American Modeling Assoc.

The American Modeling Teachers Association (AMTA) has been **transforming STEM education** since 2005 and provides professional development and support for science teachers across the globe. It is AMTA's goal to promote the use of an award-winning instructional strategy, known as Modeling Instruction, which builds conceptual understanding, improves classroom discourse, and engages students in the learning process. As new members of the AMTA team, we wanted to introduce ourselves and share some exciting [opportunities](#) we're planning for the summer.



Climate Change

[Climate Change Essentials for All Educators](#) course by:

- Engaging with the key tenets of climate science; the human impacts of climate change, particularly for communities of color; and the paths to climate solutions
- Joining a growing community of educators committed to climate change education
- Completing up to 45 hours of professional development in just nine weeks
- Our expert facilitators will show you how you can augment your current curriculum to include climate change to begin shaping the next generation of climate advocates.



Want to learn more? Visit presidio.edu/teachclimate to explore the course and pick a start date.



PROMISE

SANFORD
RESEARCH

Brain (STEM) Professional Development

Join the PROMISE team for a two-day professional development course that looks deeper into neurophysiology and stem cells. Leave with a lesson that you can use in your classroom.

- June 14th and 15th, 2021
- 7th-12th grade science teachers
- At Sanford Research in Sioux Falls, SD
- 1 Credit Available from USD
- \$200 stipend for those that finish the coursework.
- Limit to 15 people
- Register here: <https://www.surveymonkey.com/r/DP2KNMR>

@SanfordPROMISE

Professional Development

Three-Dimensional Science

This 5-day workshop is specifically designed for teachers who have a fundamental understanding of the 3-dimensions of science teaching and learning. During this workshop you will: build your capacity to support and sustain 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.

When: **June 14-18, 2021**

Where: **Black Hills State University or from the comfort of your own home**

South Dakota teachers in grades K-12 are encouraged to apply. **Limited number of seats available.**

Teachers will be notified of their application status by April 15th.



SD EPSCoR

K-12 SCIENCE TEACHERS

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, connections to their classrooms, and explore newly developed K-12 curriculum modules exploring biofilms.

These will be 3-day virtual workshops

- EPSCoR #1: (a repeat of last summer) During the week of June 28
- EPSCoR #2: During the week of July 19

Teachers are welcome to attend one or both workshops.

Keep an eye out for additional details.



EdReports Webinar

Instructional Materials Discussion with EdReports Klawe Fellows

EdReports is an organization committed to increasing the capacity of teachers, administrators, and leaders to seek, identify, and demand the highest quality instructional materials. At the heart of EdReports commitment are instructional materials reviews "For Educators, By Educators." Meet with EdReports reviewers and Klawe Fellows to hear how EdReports can support you in your instructional materials review process.

Date: Tuesday, April 13

Time: 4pm Mountain/5pm Central

Presenters:

Kelley Cusmano - HS ELA & Leadership Teacher, Rochester Community Schools, Rochester MI

Sharla Dowding - Director of Field Experiences, Black Hills State University, Spearfish, SD

Joshua Sawyer - Secondary Math Coach, Camden County Schools, Camden, NC



ASHG
2021
DNA
DAY

Celebrate with ASHG in April!
Connect with scientists
Get classroom materials

Learn more

@SDSTA

12

Professional Development

FDA Virtual PD in Food Science

Deadline for applying is May 15, 2021

The FDA Virtual Professional Development Program in Food Science is a free training program for middle level and high school science, agriculture, health, and family and consumer science (FCS) teachers. This program provides teachers with an opportunity to learn how to provide inquiry-based lessons in food science for their students. This ongoing program is supported and directed by the FDA and administered by Graduate School USA.

This is a virtual workshop event scheduled for July 12 - 16 and July 19, 2021.

Selected teachers are asked to implement the supplemental curriculum in their classrooms during the 2021-2022 school year and to do a workshop based on the curriculum for other teachers.

To apply on line – deadline May 15, 2021- go to:

<https://www.teachfoodscience.org>



Biotechnology at the BTC Institute

Looking to incorporate more biotechnology into your curriculum?

The BTC Institute in Madison, WI is offering 2 sessions of summer course **Biotechnology: The Basics** to help you reach that goal! We are planning for **Biotechnology: The Basics in-person** (July 12-16, 2021), and **Biotechnology: The Basics virtual** (July 26-30, 2021).

Find out why one 2020 participant wrote: “The course met and honestly exceeded my expectations! I was hesitant when the course went online, but I loved that we had the option to still take the course during the pandemic. The BEST part was that the instructors continued to do hands on activities with real equipment...the course was AMAZING and one of the best I have taken.” Both courses are offered for stipends and optional graduate education credit.

See: <https://www.btc.org/k-12-programs/programs-for-teachers/> for details and registration.



Stipends Available



SD Teachers of the Year

A statewide panel of educators selected Hargreaves from among five regional finalists. The other finalists were Lisa Weier, Project Lead the Way, George S. Mickelson Middle School (Brookings); Marissa Whipple, second grade, Baltic Elementary; Spencer Cody, science, **Edmunds Central Middle and High School**; and Luke Erfman, computer/STEAM, rural schools, Meade School District.

Skype with a Scientist!



STEM Outreach for Sanford Research

We teach K-12 students and teachers, undergraduates, graduate students and the community.

Our goals:

To increase community understanding of science, raise awareness of the benefits of research, and emphasize the role of both in our society.



NEW

- Videos
- Lesson Plans
- Slide Decks
- Printables
- Blogs

Sign up for our monthly newsletter!



Sanford Underground Research Facility

Greetings from Sanford Lab Education and Outreach

I'd like to share some exciting new Sanford Lab presentations we have available. Thanks to 360° video technology and our Communications Department, we can now take ANY classroom on a virtual tour of the Sanford Underground Research Facility! Whether your students are in the classroom, joining from home, or a combination... we can guide you on an interactive and personalized exploration of the:

- Davis Cavern 4,850 feet below the surface: Home to experiments studying the mysterious properties of neutrinos, as well as searching for direct evidence of dark matter.
- Waste Water Treatment Facility: Developed by the Homestake Mining Company, it was the first of its kind to utilize bioremediation to clean up mining waste.
- Hoistroom: Designed and built in the 1930's, this feat of engineering still transports people and supplies to and from the deep underground spaces of the Sanford Lab.

Our virtual tours are free of charge and customized for every group. They are especially well-suited as an extension to our curriculum units- which are also available free of charge as a physical kit with everything required for implementation in your classroom. A few of our units are also available digitally.

Unsure where to begin? We're happy to make recommendations based upon your grade level and subject matter content!

And as always, we are here to support you in any way that we can!

Our curriculum units are available for check-out [here](#). And we are **eager to bring all of our presentations and field trip activities to you and your students virtually!** Since every classroom looks a bit different in these changing and challenging times, please reach out so we can get creative and craft something special that fits your unique situation:

SURFEducation@bhsu.edu

Becky M. Bundy, Ph.D.

Science Education Specialist
Black Hills State University



National Geographic On-Line Courses

National Geographic's free online courses for educators equip teachers with powerful tools to transform their classrooms. Through these courses, educators build their own skills and knowledge so they can foster the mindset of a National Geographic Explorer in their students. National Geographic online professional learning courses vary in their lengths and schedules so that busy educators can find a program that fits their needs.



- **TEACHING GLOBAL CLIMATE CHANGE IN YOUR CLASSROOM**
- **MAPPING AS A VISUALIZATION AND COMMUNICATION TOOL IN YOUR CLASSROOM**
- **CONNECTING THE GEO-INQUIRY PROCESS TO YOUR TEACHING PRACTICE**
- **TEACHING STUDENTS TO ASK THEIR OWN GEO-INQUIRY QUESTIONS**
- **COLLECTING DATA TO EXPLORE PLASTIC POLLUTION IN OUR COMMUNITIES**
- **INTEGRATING SERVICE WITH LEARNING GOALS**
- **STORYTELLING FOR IMPACT IN YOUR CLASSROOM: PHOTOGRAPHY**
- **EDUCATOR CERTIFICATION**



For Educators

INSPIRE · ENGAGE · EDUCATE · EMPLOY
The Next Generation of Explorers

 **NASA EXPRESS**
your STEM connection

 **SUBSCRIBE**
Get NASA Express in Your Inbox

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



What's new?

Click on the pictures for more!



Rocket Science in 60 Seconds gives an inside look at work being done at NASA to explore deep space.

Chandler Scheuermann is the cryogenic tanks subsystem element manager for the Space Launch System (SLS) rocket at NASA's Michoud Assembly Facility in New Orleans. He explains how the rocket's core stage is tested and validated for missions to the Moon and, ultimately, Mars in a test series called "Green Run" at NASA's Stennis Space Center near Bay St. Louis, Mississippi.



The Space Launch System rocket's intertank is the first piece of the upper part of the core stage to be moved for stacking in the vehicle assembly area at NASA's Michoud Assembly Facility

NASA Begins Major Assembly of Rocket Stage for First Crewed Artemis Mission

The NASA team is moving parts of the Space Launch System rocket to begin assembly of the forward, or upper part, of the rocket's core stage for the Artemis II Moon mission. On March 19, the intertank was moved to the vertical assembly area at NASA's Michoud Assembly Facility in New Orleans where the core stage is manufactured. The intertank flight hardware is part of the upper portion of the core stage that will help power Artemis II, the second flight of the deep space rocket and the first crewed lunar mission of NASA's Artemis program.

To form the massive, 212-foot-tall core stage for the agency's Moon rocket, five major structures are joined together: the forward skirt, liquid oxygen tank, intertank, liquid hydrogen tank, and engine section. NASA and Boeing, the core stage prime contractor, are preparing to connect three structures together to create the forward assembly of the core stage. The process of stacking and assembling the forward skirt, liquid oxygen tank, and intertank is called the forward join, and it is the first major vertical integration of hardware for the Artemis II core stage. The intertank is first installed in a vertical stacking cell at Michoud. Later, teams will move the liquid oxygen tank and forward skirt to the same area to stack the three structures together.

The intertank contains avionics that are the "brains" of the rocket. It also serves as one of the main attach points for the twin solid rocket boosters that work with the core stage to send SLS to space. The core stage will supply propellant and power to the four RS-25 engines at the bottom of the stage to produce the remaining 2 million pounds of thrust needed to send the Artemis II mission to orbit.

NASA is working to land the first woman and the next man on the Moon. SLS and Orion, along with ground systems at Kennedy, the human landing system and the Gateway in orbit around the Moon, are NASA's backbone for deep space exploration. SLS is the only rocket that can send Orion, astronauts, and supplies to the Moon in a single mission.

[Read the article here.](#)

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.

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UPCOMING EVENTS

April 22

Earth Day

April 25

DNA Day

June 12

Newsletter Submissions due

Any member may submit lessons, ideas, links...

February 3-5, 2022

SD STEM Ed Conference

Huron, SD

The SDSTA Newsletter is published four times a year and is e-mailed to 67 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).



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