

31st

SD STEM Ed Conference

**South Dakota Council of Teachers of Mathematics
South Dakota Science Teaching Association**

**February 2, 3, & 4, 2023
Crossroads Hotel-Huron Event Center
Huron, SD**

**My Students
Need Me**

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Graduate Credit is available through DWU-Mitchell.

Next year's conference will be **February 1, 2, & 3, 2024.**

(2) Draft
1/30/2023



Banquet Speaker - Dr. Stephen Pruitt's keynote titled: "Battling Ignorance: 4 Words That Can Change the World." Educators want to change the world. Educators are the ones that can. Join Dr. Pruitt, former science teacher and science/policy leader for a funny, yet current look at the role of teachers in changing the world. Dr. Pruitt will share his experiences, both personal and professional, to remind us of the power of teachers in his life and as we recover from COVID. Dr. Pruitt has long been a member of NSTA and has worked for national importance of science education and support of teachers. His humorous storytelling and somewhat unique look at the world will engage you and inspire you as we all continue the fight against ignorance.

Dr. Astrid Northrup obtained her B.S. and M.S. in petroleum engineering, working in the petroleum industry for several years before completing her Ph.D. in science education. She found her home as Professor of Engineering Science and Mathematics at Northwest College in Powell, WY. She serves on the Wyoming Professional Teaching Standards Board, on the Wyoming NASA Space Grant Board of Directors, and as Regional Coordinator for MathCounts. She is a published author on topics of women in engineering and K-12 computer science initiatives.



Dr. Robert Stack is a Professor of Mathematics and Chair of the Mathematical and Natural Sciences Department at Chadron State College in Chadron, Nebraska. Rob has taught classes at the college level for the past 28 years. Before that he taught junior high and high school in Marion, SD and Rosenberg, TX. Rob is a past president of the Nebraska Association of Teachers of Mathematics, and was the recipient of the 2004 Teaching Excellence Award for the Nebraska State College System. He graduated with a B.S. in Mathematics Ed., an M.A. in Mathematics, and an Ed.D. in Curriculum and Instruction, all from the University of South Dakota. Rob grew up in Tabor, South Dakota, and, while attending USD, met his wife Jill. They have been married for 25 years, have a perfect number of children, and the first prime of grandchildren.

Sharon Rendon is the Director of Professional Learning for CPM Educational Program. She currently lives in South Dakota. During her teaching career she has taught both MS and HS courses, along with college courses for practicing teachers. In addition, she has served as a math coordinator for a large district and serves on the board of directors for NCSM, Leadership in Math Education.



2023 SD STEM Ed Conference

South Dakota Council of Teachers of Mathematics
South Dakota Science Teaching Association

The meeting rooms for all sessions are in
The Crossroads Hotel/Huron Events Center

Program

Thursday, February 2, 2023

7:00 PM - 9:00 PM Evening Sessions (See Program)

Friday, February 3, 2023

7:00 AM - 4:20 PM Registration Open Pre-Function Area

8:00 AM - 5:00 PM Exhibits Open Pre-Function Area
8:00 AM - 8:30 AM Opening Session & Keynote Prairie A & B

8:30 AM - 11:20 AM Morning Sessions (See Program)
11:20 AM - 11:50 AM Networking, Exhibitor & Poster Session Exhibitor Hallway

11:50 AM - 12:50 PM Friday Luncheon Prairie A, B, C
(cost included in the registration fee - Taco buffet)

12:50 PM - 1:10 PM Networking, Exhibitors & Poster Session Exhibitor Hallway
1:10 PM - 4:20 PM Afternoon Sessions (See Program)

4:30 PM SDCTM Business Meeting Dakota A
SDSTA Business Meeting Dakota E

5:30 PM - 6:30 PM Social Hour Pre-Function Area
Sponsored by Vendors

6:30 PM Friday Evening Banquet Prairie A, B, C
(Cost is \$30 - Stuffed Pork Chops, assorted fancy desserts)

Saturday, February 4, 2023

7:00 AM - 11:20 AM Registration Open Pre-Function Area
7:00 AM - 8:00 AM Breakfast Meeting Salon
Presidential Awardees (Past & Present)

8:00 AM - 11:30 AM Morning Sessions (See Program)

11:30 AM - 12:30 PM Saturday Luncheon Prairie A, B, C
(cost included in the registration fee - Prime Rib French Dip)

12:40 PM - 4:15 PM Afternoon Sessions (See Program)

4:30 PM Joint SDCTM & SDSTA Executive Board Meeting Prairie A & B

SD STEM Ed Conference 2023 Planner

Thursday, Feb. 2, 2023		
	First Choice	Second Choice
7:00 PM	Science Showcase Prairie B	Math PotLuck Prairie C

Friday, Feb. 3, 2023		
Remember to visit the exhibits in the Lobby and Hallways of the Crossroads Hotel.		
	First Choice	Second Choice
8:00 AM	Location: <i>Prairie B & C</i>	
	Title: <i>OPENING SESSION - Conference Welcome</i>	
8:30 AM	Location: <i>Prairie B & C</i>	Location:
	Title: <i>The Value of Vertical Alignment</i>	Title:
9:30 AM	Location:	Location:
	Title:	Title:
10:30 AM	Location:	Location:
	Title:	Title:
11:50-12:50	Friday Noon Luncheon in Crossroads Hotel – Prairie A, B, C	
12:50-1:10	Exhibitor Networking: Exhibitor and Poster Session	
1:10 PM	Location:	Location:
	Title:	Title:
2:10 PM	Location:	Location:
	Title:	Title:
3:00 PM	Exhibitor Networking: Exhibitor and Poster Session	
3:30 PM	Location:	Location:
	Title:	Title:
4:30 PM	<i>SDCTM BUSINESS MEETING in Dakota A</i> <i>SDSTA BUSINESS MEETING in Dakota E</i>	
5:30	Social hour Sponsored by Vendors, SDCTM & SDSTA	
6:30 PM	Friday Night Banquet in Prairie Ballrooms B, C (Banquet Tickets Required-Cost is \$30)	<i>Battling Ignorance: 4 Words That Can Change the World</i> <i>Stephen Pruitt - speaker</i>

Saturday, Feb. 4, 2023		
	First Choice	Second Choice
8:00 AM	Location:	Location:
	Title:	Title:
9:00 AM	Location:	Location:
	Title:	Title:
10:00 AM	Location:	Location:
	Title:	Title:
10:50 AM	Exhibitor Networking: Exhibitor Session	
11:30-12:30	Saturday Noon Luncheon in Crossroads Hotel – Prairie A, B, C	
12:40 PM	Location:	Location:
	Title:	Title:
1:40 PM	Location:	Location:
	Title:	Title:
2:40 PM	Location:	Location:
	Title:	Title:
3:30-4:15	Wrap-up and Reflect – Science in Dakota A	Wrap-up and Reflect – Math in Dakota E
4:30 PM	SDCTM & SDSTA JOINT BOARD MEETING IN Prairie A & B	

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Thursday 7:00 - 9:00 PM - Conference Kick Off

Thursday, 7:00 PM

Prairie B **Science**

Science Showcase

SDSTA President Ashley Armstrong & Ally Bowers

Bring an activity to share with colleagues that relates to your science classroom. Share your lesson by bringing copies to share or a link on social media (or send to officers@SDSTA.org to post to their web). Pizza will be provided for those who attend!



Thursday, 7:00 PM

Prairie C **Math**

Math Potluck

SDCTM President Sheila McQuade & Dan VanPeurse

Network with other math teachers! Share your favorite activities and lessons! Swap teaching ideas! Sharing math teaching ideas will be the focus of this session. Bring 25 copies of your favorite activity to share. Leave with ideas from other great teachers. Pizza will be provided for those who attend!



- **Friday 7:00 AM** -

Conference Onsite Registration Opens - Crossroads Lobby

Share the Classroom Treasures - Salon II

Stop in and see what is there. (Free items)

Available from now till 2:40 on Saturday.

Friday, 8:00 AM

- - **Friday 8:00 AM** - -

Prairie B & C

Conference Welcome - Opening Session for All

Featured Speakers and SDCTM President Sheila McQuade and SDSTA President Ashley Armstrong will give a conference overview, introduce featured speakers, and answer any or all questions that may arise.

Friday, 8:30 AM

Expert Panel - Friday 8:30-9:20 AM

Prairie B & C

Stephanie Higdon & Ashley Armstrong E-Learning Master Teacher of Math at NSU & SURF Education and Outreach

The Value of Vertical Alignment

Stephanie.higdon@northern.edu ashley.armstrong@bhsu.edu

Elementary, Middle School, High School, College, Pre-Service, Administrative

Science, Math, Interdisciplinary

Come listen to educators K-12 to hear the value of the progression of standards. This session will be a panel discussion with a variety of educators sharing their vertical alignment experience with time for questions.

Breakout Sessions - Friday 9:30-10:20 AM

Friday, 9:30 AM **Featured Session**

Prairie B

Stephen Pruitt

Southern Regional Education Board

Fourth Industrial Revolution Workforce: Are We Ready?

stephen.pruitt@sreb.org

www.sreb.org

Middle School, High School, College, Pre-Service

Science, Math, STEM, Interdisciplinary, CTE

Stephen Pruitt will share data and initiatives currently underway to address the needs of a Fourth Industrial Revolution Workforce. The workforce will require all subject areas to take a new look at the critical needs of the workforce. Science, math, CTE, and other disciplines will need to work together more than any time before to avoid mass unemployability over the next 10 years.

Friday, 9:30 AM

Dakota A

Marie Steckelberg

Steckelberg Consulting

Light Up the Night!

marie@steckelbergconsulting.com

SteckelbergConsulting.com

Elementary, Middle School, Pre-Service

Science, STEM

The sun is in an active cycle and so are the aurora borealis! Come and experiment with circuits, LEDs, and sculpting materials to engineer a light display that mimics the colors and patterns of the Northern Lights!

Friday, 9:30 AM

Dakota B

Adam Mendler {Zoom} assisted by Dan VanPeurse

Thirty Minute Mentors

Superpower to Success: How to Unlock Your Leadership Potential

adam@adammendler.com

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

College, Administrative

<https://usd.zoom.us/j/9332263646>

Leadership

How can you become your best self and best lead and motivate others? What was once only understood by a select few has now been codified. Through this session, attendees will learn how to apply their distinguishing leadership superpower to most effectively lead their own lives and lead others.

Friday, 9:30 AM

Dakota C

Julie Dahl

Sanford Underground Research Facility

Formative Assessments That Work

Julie.Dahl@bhsu.edu

<https://sanfordlab.org/educators>

Elementary, Middle School

Science

What are they thinking? Figuring out what students know while they are in the process of learning it can be tricky. Participants in this session will explore formative assessment techniques that will have your students looking forward to showing you what they know.

**At 4:30 today, both SDCTM and SDSTA will hold a Business Meeting.
All members, including you, are welcome to attend and vote.**

Friday, 9:30 AM **Featured Session**

Robert Stack

rstack@csc.edu

Dakota E

Chadron State College

Elementary Book on Math

Elementary K-4

Mathematics

There are many different books that are accessible for elementary teachers to use in their math classrooms. Each book has a story with a variety of different characters to pique the listeners/readers attention. While increasing the resources of a teacher's math library, this session will explore several books, while also providing encouragement for teachers to read in their classrooms.

Friday, 9:30 AM

Erica Boomsma

Dakota F

Huron School District

The Struggle is Real!

erica.boomsma@k12.sd.us

Elementary, Middle School, College, Pre-Service, Administrative

Math, Interdisciplinary

Have you ever had that feeling of joyful accomplishment? This moment of success feels amazing, but it is very short compared to the long journey of struggle that came first. While it can be quite uncomfortable, that struggle allows us to discover more about ourselves, delve deeper into content and thought, and create connections in our minds that make us more well-rounded learners! It is the same for our students! In this session, we will learn about struggle – why the mind does not enjoy it, how it benefits from difficulty, and how it will start to crave more. We will also discuss using Social and Emotional Learning to help students manage their emotions while they learn, and how we, as teachers, can manage our own emotional needs as we support our students' struggle. The struggle is real! But, it might be good for us!

Friday, 9:30 AM

Maren Ehley

Dakota G

RightStart Mathematics

Tutoring Adding And Subtracting Without Worksheets

Maren@RightStartMath.com

<https://rightstartmath.com>

Elementary, Middle School

Math

Do your students have a weak or incomplete understanding of adding and subtracting? Are they relying on their fingers? Are you worried about the upcoming multiplication facts? Focusing on memorization without comprehension is overwhelming, never mind the frequent need to review. Learn addition and subtraction strategies and bridge into success.



Friday, 9:30 AM

Darwin Daugaard

Symposium

O'Gorman High School

Ret-Poster Session

Middle School, High School, College

ddaugaard@ogknights.org

Science, Math, STEM

This session is a sharing session for those interested and those who would like to share in the experience of doing research. Anyone is welcome to bring their poster or other materials to share their experience.

Breakout Sessions - Friday 10:30-11:20 AM

Friday, 10:30 AM

Dakota A

James Stearns, Larry Browning & Darwin Daugaard

Abdn School Dist/NB, SDSU & O’Gorman

SD - AAPT Business Meeting & Photo Contest

James.Stearns@k12.sd.us Larry.Browning@sdsu.edu DDaugaard@ogknights.org sdaapt.sdsta.org

High School, College

Science

This is the annual meeting of the South Dakota Section of the American Association of Physics Teachers (SD AAPT). During the meeting, the group will share experiences, classroom activities, and seek answers to questions and problems. Everyone is welcome to attend & bring their physics & physical science questions. Final voting on the Physics Photo Contest will take place.

Friday, 10:30 AM

Dakota B

Deann Kertzman

Black Hills State University

Encouraging Thinking Beyond One

deann.kertzman@bhsu.edu

<https://www.bhsu.edu/>

Elementary

Math

In this notice and wonder session, we will consider tools, models, and representations. For young learners, thinking beyond one is a cognitive jump. We will look specifically at fraction models to notice the opportunities and limitations for thinking beyond one. We will wonder about strategic and intentional choices.



BLACK HILLS
STATE UNIVERSITY

Friday, 10:30 AM **Featured Session**

Dakota C

Stephen Pruitt {Repeats on Fri 1:10}

Southern Regional Education Board

SREB’s Powerful Science Instructional Practices are Phenomenal

stephen.pruitt@sreb.org

www.sreb.org

Elementary, Middle School, High School, College, Pre-Service

Science, STEM, Interdisciplinary

The 21st century brings with it a higher imperative for students to know science to be both viable members of society and the workforce. Science has entered a renaissance with a focus on students engaging in scientific and engineering phenomena and 3-dimensional performance. Phenomenal teaching and 3-dimensional science performances are challenging and can be tough to navigate. Come see how to plan for and teach science using SREB’s Powerful Science Instructional Practices (PSIPs) and learn from one of the architects of the 3-D science movement. The PSIPs and the phenomenon in the session are applicable at every grade band and grade level.

Find the tools you need to inspire STEM-curious students

CURRICULUM UNITS ALIGNED TO STATE STANDARDS

Sanford
Underground Research Facility

www.sanfordlab.org/educators

Icons: A target, a ladder, a hard hat, a microscope, and a lightbulb.

Friday, 10:30 AM

Dakota D

Deb Wolf

Sanford Underground Research Facility

The Sanford Underground Research Facility: Place-Based STEM Identity in Practice

[dWolf@sanfordlab.org](mailto:dwolf@sanfordlab.org)

<https://sanfordlab.org/>

Elementary, Middle School, High School, College, Pre-Service, Administrative Science, Math, STEM, Interdisciplinary, CTE
In this session, we will explore how the world-leading science and engineering at the Sanford Underground Research Facility can be leveraged to increase student engagement and to help them see themselves as STEM-capable learners.

Friday, 10:30 AM **Featured Session**

Dakota E

Robert Stack

rstack@csc.edu

Chadron State College

Who Wants to be a Mathematician

All levels Math

From the popular game show, Who Wants to be a Millionaire, this session incorporates mathematical concepts, historical aspects of mathematics, and everything in between, in a fun-filled session which allows participants to win prizes. Whose got the fastest finger? Show off your math skills and become the next champion of Who Wants to be a Mathematician?

Friday, 10:30 AM

Dakota F

Cassie Soeffing

Institute for Global Environmental Strategies

Mission Mosquito Larvae Hunters Guide

cassie_soeffing@strategies.org

strategies.org

Elementary, Middle School, Citizen Science

Interdisciplinary, Citizen Science

Right now, somewhere in the world, a mosquito is biting a human. Learn more about that bite, and the mosquitoes involved, through this scaffolded series of 28 engaging, hands-on activities. Apply that information to earn a Mosquito Larvae Hunter certificate and badge.

10-day Science Research Immersion Programs

seeds
Change of
RESEARCH
Changing the Landscape of Secondary Science Education

- Tropical Field Research
- Bioinformatics
- Antibiotic Bioprospecting

Chaperone YOUR students in Costa Rica!

25% off
Conference Special
Antibiotic Bioprospecting
Teacher Training - Augsburg
30 CEUs or 2 grad credits
March 4-7, 2023

Do science research... in Costa Rica!

www.SOCresearch.org

These four min-sessions are offered during one regular Session

Friday, 10:30 AM

Haley Dressler

Dakota G

Rapid City Area Schools

STEAM into Writing

Zoom meeting ID: 937 7106 7779 Passcode: 698507

Haley.Dressler@k12.sd.us

Elementary

STEM, Interdisciplinary

Learn how to integrate STEAM skills and activities into your elementary writing lessons. This increases engagement and student writing skills at the same time!

Donald Decker

Newell School District

Bring Scientific Research into the High School Classroom

donald.decker@k12.sd.us

I will share my experience working in a microbiology lab at SDSMT through a NSF and NASA Research Experience for a Teacher's Grant and how I have applied my research to the high school classroom.

Allison Hutchinson

Sanford Health--Aspire by Sanford

Career Exploration Opportunities from Aspire by Sanford

allison.hutchinson@sanfordhealth.org

<https://sanfordcareers.com/k12-aspire-by-sanford/>

Elementary, Middle School, High School, College, Administrative

Science, Math, STEM, Interdisciplinary, CTE

Join Allison, a senior career development consultant at Sanford Health, as she highlights opportunities to extend your classroom content and activities into the world of work. What role does career exploration play in your classroom? What role do you want it to play? We will explore clinical and support roles. Consider the steps you've taken on your own career journey and join this short, yet thoughtful conversation.

Connor DeJong

Harrisburg North Middle School / South Dakota Space Grant

South Dakota Space Grant Research Experience For Teachers

Connor.DeJong@k12.sd.us

<http://sdspacegrant.sdsmt.edu/EdOpp-K-12.htm>

High School

Science, Math, STEM

An introduction to the South Dakota Space Grant Consortium and how you can earn \$8,000 over the summer working on a research team in South Dakota. All High School math and science teachers are welcome!

SANFORD[®]
HEALTH

Friday, 10:30 AM

Nicol Reiner

Symposium

Sanford Underground Research Facility

Focused Observation in Math & Science Classrooms *Nicol.Reiner@bhsu.edu*

<https://sanfordlab.org/educators>

Elementary, Middle School, High School, Administrative

Science, Math

We all have the same goal - increased engagement and learning. How do we create opportunities for high quality conversations with actionable feedback when observing teaching and learning? What are key look-fors to focus feedback and promote professional growth? Learn and chat about ways to support educator growth and enhance learning.

Friday, 10:30 AM {Repeats on Sat 9:00}

Salon 1

Katrina Donovan & Deborah Mitchell

SDSMT Artist - In - Residence at SD Mines

STEAM: Materials, Metal Clay, and More!

Katrina.Donovan@sdsmt.edu

<https://sites.google.com/sdsmt.edu/art-and-engineering/home>

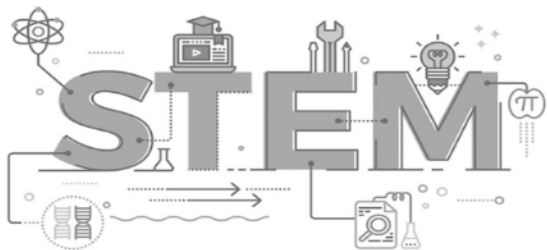
Elementary, Middle School & Jr High STEM, Science, Math, Art

Kinesthetic learning is an important skill to have as an engineer or artist. Attendees will manipulate the metal clay while learning about the material's properties and how to integrate similar modules into a classroom setting, and they will have the opportunity to leave the conference with metallic art. {This session has limited materials for the first 20 participants.}



The National Academies of
SCIENCES • ENGINEERING • MEDICINE

TEACH THE SCIENCE ALL K-12 STUDENTS SHOULD KNOW



Our essential STEM education resources
are free to download.

www.nap.edu

Exploring color theory, glass blowing, metal casting and blacksmithing in hands-on curriculum

Working with an Artist-in-Residence

Developing STEAM-influenced design/lab projects directly with industrial partners



SCAN HERE OR VISIT ONLINE TO LEARN MORE
sdsmt.edu/art-and-engineering

 SOUTH DAKOTA MINES

- Friday 11:20-11:50 AM -

Friday, 11:20 AM

Exhibitor Hallway

Networking, Exhibitor and Poster Session

Conference attendees have the opportunity to network and visit with Exhibitors and enter door prize drawings. Exhibitors have color coded tickets for drawings. These tickets will be given out in the exhibition hallway at the discretion of the exhibitors. Keep one half and place the other in the drawing buckets at the registration table. The more booths you visit, the better your chances to win a prize! Drawings for this session will be held during Friday lunch and you must be present to win.

- Friday 11:50 AM-12:50 PM -

LUNCH

Prairie B & C

Come for a meal, awards, recognitions, and raffle with swag from vendors and other amazing organizations! Hosted by the Presidents of SDCTM & SDSTA. Awards to be presented include Outstanding Biology Teacher, Outstanding Mathematics Teacher, Outstanding Physical Science Teacher, Daniel Swets Robotics Materials Award and Kelly Lane Earth & Space Science Grants.

- Friday 12:50-1:10 PM -

Friday, 12:50 PM

Exhibitor Hallway

Networking, Exhibitor and Poster Session

Conference attendees have the opportunity to network and visit with Exhibitors and enter door prize drawings. Exhibitors have color coded tickets for drawings. These tickets will be given out in the exhibition hallway at the discretion of the exhibitors. Keep one half and place the other in the drawing buckets at the registration table. The more booths you visit, the better your chances to win a prize! Drawings for this session will be held during the social hour and you must be present to win.

Avera



Breakout Sessions - Friday 1:10-2:00 PM

Friday, 1:10 PM

Prairie A

Kristen Gonsoir

Groton Area High School

Global Education in the Science Classroom

kristen.gonsoir@k12.sd.us

<https://www.neafoundation.org/projects-initiatives/global-learning-resource-library/capstone-projects/>

Middle School, High School

Science, Interdisciplinary

As Global Learning Fellows, ITC Japan/US Fulbright Educator, and science and teacher, I believe global competence is vital in today's education system for ensuring students' success beyond high school. In today's world one must work collaboratively with people from around the world to solve global problems. Global education in science can take the knowledge and information gained through science, view the data through multiple perspective lenses, communicate those findings, and take action to help reach the seventeen Sustainable Development Goals put forward by the United Nations. Learn how you could become a part of global education.

Friday, 1:10 PM

Prairie B

Nicole Uhre-Balk

Technology and Innovation in Education (TIE)

ChatGPT and AI Chatbots: Navigating the Opportunities and Challenges of this Game-Changing Technology

nuhre-balk@tie.net

<https://tie.net>

Middle School, High School, Pre-Service, Administrative

Science, Math, STEM

Explore Open AI's ChatGPT, the free-to-use AI tool that can do everything from answering science and math questions in essay format to generating this session description in seconds. Play around with what ChatGPT can do and discuss its opportunities and challenges in education, as it could revolutionize how we think about assigning free-response and essay questions.

Share the Classroom Treasures - Salon II

Stop in and see what is there. (Free items)
Available from now till 2:40 on Saturday.



Technology & Innovation
in Education

learning is our work

Join us for our sessions:

Utilizing Robots to Enhance Problem-Solving Skills
Computational Thinking: Why It's For Everyone, Everywhere
Utilizing Desmos to Enhance Your Curriculum

Scan to get the latest from TIE >>



www.tie.net

Friday, 1:10 PM

Michael Benjamin

Prairie C

Mitchell Technical College

What is Broadband? An Introduction into the World of Fiber Optics.

michael.benjamin@mitchelltech.edu

High School

Science, Math

Fiber optics is the dominant communications technology for what today is called "broadband," - including 5G mobile/wireless, internet, cable television, computer networks, security systems, utility grid communications, and more. This session will explore fiber optics, what professionals are expected to understand and give you the opportunity to splice fiber.

Friday, 1:10 PM

Dr. Clifford Hall and Cheyenne Edmundson

Dakota A

SDSU Dairy & Food Science

Empowering the Next Generation of Foodies Through the Science of Food

Cheyenne.Edmundson@sdsstate.edu

sdsstate.edu/ds

Elementary, Middle School, High School

Physical Science, Chemistry & Biology

Explorative and hands-on session using food as an avenue of explaining the complexities of general Chemistry and Biology principles in everyday life. Food scientist approved experiments to apply in your classroom and for use by young researchers preparing for science fair projects.



**SOUTH DAKOTA
STATE UNIVERSITY**

**Department of Dairy
& Food Science**

Friday, 1:10 PM

Lynda Venhuizen

Dakota B

South Dakota State University

STEM Activities for People and the Planet

lynda.venhuizen@sdsstate.edu

Elementary

Science, Math, STEM, Interdisciplinary

Discover interdisciplinary STEM activities (games, simulations, and group problem solving) that build elementary math and scientific inquiry skills around fundamentals of Earth's Systems and Earth and Human Activity, including the sustainable use of natural resources. Receive access to electronic lesson plans matched to state standards for math and science.

Friday, 1:10 PM

Featured Session

Stephen Pruitt

{Repeat of Fri 10:30}

Dakota C

Southern Regional Education Board

SREB's Powerful Science Instructional Practices are Phenomenal

stephen.pruitt@sreb.org

www.sreb.org

Elementary, Middle School, High School, College, Pre-Service

Science, STEM, Interdisciplinary

The 21st century brings with it a higher imperative for students to know science to be both viable members of society and the workforce. Science has entered a renaissance with a focus on students engaging in scientific and engineering phenomena and 3-dimensional performance. Phenomenal teaching and 3-dimensional science performances are challenging and can be tough to navigate. Come see how to plan for and teach science using SREB's Powerful Science Instructional Practices (PSIPs) and learn from one of the architects of the 3-D science movement. The PSIPs and the phenomenon in the session are applicable at every grade band and grade level.

Friday, 1:10 PM

Kevin Smith

The Math Playground

kevin.smith@dsu.edu

Elementary, Middle School, High School, Pre-Service

In this session, you'll learn about Mathigon's Polypad tools. Polypad is a collection of unique and easy to use mathematical tools such as number tiles, hundreds charts, pattern blocks, algebra tiles, prime factor circles and so much more. The tools are free and easy to use. I'll show you how to use the tools and present you with ideas for using them with students across all grade levels. Math isn't just about numbers, formulas, and equations. Tools like Polypad give our students an opportunity to explore the beauty of mathematics.



Dakota E
Dakota State University
<http://www.kevindsmith.org>

Math

Friday, 1:10 PM

Laura Bain

Making Middle School Math Come Alive with Manipulatives, Games & Activities

laurabain@cpm.org

Middle School

Participants will be actively engaged in working through games and activities around Middle School math topics. These activities can be used to introduce or practice skills. Participants will also do activities around graphing, measures of central tendency, multiplication, operations with integers and probability, and also play a Silent Board game.

Dakota F
CPM Educational Program
cpm.org

Math

Friday, 1:10 PM

Flavio Mendez {Zoom} assisted by Spencer Cody

University and College Instructors: Engage Your Students with NSTA!

fmendez@nsta.org

Postsecondary

This session will host NSTA Assistant Executive Director, University Partnerships & eLearning, Flavio Mendez from his home office in Maryland. He will share ways educators of science of all grade levels, including preservice teachers and their university instructors, may use NSTA digital resources and tools for professional learning. Mr. Mendez will also share the variety of events (free and for fee) available for educators to participate virtually and in-person when/where educators of science may interact with like-minded individuals while learning together and growing their network. The mission of NSTA is to transform science education to benefit all through professional learning, partnerships, and advocacy. NSTA Headquarters is located in Arlington, Virginia.

National Science Teaching Association (NSTA)

<https://www.nsta.org/college-professors>

<https://zoom.us/j/91569293975?pwd=K0hTREFjNEN6bERHYWMxNE85aDNwUT09> Science

Dakota G

Friday, 1:10 PM

Ally Bowers & Mary Cundy

NSU E-Learning: Meeting STEM Needs in South Dakota

alison.bowers@northern.edu *mary.cundy@northern.edu*

Administrative

Since 2001, the NSU Center for Statewide E-Learning has fulfilled its legislative mandate with an open promise to help schools meet instructional challenges, opening a pathway for schools to connect students with high-quality instructors. This session provides information about how NSU E-Learning partners with local schools to meet today's STEM staffing challenges. Questions are welcomed!

Symposium
NSU Center for Statewide E-Learning

Science, Math, Interdisciplinary

Friday, 1:10 PM {Repeats on Sat 10:00}

Salon 1

Katrina Donovan & Deborah Mitchell

SDSMT Artist - In - Residence at SD Mines

STEAM: Materials, Metal Clay, and More!

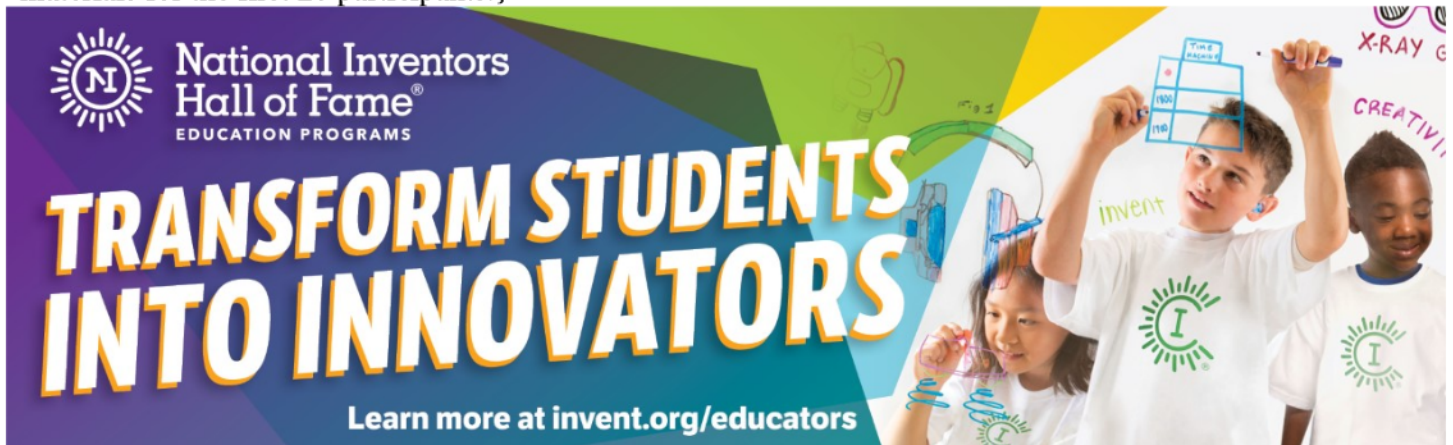
Katrina.Donovan@sdsmt.edu

<https://sites.google.com/sdsmt.edu/art-and-engineering/home>

High School, College

STEM, Science, Math, Art

Kinesthetic learning is an important skill to have as an engineer or artist. Attendees will manipulate the metal clay while learning about the material's properties and how to integrate similar modules into a classroom setting, and they will have the opportunity to leave the conference with metallic art. {This session has limited materials for the first 20 participants.}



Breakout Sessions - Friday 2:10-3:00 PM

Friday, 2:10 PM

Prairie A

Beth Hunt & Dr. Michael Amolins

Seeds of Change Research Harrisburg, SD School District

Tropical Research Immersion, Bioinformatics, & Antibiotic Bioprospecting

info@SOCresearch.org michael.amolins@k12.sd.us

www.SOCresearch.org

High School

Science, STEM

Seeds of Change Research immerses high school students in life-changing, original science research programs in Costa Rica: Tropical Field Research and Bioinformatics Research. We also train teachers how to guide their students to "mine" insect microbiomes to discover possible antibiotic-producing microbial candidates in their high school lab. Come learn how!

Friday, 2:10 PM

Prairie B

Larry Browning & Steve Wignall {Zoom} SD State University & Nebraska Center for Materials & Nanoscience

TENGs in Eggs

<https://sdstate.zoom.us/j/94304827259>

Larry.Browning@sdstate.edu swignall14@unl.edu

<https://ncmn.unl.edu/outreach-education>

Elementary, Middle School, High School

Science

Join Steve and Larry as they help you build, explain, and study Tribo-Electric Nano-Generators (TENGs) inside Easter eggs and on cards and discuss resources available for teachers from the Nebraska Center for Materials and Nanoscience (<http://ncmn.unl.edu>), where Steve works.

Friday, 2:10 PM

Prairie C

Benjamin Benson & Brock Rops Sanford Research Executive Director & South Dakota HOSA-Future Health Professionals/deputy Director South Dakota Area Health Education Center (AHEC)

SD HOSA-Future Health Professionals; Helping Kids Explore Careers & Skills Related to Health Occupations

Benjamin.Benson@sanfordhealth.org Brock.Rops@usd.edu

https://research.sanfordhealth.org/sanford-promise

Middle School, High School

Science, STEM, Interdisciplinary, CTE

Learn about the HOSA organization for the first time or refresh what it is all about in a short conversation with Brock Rops (Executive Director of South Dakota HOSA). Stick around with the PROMISE team to learn about the new Biotechnology Competitive event HOSA is adding.

Friday, 2:10 PM

Dakota A

Maren Ehley

RightStart Mathematics

Bringing Elementary Math to Life Using Drawing Board and Tools

Maren@RightStartMath.com



https://rightstartmath.com

Elementary, Middle School, High School

Math

Help children explore geometry in a new way. Come to this hands-on workshop and become proficient using drawing tools. Participants will draw equilateral triangles and squares, divide them into fractional parts, and explore the area of a circle. Teachers will leave with practical ideas they can use to enhance any curriculum.

Friday, 2:10 PM

Featured Session

Dakota B

Sharon Rendon

Promoting Productive Discourse

Middle School, High School

Mathematics, STEM

In many classrooms, students' sitting together in teams does not guarantee effective mathematical discourse. Activities will be modeled that encourage students to talk, write, and share ideas. Participants will participate in strategies that particularly deal with discourse while working through a math task. These strategies will be connected to the 8 Effective Teaching Practices from NCTM.

Friday, 2:10 PM

Featured Session

Dakota C

Astrid Northrup, PhD {Repeats on Sat 8:00}

Northwest College/Powell WY

Robotics for K-12 Teachers

astrid.northrup@nwc.edu

nwc.edu

Elementary, Middle School, High School

STEM

Introduce your students to fundamental concepts of how to design, build, program, and operate Lego Mindstorm robots. This workshop material is condensed from a course offered as part of a K-12 Computer Science endorsement program, and is designed to help teachers prepare their students for classroom and competitive robotics.

Friday, 2:10 PM

Toni Milleret

Gizmos - Unleash The "Power of Doing"

toni.milleret@explorellearning.com

go-el.com

Elementary, Middle School, High School, Pre-Service, Administrative
Science, Math, STEM

ExploreLearning Gizmos are interactive online simulations and case studies for math and science that power inquiry and understanding through hands-on learning and experimentation. With more than 450 Gizmos covering STEM topics for grades 3-12, students can dig deeper into subjects and really understand challenging concepts as they form, analyze, and test ideas to find solutions, just like real mathematicians and scientists.



Friday, 2:10 PM

Laura Bain

Using Algebra Tiles to Build Conceptual Understanding of Expressions & Equations

laurabain@cpm.org

Dakota F

CPM Educational Program

cpm.org

Middle School, High School

Math

Participants will practice problems they can use with students to build a conceptual understanding of simplifying algebraic expressions and solving equations. Algebra tiles are used to combine like terms, compare expressions, and solve equations. Participants will benefit from practicing the problems in teams while experiencing a student-centered classroom.



www.explorellearning.com

Friday, 2:10 PM

Matt Miller & Carter Koons

Symposium

South Dakota State University

Demonstrations and Particulate Diagramming -

Can We Increase Student Conceptual Understanding by Doing Both?

matt.miller@sdsu.edu *carter.koons@jacks.sdsu.edu*

<https://www.sdsu.edu/chemistry-biochemistry>

Middle School, High School, College

Science, STEM, Interdisciplinary

In the Fall of 2022, students in the CHEM 106 class at SDSU were asked to draw diagrams during class after watching demonstrations. The goal was to increase student understanding of topics by engaging in entertaining demonstrations then drawing diagrams to explain what they know. Findings will be shared.

Friday, 3:00 PM

- - **Friday 3:00 PM-3:30 PM** - - Exhibitor Hallway

Networking, Exhibitor and Poster Session

Conference attendees have the opportunity to network and visit with Exhibitors and enter door prize drawings. Check the screen in the exhibit/registration area for winners before the banquet.

#TIE23

April 24-25, 2023

The Monument, Rapid City

Featuring

Dr. Catlin Tucker



Bestselling blended learning author, international trainer, and keynote speaker

Dr. Tucker will be presenting multiple times on Monday, including a book signing and an in-depth on Tuesday.

Join us for:

- Breakout sessions led by professionals in the field
- Local and national vendors
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[More details @ tieconference.net](https://www.tieconference.net)

Flexible, affordable and relevant professional development



Breakout Sessions - Friday 3:30 PM-4:20 PM

Friday, 3:30 PM

Prairie A

Susan Arnette

STEMscopes by Accelerate Learning

Teaching Problem Solving to ALL Students

sarnette@acceleratelearning.com

stemscopes.com

Elementary

Math, STEM

Teaching students to reason and problem solve is the cornerstone of quality math instruction. This session will highlight several engaging strategies such as Three Reads, Numberless Word Problems, and more that will provide multiple entry points for all students to engage in the math and ignite a passion for problem solving in your classroom!



Friday, 3:30 PM

Prairie B

Larry Browning

Physics Dept. South Dakota State University

Building Safe Solar Viewers

Larry.Browning@sdsu.edu

http://richardson.people.cofc.edu/safe_solar_folder/index.html

Middle School, High School

Science

Participants will build Safe Solar Viewers (SSV) based on a design by T. R. Richardson. By looking down at the sun's image, students can safely view the sun, sun spots, clouds, and the Oct. 14, 2023 solar eclipse. Materials and tools for 20 SSVs will be available.

Friday, 3:30 PM

Prairie C

Tiffany Kroeger

Montrose

Storylines: What Are They? Where to Find Them? & Are They Right for Me?

tiffany.kroeger@k12.sd.us

Middle School, High School, Pre-Service

Science

An introductory look into using the storyline method to teach the NGSS standards. Come learn how to get your students learning how to ask and investigate questions about phenomena that matters. Learn how to teach your content deeper and with a longer lasting impact than traditional methods.

Friday, 3:30 PM

Featured Session

Dakota B

Sharon Rendon

{Repeats on Sat 12:40}

Building Thinking Classrooms - Ideas to Get Started

All Levels

STEM, Science & Math

Have you wanted to increase your student’s ability to problem solve and collaborate? In this session, participants will hear about strategies to increase student thinking and engagement, based on the research of Peter Liljedahl. We will explore a task together, using vertical whiteboards and visible random teams, then debrief the impact these strategies can have on students.

Friday, 3:30 PM

Featured Session

Dakota C

Astrid Northrup, PhD

Northwest College, Powell WY

Wind Power: A New Era of Energy

astrid.northrup@nwc.edu

nwc.edu

Elementary, Middle School, High School

STEM

Introduce your students to how electricity is converted from the wind! Learn the basics of how wind turbines work, build a model wind turbine, and measure the voltage generated by the wind. This workshop material was developed and first presented at a conference at the University of Wyoming, and has since been presented to Wyoming and Montana K-12 students of all levels.

Friday, 3:30 PM

Dakota E

Christina Booth

SD Dept of Education

South Dakota Science Assessment - Summative, Interim, and Formative Tools

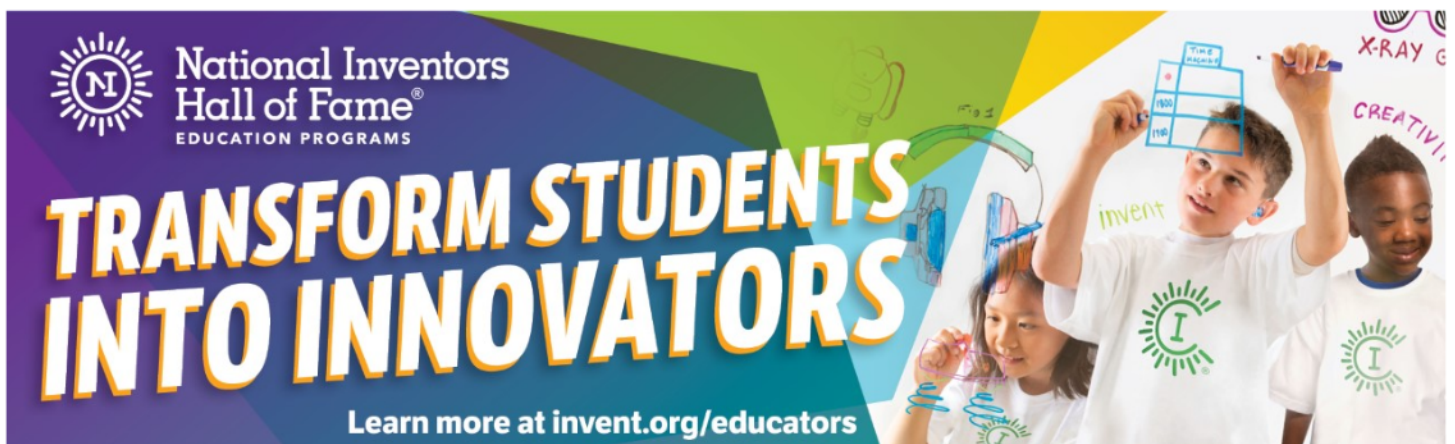
christina.booth@state.sd.us

<https://doe.sd.gov/Assessment/Science.aspx>

Elementary, Middle School, High School, Administrative

Science

Overview of the current Science summative assessment, interim assessments, and formative tools offered by SDDOE. Also can answer questions educators may have.



Friday, 3:30 PM

Kristin Thorsen & Hannah Hall

Dakota F

National Inventors Hall of Fame

Engaging Students Through Invention Education/STEM Learning Strategies Across All Content Areas

kthorsen@invent.org

<https://www.invent.org/>

Elementary, Middle School, Pre-Service, Administrative

STEM, Invention Education

The workshop will provide hands-on learning activities and strategies grounded in Invention Education and STEM learning concepts to reconnect students with joyful learning across all contents. This interactive workshop will renew enthusiasm for teaching and give teachers immediate strategies to use to engage and empower students.

Friday, 3:30 PM

Dakota G

Bree Oatman

South Dakota Discovery Center

Citizen Science, Cell Phone Colorimetry and Chemistry of Milkweed

breeoatman@sd-discovery.org

www.sd-discovery.org

High School, College

Interdisciplinary

Explore using cell phones as colorimeters and learn about how you can engage chemistry or biology students in a citizen science project exploring the stress response in milkweed. Partner with Augustana University and the South Dakota Discovery Center to engage your students in place based science research.



Bring New Skills and Hands-On STEM Fun to Your Classroom!

Join Our Summer Professional Development Programs.

sd-discovery.org



Explore. Educate. Empower.

Friday, 3:30 PM

Symposium

Lauren Kress

Resource Manager - SD Science Olympiad

Title: SD Science Olympiad

sdscienceolympiad@usd.edu

<https://sites.google.com/a/usd.edu/sdscienceolympiad>

Junior High & High School
Science & STEM

The 2023 South Dakota Science Olympiad State Tournament will be held on Saturday, March 25, 2023 on the campus of The University of South Dakota. Coaches need to email the school's preliminary rosters and the events that their schools plan to participate in by Friday, February 10, 2023. Attend this session and see past winners and discover how easy it is to enter your students.



- Business Meetings, Social & Banquet -

Friday, 4:30 PM
SDCTM

Dakota A
SDCTM.org

Business Meeting

All members or interested members of the SD Council of Teachers of Mathematics are invited to attend this discussion about our organization and the state of Mathematics Education in South Dakota and across the country. This is the annual SDCTM business meeting and is a leadership election year and all members are eligible voters.

Friday, 4:30 PM
SDSTA

Dakota E
SDSTA.org

Business Meeting

All members or interested members of the SD Science Teaching Association are invited to attend. This is the annual SDSTA business meeting.

Friday 5:30-6:30PM

Lobby

Networking Social

Make new friends and renew old friendships! Join your colleagues for pre-banquet refreshments and professional networking. *Thank you Vendors for all you do.*

Friday, 6:30 PM SD STEM Ed Awards Banquet
Prairie B & C

Featured Speaker: Stephen Pruitt Southern Regional
Education Board

**Battling Ignorance: 4 Words That Can Change the
World**

Stephen.Pruitt@sreb.org

www.sreb.org

Educators want to change the world. Educators are the ones that can. Come join Stephen Pruitt, former science teacher and science/policy leader for a funny, yet current look at the role of teachers in changing the world. Dr. Pruitt will share his experiences, both personal and professional, to remind us of the power of teachers in his life and as we recover from COVID. Dr. Pruitt has worked for the national importance of science education and support of teachers. His humorous storytelling and somewhat unique look at the world will engage you and inspire you as we all continue the fight against ignorance.



It's easy to get lost in the details when we consider everything educators do to provide the best education for South Dakota's children. The SDEA encourages you to pause and remember:

It's about our kids.

sdea.org | 605-224-9263

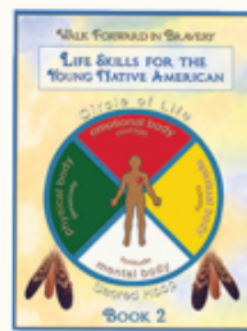


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- * Woohitaka Mani Yo -
Life Skills for the Young Lakota (K-8)
- * Woohitaka Mani Yo -
Life Skills for the Young Native American (K-8)
- * Wolakota - Life Skills for Teens (9-12)

This daily K-12 grade curriculum is a culturally-based, medicine wheel approach to health and wellness that focuses on our physical, emotional, spiritual and mental bodies. It is being used in schools throughout SD to create systemic healing and change by giving to our children and youth the educational tools and healing practices needed to transform their lives.



Oceti Wakan
PO Box 1958
Pine Ridge SD 57770

Ocetiwakan@gmail.com
(605) 454-1489
www.ocetiwakan.org

We are dedicated to helping our children & youth
create a bright future on the Red Road of Life

Sanford PROMISE provides STEM education and outreach for Sanford Research. We are working to inspire the next generation of scientists, problem solvers, and thinkers.

STEM Education

REACH OUT TO PROMISE FOR:

 Onsite and school visits

 Equipment lending library

 Lesson plans, videos and printables

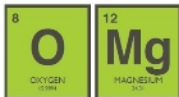


@SanfordPROMISE
promise.sanfordhealth.org

ENVIROTHON[®]



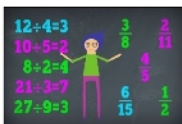
A NATURAL RESOURCE ENCOUNTER FOR THE NEXT GENERATION



Making Science & MATH FUN!

NOVA NOVA brings you stories from the frontlines of science.

NATURE Nature brings the beauty and wonder of the natural world into your home.



I <3 Math



Wild Kratts



What the Physics?



Cyberchase



Peg + Cat



Hero Elementary

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605-658-6140
gradadmissions@usd.edu

Saturday is Nerd T-shirt day or support your team day. Enjoy!

- PAEMST Breakfast - Saturday 7:00-8:00 AM -

Saturday, 7:00 AM

Prairie C

Allen Hogue & Dr. Jennifer Fowler

Brandon Valley High School & Rapid City School District

Breakfast for SD PAEMST State Level Finalists and Past Awardees

allen.hogie@k12.sd.us drangerjen@gmail.com

<https://paemst.nsf.gov>

Elementary, Middle School, High School

Science, Math

A breakfast honoring 2021 and 2022 State Level Finalists & all Past Awardees.



Remember to either complete your conference survey online -or- turn-in the one that's printed at the back of this booklet.

You could win a free conference registration for next year's conference.
Good Luck!

Breakout Sessions - Saturday 8:00-8:50 AM

Saturday, 8:00 AM

Featured Session

Prairie B

Robert Stack

rstack@csc.edu

Chadron State College

Data Analysis on Swings in Baseball

High School

Mathematics

Data analytics is a hot topic in nearly every occupation, with sports being the most popular. This session will reveal another metric to be utilized in the sport of baseball, with hints of the minimax and maximin theories along with some probabilistic models.

Saturday, 8:00 AM

Prairie C

Allen Hogue & Dr. Jennifer Fowler

Brandon Valley High School & RCAS

Showcase Your Teaching Practice and Win Money (PAEMST)

Allen.Hogie@k12.sd.us DrRangerJen@gmail.com

Elementary, Middle School, High School

Science, Math, STEM

How would you like to receive \$10,000 for showcasing your teaching practice? The Presidential Award is sponsored by the White House and the National Science Foundation. South Dakota is able to give two awards, one in mathematics and one in science. The 2022-2023 cycle will recognize teachers of grades 7-12. The 2023-2024 cycle will recognize teachers of grades K-6 and will begin in August of 2023.



Saturday, 8:00 AM

Leslie Sauder

Dakota A

Hamlin School District

Hands-on STEM Activities for Elementary Teachers

leslie.sauder@k12.sd.us

www.sauderscience.com

Elementary

STEM

Teachers will get to participate in hands-on STEM activities which include lesson plans and SD standard alignment. STEM activities for students in grades Kindergarten - 5th. Teachers will get to take STEM lesson plans and STEM materials. (Be ready to go to work as we will be building rubber band cars.)

Saturday, 8:00 AM

Chad Ronish

Dakota B

SURF

Exploring the Periodic Table with Electron Battleship

chad.ronish@bhsu.edu

<https://sanfordlab.org/feature/education-and-outreach>

Middle School, High School

Science, periodic table thread

A great way to explore electron configurations, quantum numbers, and periodic properties using a game based on "Battleship". Students get practice identifying elements based on their properties.



Saturday, 8:00 AM

Featured Session

Astrid Northrup, PhD

{Repeat of Fri 2:10}

Dakota C

Northwest College/Powell WY

Robotics for K-12 Teachers

astrid.northrup@nwc.edu

nwc.edu

Elementary, Middle School, High School

STEM

Introduce your students to fundamental concepts of how to design, build, program, and operate Lego Mindstorm robots. This workshop material is condensed from a course offered as part of a K-12 Computer Science endorsement program, and is designed to help teachers prepare their students for classroom and competitive robotics.

Scan to get the latest from TIE >>

www.tie.net



Saturday, 8:00 AM

Mark Kreie

Dakota E

Brookings High School

Desmos Classroom Activities & Curriculum

Mark.Kreie@k12.sd.us

<https://markkreie.blogspot.com/>

Middle School, High School

Math

Did you hear the news? Desmos has launched its own curriculum for grades 6-8 and algebra 1! Come learn about how you can access the free appetizer portion of the curriculum that you can implement in your class next week! Intended for grades 6-10; bring an iPad or laptop.

Saturday, 8:00 AM

Susan Arnette

Dakota F

STEMscopes by Accelerate Learning

Using Phenomena in 3D Science to Engage Students and Make Learning Relevant

sarnette@acceleratelearning.com

stemscopes.com

Elementary, Middle School

Science, STEM

Are you looking for a way to increase student ideas in the development of investigative phenomena? We will work in collaborative teams while experiencing an anchoring phenomenon routine that provides students with skills to develop a driving question board.

Saturday, 8:00 AM

Bree Oatman

Dakota G

South Dakota Discovery Center

Integrating the Oceti Sakowin Essential Understandings into Your Teaching

breeoatman@sd-discovery.org

www.sd-discovery.org

Elementary, Middle School, High School, College, Pre-Service Science, Math, STEM, Interdisciplinary, CTE

Bring a lesson plan and leave with a plan for how you can integrate Indigenous Knowledge connected to the Oceti Sakowin Essential Understandings into your teaching. Learn about resources and strategies for creating culturally sustaining science and math instruction.



South Dakota
Discovery Center

Bring New Skills and Hands-On STEM Fun to Your Classroom!

Join Our Summer Professional Development Programs.

sd-discovery.org



Explore. Educate. Empower.

Everyone has something that they do well. Please think about sharing your knowledge with other South Dakota teachers at next year's Conference.

Saturday, 8:00 AM

Rachael Coleman & Lynn Gutzwiller

Dakota H

Jordan School District

Using Protocols to Integrate Writing Into a 3-Dimensional Science Lesson

rachael.coleman@jordandistrict.org lynn.gutzwiller@jordandistrict.org

www.gandcscience.com

Elementary

Science, Reading and Writing

This dynamic, 3-dimensional lesson focuses on integrating writing protocols into your science instruction. During this SDSS aligned elementary lesson, participants will engage in embedded vocabulary and sense-making discussions and walk away with a set of writing protocols to teach informational writing within the context of a science investigation.



Breakout Sessions - Saturday 9:00-9:50 AM

Saturday, 9:00 AM

Larry Browning

South Dakota State University, Physics Department

Prairie A

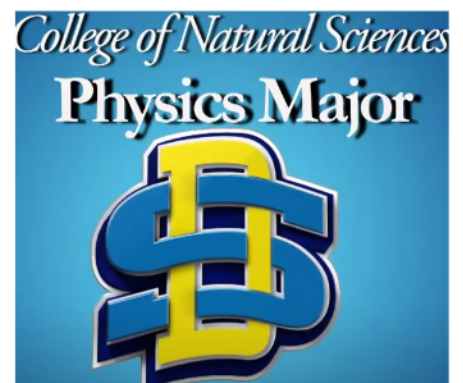
Affordable Data Collection Technology

Larry.Browning@sdstate.edu <https://phyphox.org/wiki/index.php/Puck.js>

Middle School, High School, College, Pre-Service

Science

Physics Phone Experiments (PhyPhoX) now interfaces with the Puck.js sensor package to provide an affordable suite of sensors. The small, lightweight Puck.js contains accelerometers, light, temperature, and magnetic sensors that use Bluetooth technology for wireless data collection. Come and explore some applications.



Saturday, 9:00 AM

Featured Session

Robert Stack

rstack@csc.edu

Prairie B

Chadron State College

History of Math

All grade levels Math

Mathematics: A Historical Perspective from Thales to Perfect Numbers

Thales, the Father of Geometry, had a salt mine and some very stubborn mules. Was calculus really discovered by Newton? How we see and understand all aspects of mathematics today started with some interesting individuals and groups of people creating the foundations for which we teach today. This session will look at a variety of people, places and things, including some mathematical connections you might not be aware of.



CHADRON STATE COLLEGE

Saturday, 9:00 AM

Prairie C

Dr. Prafulla Salunke and Cheyenne Edmundson

SDSU Dairy & Food Science

Application of Dairy Food - Based Science in Your Classroom

prafulla.salunke@sdsstate.edu

cheyenne.edmundson@sdsstate.edu

<https://sdsstate.edu/ds>

Elementary, Middle School, High School

Physical Science, Chemistry, and Biology

Hands-on experiment and take-home learning resources to engage your students in the physical and chemical properties of milk curdling and cheese making from a global dairy manufacturing specialist, researcher, and professor. Great experiments for young researchers preparing for their science fair projects.



100% job placement.
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\$160K student scholarships.
 CONNECTING STUDENTS TO HANDS-ON LEARNING & CAREERS
 Recruiter: cheyenne.edmundson@sdsstate.edu
 Website: sdsstate.edu/ds

SOUTH DAKOTA STATE UNIVERSITY
 Department of Dairy & Food Science

Saturday, 9:00 AM

Dakota A

Marie Story

Alcester-Hudson School District

Elementary Science Made Easy

Marie.Story@k12.sd.us

Elementary

Science, STEM

This session is a quick introduction into Elementary Science Basics. Find out how to get free resources, connect to the larger science network, and learn more about other opportunities to learn more about best science teaching practices.

Saturday, 9:00 AM

Dakota B

Erin Woodward

Sanford Underground Research Facility

Digging Deep for Discovery at America's Underground Science Laboratory

ebroberg@sanfordlab.org

sanfordlab.org

Elementary, Middle School, High School, College, Pre-Service, Administrative

Science, Math, STEM, Interdisciplinary

Sanford Underground Research Facility is on a mission to advance world-class science and inspire learning across generations. But what does that mean for South Dakotans, educators and students? In this session, learn why scientists go a mile underground, what they might discover, and why it matters for your classroom.

CURRICULUM UNITS ALIGNED TO STATE STANDARDS




www.sanfordlab.org/educators

Saturday, 9:00 AM

Astrid Northrup, PhD **Featured Session**

Dakota C
Northwest College, Powell WY

Wind Power: A New Era of Energy

astrid.northrup@nwc.edu

nwc.edu

Elementary, Middle School, High School

STEM

Introduce your students to how electricity is converted from the wind! Learn the basics of how wind turbines work, build a model wind turbine, and measure the voltage generated by the wind. This workshop material was developed and first presented at a conference at the University of Wyoming, and has since been presented to Wyoming and Montana K-12 students of all levels.

Saturday, 9:00 AM

Jan Martin

Dakota D
South Dakota Discovery Center

Creating a STREAM Classroom

janmartin@sd-discovery.org

<https://sd-discovery.org/>

Elementary

Science, Math, STEM, Interdisciplinary

Not enough time for science in your K-2 classroom? Create a STREAM learning environment connecting reading, art, science, technology, engineering and math is one method to make more time for quality science exploration. Strategies for finding quality literature that can bring science alive for your students will be presented along with lots of hands-on ideas for creating a STREAM environment. Plan on having fun!

Saturday, 9:00 AM

Mark Kreie

Dakota E
Brookings High School

Desmos Classroom Teacher Dashboard

Mark.Kreie@k12.sd.us

<https://markkreie.blogspot.com/>

Middle School, High School

Math

Participants will explore the various features found in the teacher dashboard of Desmos Classroom (formerly teacher.desmos.com). Participants will learn how to set up a class, assign a Desmos activity, and access the teacher dashboard. Plus, best practice tips will be shared. All Desmos tools are free. Intended for grades 5-12; bring an iPad or laptop.

Saturday, 9:00 AM

Nicol Reiner

Dakota F
Sanford Underground Research Facility & BHSU

Connections - Modeling in Mathematics and Science

Nicol.Reiner@bhsu.edu

<https://sanfordlab.org/educators>

Elementary, Middle School, High School

Science, Math

What is modeling? How is the practice of modeling in mathematics and in science connected? What implications does using modeling effectively have for selecting and planning learning activities? Come to this session to help clarify your understanding of modeling and how to use it to enhance student engagement and learning.

Saturday, 9:00 AM

Dakota G

Dr. Timothy Masterlark & Dr. Scyller J. Borglum

SD School of Mines & Technology and WSP USA

The X, Where Bad Things Happen: Avoid It or Own It.

masterlark@sdsmt.edu

<https://sites.google.com/sdsmt.edu/masterlark/home>

College, Administrative

Interdisciplinary

A university STEM Ed curriculum is dominated by Technical Skills. University clubs and student organizations provide Soft Skills that help students become effective employees and team members. We explore the necessity and hands-on methods to integrate the missing Primal Skills (Situational Awareness, Personal Responsibility, and Mental Toughness) into STEM Ed.

Saturday, 9:00 AM

Dakota H

Cindy Kroon

Montrose School District

Family Math 4: The Saga Continues (K-5)

cindy.kroon@k12.sd.us

<https://ck022.k12.sd.us/>

Elementary

Math

Explore a set of take-home activities designed to help families with young children discover the fun and engaging side of mathematics. Family math is not: flash cards, worksheets, or math homework. Family math is: puzzles, games, and engaging activities. Play around with math in a family-friendly environment and (hopefully) change perceptions about math. This session is hands-on! (Grades K-5)

Saturday, 9:00 AM

Symposium

John Williams (& several undergraduates)

University of South Dakota

Getting Everyone Involved in Science:

Expanding Accessibility and Engagement through Engineering

john.williams@usd.edu

<https://www.usd.edu/research-and-faculty/faculty-and-staff/john-williams>

Elementary, Middle School, High School, Pre-Service

Science, STEM

This session will focus on the use of engineering instruction to promote wider engagement and accessibility of science content. Engineering module planning will be discussed, with an emphasis on accessible questions and scaffolding strategies. Three middle school module examples with supporting documents and lesson plans will be shared.



Saturday, 9:00 AM {Repeat of Fri 10:30} Salon 1

Katrina Donovan & Deborah Mitchell

SDSMT Artist - In - Residence at SD Mines

STEAM: Materials, Metal Clay and More!

Katrina.Donovan@sdsmt.edu

<https://sites.google.com/sdsmt.edu/art-and-engineering/home>

Elementary STEM, Science, Math, Art

Kinesthetic learning is an important skill to have as an engineer or artist. Attendees will manipulate the metal clay while learning about the material's properties and how to integrate similar modules into a classroom setting, and they will have the opportunity to leave the conference with metallic art. {This session has limited materials for the first 20 participants.}



BLACK HILLS PARKS & FORESTS ASSOCIATION

The Black Hills Parks & Forests Association exists to support wonder and exploration through stewardship of your public lands.

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- » Children's Books
- » Guide Books

BlackHillsParks.org
605|745|7020

All purchases support our public land partners and education in our parks and forests!

Breakout Sessions - Saturday 10:00-10:50 AM

Saturday, 10:00 AM

Rebecca Myers & Nicole Uhre Balk

Dakota A

BHSSC / TIE

Utilizing Robots to Enhance Problem Solving Skills

RMyers@tie.net NUhreBalk@tie.net

<https://sites.google.com/tiegapps.net/rebeccamyers/home>

Elementary, Middle School, High School

Science, Math, STEM

Robots do not need to be an extracurricular activity only available to a few students, let's bring them to all learners in a classroom setting. Take some time to experience a few tasks in math or science that utilize robots to enhance problem solving skills and learner grit.

Saturday, 10:00 AM

Spencer Cody

Apiaries in Education



Spencer.Cody@k12.sd.us

<https://www.echs.k12.sd.us/>

Elementary, Middle School, High School

Science, STEM, Interdisciplinary, CTE

Learn about the ongoing implementation of educational apiaries in schools throughout South Dakota.

Dakota B

Edmunds Central School District



Saturday, 10:00 AM

Rochelle Darville {Zoom} & Ashley Armstrong

Engaging All Students using Culturally Relevant Inquiry Based Teaching Practices

Scienceteacher7171@gmail.com Ashley.Armstrong@bhsu.edu

Elementary, Middle School, High School

Dakota C

St. John the Baptist

Science

Participants will be able to define inquiry based learning as culturally responsive/relevant teaching and identify characteristics of cultural competency in science teachers. This session will host Ph.D. Candidate, Rochelle Darville from Gonzales, Louisiana. She will share her dissertation research and findings surrounding her Fulbright experience in Greece, examining culturally relevant teaching practices.

<https://us02web.zoom.us/j/86393699346?pwd=M0Y1czBiRjNZVys4UnBpTUQ1U2haQT09>

Meeting ID: 863 9369 9346 Passcode: db8J30

Saturday, 10:00 AM

Lora Catches & Faith Holmes

Life Skills for the Young Lakota/Dakota/Nakota Daily Curriculum

loracatches@gmail.com faithholmes@gmail.com

Elementary, Middle School, High School, Administration

Culturally based education is vital for the health and wellness of our communities. Woohitaka Mani Yo – Life Skills for the Young Lakota/Dakota/Nakota is currently being implemented in schools throughout SD to create systemic healing and change throughout our communities by giving our children and youth the educational tools and healing practices needed to nurture and educate their physical, emotional, spiritual and mental bodies.

Dakota D

Oceti Wakan Assistant Executive Director

www.ocetiwakan.org



OUTDOOR CAMPUS

Saturday, 10:00 AM

Mark Kreie

Dakota E

Brookings High School

Desmos Hangout

Mark.Kreie@k12.sd.us

<https://markkreie.blogspot.com/>

Middle School, High School

Math

In this session, Desmos Fellow Mark Kreie will be available to answer (to the best of his ability) questions about Desmos. Curious about building your own Desmos activity? Interested in learning about the graphing calculator features? Have you ever wondered what computation layer (CL) is? Come and join and be sure to bring your questions! Intended for grades 5-12; **bring an iPad or laptop.**

Saturday, 10:00 AM

Dakota F

Beth Hunt & Dr. Michael Amolins

Seeds of Change Research, Harrisburg, SD School District

Tropical Research Immersion, Bioinformatics, & Antibiotic Bioprospecting

info@SOCresearch.org michael.amolins@k12.sd.us

www.SOCresearch.org

High School

Science, STEM

Seeds of Change Research immerses high school students in life-changing, original science research programs in Costa Rica: Tropical Field Research and Bioinformatics Research. We also train teachers how to guide their students to "mine" insect microbiomes to discover possible antibiotic-producing microbial candidates in their high school lab. Come learn how!



Saturday, 10:00 AM

Dakota G

Christine Larson

South Dakota State University

How I Changed My Teaching and How it Changed My Students

christine.larson@sdstate.edu

Elementary, Middle School, High School

Math

Learn how I use vertical whiteboards and random grouping, with other aspects of Peter Liljedahl's Building Thinking Classrooms in Mathematics, to change how you teach and how students learn mathematics. I will provide examples of how I changed my practices and how you could implement them to transform your classroom.

Saturday, 10:00 AM {Repeats on Sat 12:40}

Dakota H

Crystal McMachen & Shannon Bren

Rapid City Area Schools

Tales of the First Year Implementing BTC

crystal.mcmachen@k12.sd.us shannon.bren@k12.sd.us

Elementary, Middle School, High School

Math

"Building Thinking Classrooms in Mathematics" by Peter Liljedahl has changed the way we run our classrooms. Come listen to the struggles and successes of implementing BTC and brainstorm with others on how to implement some or all of the 14 practices into your own classroom.

Saturday, 10:00 AM

Kari McRaith & Kelley O'Brien

Symposium
Hill City Elementary

How Classic Games Can Reinforce Math Skills

kari.mcraith@k12.sd.us *kelley.obrien@k12.sd.us*

Elementary

Math

Math games are a great tool to motivate students to learn. We will demonstrate different ways to use dominoes, playing cards, and classic board games in math class. We will explain how these games reinforce math skills and facilitate learning in the classroom.

Saturday, 10:00 AM {Repeat of Fri 1:10}

Katrina Donovan & Deborah Mitchell

Salon 1
SDSMT Artist - In - Residence at SD Mines

STEAM: Materials, Metal Clay, and More!

Katrina.Donovan@sdsmt.edu

<https://sites.google.com/sdsmt.edu/art-and-engineering/home>

High School, College

STEM, Science, Math, Art

Kinesthetic learning is an important skill to have as an engineer or artist. Attendees will manipulate the metal clay while learning about the material's properties and how to integrate similar modules into a classroom setting, and they will have the opportunity to leave the conference with metallic art. {This session has limited materials for the first 20 participants.}



CONTACT US



701-248-9786


4551 South Washington Street, Suite J

Grand Forks, ND 58201

info@fenworks.com

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Public Broadcasting


Making **Science** & **MATH** FUN!

NOVA


NOVA brings you stories from the frontlines of science.

NATURE


Nature brings the beauty and wonder of the natural world into your home.




I <3 Math




Wild Kratts




What the Physics?



Cyberchase



Peg + Cat



Hero Elementary

For Educational Resources, Register for Our Newsletter at sdpb.org/learn

Saturday 10:50-11:30 AM

Saturday, 10:50 AM

Exhibitor Hallway

Networking and Exhibitor Session

Conference attendees have the opportunity to network and visit with Exhibitors and enter door prize drawings. Exhibitors have color coded tickets for drawings. These tickets will be given out in the exhibition hallway at the discretion of the exhibitors. Keep one half and place the other in the drawing buckets at the registration table. The more booths you visit, the better your chances to win a prize! Drawings for this session will be held during Saturday lunch and you must be present to win.

Saturday 11:30 AM-12:30 PM

Saturday, 11:30 AM

Lunch

Prairie B & C

Come for a meal, networking with new friends, awards, recognitions, and raffle with swag from vendors and other amazing organizations! Hosted by Presidents of SDCTM and SDSTA.

Breakout Sessions - Saturday 12:40-1:30 PM

Saturday, 12:40 PM

Featured Session

Dakota A

Sharon Rendon

{Repeat of Fri 3:30}

Building Thinking Classrooms - Ideas to Get Started

All Levels

STEM, Science & Math

Have you wanted to increase your student's ability to problem solve and collaborate? In this session, participants will hear about strategies to increase student thinking and engagement, based on the research of Peter Liljedahl. We will explore a task together, using vertical whiteboards and visible random teams, then debrief the impact these strategies can have on students.

Saturday, 12:40 PM

Dakota B

Chad Ronish & Jing Liu

Sanford Underground Research Facility, University of South Dakota

Quarknet taking Physical Science to the Next Level

chad.ronish@bhsu.edu *Jing.Liu@USD.edu*

<https://quarknet.org/>

Middle School, High School

Science, STEM

See how the resources and support of Quarknet can help you provide a deeper understanding of Physical Science concepts using Particle Physics Research and Data to open a new world of understanding for your students. Quarknet activities turn complex topics into hands-on activities that let students experience particle interactions.



Saturday, 12:40 PM

Dakota D

Louisa Otto & Carly Logan

Sanford PROMISE, Sioux Falls School District

Weaving Science into Other Disciplines at the Elementary Level

louisa.otto@sanfordhealth.org Carolyn.Logan@k12.sd.us

promise.sanfordhealth.org

Elementary

Interdisciplinary

Learn how phenomena can be used to guide learning in math, reading, writing, and science with Louisa Otto (Sanford PROMISE) and Carly Logan (Sioux Falls School District). Then, join us for a discussion on challenges and solutions for teaching science at the elementary level.



Sanford PROMISE

Saturday, 12:40 PM

Dakota E

Kristine Heinen

SD Discovery Center

Classrooms to Space

kristineheinen@sd-discovery.org

<https://sd-discovery.org/>

Elementary, Middle School

Science, STEM

Bring the universe to your students by diving into the SD Discovery Center Planetarium dome. Bring this 360° interactive experience to your students and explore topics such as moon phases, constellations, planets, stories in the stars, and more.



Saturday, 12:40 PM

Dakota F

Emily Graber

Oldham-Ramona School

Planbook 101

emily.graber@k12.sd.us

www.planbook.com

All grade levels

All subjects

Bring an internet-accessible device to join us in practicing the basics of Planbook.com! This digital platform is an excellent tool for recording and moving lesson plans, attaching links, and keeping track of standards. If you currently use Planbook, bring your expertise to share!



Saturday, 12:40 PM

Dakota G

Rachael Coleman & Lynn Gutzwiller

Jordan School District

3 Dimensional Lesson and ELA Integration

rachael.coleman@jordandistrict.org lynn.gutzwiller@jordandistrict.org

www.gandcscience.com

Elementary

Science

Struggling to scaffold Science and Engineering Practices with your science lessons? Join us for an engaging model lesson to see how it can be done! Participants in this session will come away with a complete set of protocols for teaching the SEP's in the context of hands-on investigations.

Share the Classroom Treasures
You have until 3:00PM today to gather what you
can use in your classroom. All items are free.

Saturday, 12:40 PM {Repeat of Sat 10:00}

Crystal McMachen & Shannon Bren

Dakota H
Rapid City Area Schools

Tales of the First Year Implementing BTC

crystal.mcmachen@k12.sd.us shannon.bren@k12.sd.us

Elementary, Middle School, High School

Math

"Building Thinking Classrooms in Mathematics" by Peter Liljedahl has changed the way we run our classrooms. Come listen to the struggles and successes of implementing BTC and brainstorm with others on how to implement some or all of the 14 practices into your own classroom.

Saturday, 12:40 PM

Symposium

Dan Van Peurse, Vestal & Miller

USD / SDSU

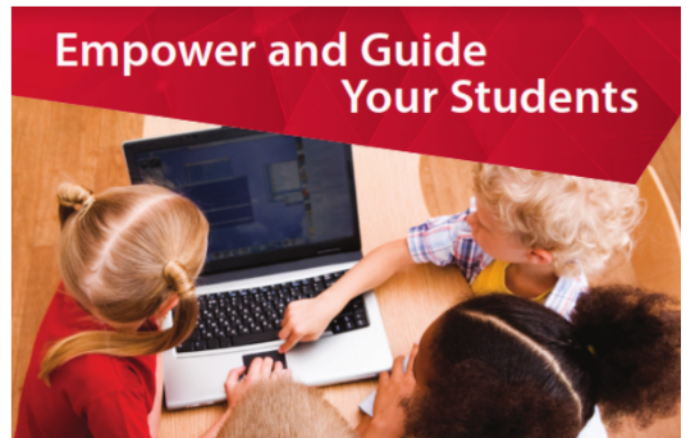
Meet The Future Teachers

dan.vanpeurse@usd.edu

Middle School, High School

Science, Math, STEM

Come and meet our teacher ed students and help provide them with encouraging and sound advice.



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Don't forget to fill out your evaluation of the conference. One name will be drawn to receive a paid registration for next year. Plus it may help us make next year even better.



SD EPSCoR

RESEARCH. EDUCATION. ECONOMIC DEVELOPMENT.

Breakout Sessions - Saturday 2:40-3:30 PM

Saturday, 12:40 PM

Salon 1

Ann Anderson & Deann Kertzman

Belle Fourche School District

The Opportunities You Take!

ann.m.anderson@k12.sd.us *Deann.Kertzman@bhsu.edu*

Elementary

Science, Math, STEM, CTE

From my experiences with Black Hills State University, TIE, and the Sanford Science Education Center, I can't express enough the need to be involved. The opportunities available to teachers sometimes aren't that obvious, but when the chance is there, take it! Take it for you, for your students, and for education. I would like to share my experiences with a research grant and what it has brought to my continued education, my classroom, and my students.

Saturday, 1:40 PM

Prairie A

Lynn Gutzwiller & Rachael Coleman

Jordan School District

Research Quest- FREE Online Investigations from NHMU

lynn.gutzwiller@jordandistrict.org *rachael.coleman@jordandistrict.org* <https://bit.ly/SDSTC22>

Middle School

Science

Teachers will use Research Quest, the award-winning, free, online investigations, to engage their students in some of the most intriguing mysteries of our time. They will gather evidence, engage in debate to reason with their evidence, and develop explanations to communicate their ideas - all while using 3D technology to access many of the museum's rich fossil, artifact and biologic resources.

Saturday, 1:40 PM

Prairie B

Rebecca Myers & Nicole Uhre-Balk

BHSSC / TIE

Computational Thinking: Why it's For Everyone Everywhere

RMyers@tie.net *NUhreBalk@tie.net* <https://sites.google.com/tiegapps.net/rebeccamyers/home>

Elementary, Can be beneficial in upper grade levels this work focuses in the elementary setting Science, Math, STEM, Interdisciplinary

Computational Thinking (CT) is a framework that relates how we approach everyday problems with a computer science lens. It can improve problem-solving skills, is easy to add to almost any lesson in any subject (even ELA!), and increased familiarity could encourage more students to pursue computer science careers.

Saturday, 1:40 PM

Prairie C

Larry Browning & Matt Miller

South Dakota State University

The Ballad of Matt and Larry Continues

Larry.Browning@sdsu.edu *Matt.Miller@sdsu.edu*

Middle School, High School, College

Science

Puking pumpkins, ghost guts, exploding balloons, floating rings, and singing cups – the danger is real and so is the science. Mathematically: Audience Interest is proportional to presenters' risk or $AI = c PR$ where "c" is a constant of proportionality. Come see what they've cooked up for 2023.

Saturday, 1:40 PM

Mark Kreie

mark.kreie@k12.sd.us

Dakota A

Brookings High School

The Do's & Don'ts of Student Teaching

<https://markkreie.blogspot.com/>

Science, Math, STEM

Elementary, Middle School, High School, Pre-Service

This session is intended for teachers who are leveling up their mentoring skills when working with pre-service teachers AND for pre-service teachers who are (or soon will be) student teaching. University faculty members are also welcome to join. Participants will participate in discussions focused on mentor / mentee best practices, establishing & managing clear expectations, providing constructive feedback, and celebrating successes.

Intended for any content area in grades K-12.

Saturday, 1:40 PM

Merideth Wald

merideth.wald@k12.sd.us

Dakota B

Rapid City Area Schools - Black Hawk Elementary

Convergence in the Elementary Classroom

Elementary

Science, Math, Interdisciplinary

This session will introduce educators to convergence in the elementary classroom. With demands increasing and time staying the same, we need to find another way to integrate math and science into literacy instruction. We can find another approach to ensure students are having rich conversations across all content areas.

Saturday, 1:40 PM

Nicol Reiner

Sanford Underground Research Facility & BHSU

Dakota C

Enhancing Learning with Belonging

Nicol.Reiner@bhsu.edu

<https://sanfordlab.org/educators>

Elementary, Middle School, High School, Administrative

Science, Math

Students pick up signals from many sources about whether or not they belong: school and classroom practices, classroom discourse, perceived expectations, and interactions with students and adults. Belonging impacts engagement, learning, success, interactions, and behavior. Let's talk about practices that create a sense of belonging and positive culture.

Saturday, 1:40 PM

Steven Rokusek

South Dakota Public Broadcasting

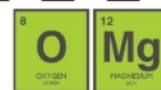
Dakota D

Dissection Resources for Classroom Use

steven.rokusek@state.sd.us www.sdpb.org/learn/learnersconnection

Middle School, High School, Post secondary Science, Administrators and CTE Educators

During this session, participants will learn about a collection of resources called Dissection 101. The Dissection 101 series includes educational videos, lesson plans, quizzes, and other materials for many dissections, including the cow eye, sheep heart, perch, and more. CTE and science educators and administrators are encouraged to attend this session.



Making Science & MATH FUN!



NOVA brings you stories from the frontlines of science.



Nature brings the beauty and wonder of the natural world into your home.



I < 3 Math



Wild Kratts



What the Physics?



Cyberchase



Peg + Cat



Hero Elementary

For Educational Resources, Register for Our Newsletter at sdpb.org/learn

Saturday, 1:40 PM

Dakota E

Stephanie Higdon

E-Learning Master Teacher of Math at NSU

Teaching Grade-level Mathematics Standards to the Required Depth

Stephanie.Higdon@northern.edu

Elementary, Middle School, High School

Math

All students, regardless of their current mathematics understanding, deserve to investigate high-quality mathematics tasks aligned to grade level standards. Join me in rich conversation around the value of teaching the mathematics standards to the required depth of the standards, the vertical progression of standards and best practices for engaging students in high-quality mathematics tasks, so all students achieve success.

Saturday, 1:40 PM

Dakota F

Anne Lewis & Bree Oatman

SD Discovery Center

CO₂ Underground: Soil Biology Respiration

annelewis@sd-discovery.org

breeoatman@sd-discovery.org

sd-discovery.org

Middle School, High School

Science

Soil has a role in the carbon cycle. Learn how to integrate soil into teaching the carbon cycle and photosynthesis. You will also learn about the Solvita kit to measure soil CO₂ and how you can get one for your class.

Saturday, 1:40 PM

Dakota G

Chad Ronish

SURF

Using the Periodic Table to Identify Radioactive Decay Chains and Isotopes

chad.ronish@bhsu.edu

<https://sanfordlab.org/feature/education-and-outreach>

High School

Science, Periodic Table

In this Sanford Underground Research Facility Curriculum Unit, students explore the creation of the elements on the periodic table in stars and other astronomical events. We will do a brief overview of the unit before diving into an interactive lesson that will have your students figuring out nuclear fusion and radioactive decay.

Saturday, 1:40 PM

Dakota H

Julie Dahl & Ann Anderson

Sanford Underground Research Facility & Belle Fourche Middle School

Using Phenomenon to Leverage Student Curiosity

(How Small Tweaks Can Pay Big Dividends)

Julie.Dahl@bhsu.edu

ann.m.anderson@k12.sd.us

<https://sanfordlab.org/educators>

Elementary

Science

Discover synergy among ELA, math, and science practices to invigorate your elementary classroom! Explore the philosophy behind the development of three-dimensional instructional materials and using phenomenon to engage students. Participants in this session will explore three-dimensional learning, using a curriculum connected to the science of the Sanford Underground Research Facility.

Breakout Sessions - Saturday 2:40-3:30 PM

Saturday, 2:40 PM

Jenna Stephens & Michael Birkeland

Prairie A

TIE, ASU Prep Digital

Utilizing Desmos to Enhance Your Curriculum

jstephens@tie.net mbirkell1@asu.edu

tie.link/js

Middle School, High School

Math

Does your curriculum lack interactivity? Whether your curriculum is outdated or fresh and new, adding a little Desmos pizzazz can enrich conversation and engagement for all students.

Saturday, 2:40 PM

Benjamin Benson & Louisa Otto

Prairie B

Sanford Research

Epigenetics: Sanford PROMISE Resources for your classroom

Benjamin.Benson@sanfordhealth.org Louisa.Otto@SanfordHealth.org <https://research.sanfordhealth.org/sanford-promise>

Middle School, High School, College

Science, STEM, CTE

The PROMISE team has developed on-line lesson plans to help teachers bridge the gap between textbooks and what is happening currently in the biomedical research field. Our session will focus on epigenetic influences related to expression of your DNA. We will also provide opportunities to learn about other online lessons, lending library and ways that the PROMISE team can help your students engage with biomedical research.

Saturday, 2:40 PM

Matt Miller & Jaque Mann

Prairie C

South Dakota State University

American Chemical Society RAMP - How to Make Your Classroom Safe

matt.miller@sdsstate.edu jaque.mann@sdsstate.edu <https://www.sdsstate.edu/chemistry-biochemistry>

Elementary, Middle School, High School, College, Pre-Service, Administrative

Science, STEM, Interdisciplinary

The American Chemical Society urges members to use RAMP to approach safety: Recognize, Assess, Minimize, Prepare. This session will introduce RAMP with specific emphasis on Recognize (SDS, GHS, and Labeling) and Minimize (Storage and Waste). A discussion about the best safety practices is the goal for the session.

Saturday, 2:40 PM

Featured Session

Dakota A

Sharon Rendon

Area Model from Kindergarten to Calculus

Elementary, Middle School, High School

Mathematics, STEM

The session is all about developing the teacher's content knowledge associated with how area models are utilized within elementary mathematics to develop conceptual understanding of operations on real numbers from Kindergarten through Calculus (12th grade). Participants will gain exposure to the "how" and "why" this model should be taught, as well as research how the area model progresses from grade to grade.

Saturday, 2:40 PM

Dakota D

Bree Oatman, Alvin Dela Cerna & Kathryn Medina Carls

SD Discovery Center, St. Francis Indian School

Ipasi Summer Research Experience

breeoatman@sd-discovery.org kathrynmc@sfisk12.org alvin.delacerna@k12.sd.us www.sd-discovery.org

Elementary, Middle School, High School

Science, Math, STEM, Interdisciplinary, CTE

Learn about how to participate in teacher research experiences that are place based and tied to goals you create regarding bringing research into the classroom and enhancing your ability to teach different science concepts. The session will also explore summer research experiences for Native American high school students.

Saturday, 2:40 PM

Dakota E

Ally Bowers

NSU Center for Statewide E-Learning

Chem for All! How to Get All of Your Students Talking

alison.bowers@northern.edu

High School

Science

This session will provide concrete strategies and instructional materials to get all students talking in your chemistry class. We will discuss the importance of developing a positive classroom culture and then practice a few activities that engage students in conversations about chemistry. All classroom resources will be shared!

Saturday, 2:40 PM

Dakota F

Anne Lewis & Ed Welsh SD Discovery Center & Badlands National Park

What the Badlands Fossils Tell Us

annelewis@sd-discovery.org

edward_welsh@nps.gov

sd-discovery.org

Elementary, Middle School, High School

Science, Math

Come explore how to integrate the mammal fossils of Badlands National Park into your classroom. We'll start with an activity geared for 3rd grade and level up from there. Hint: Set up a free sketchfab.com account for maximum immersion.

Saturday, 2:40 PM

Dakota G

Nathaniel Raak & Scott Kortan Mitchell Technical College

Technical College Math

nathaniel.raak@mitchelltech.edu

scott.kortan@mitchelltech.edu

High School

Math

Ever been interested in what kind of math is needed or used at a Technical College? In this round table discussion we will discuss and answer questions about what math pre-requisites are required, what the math class requirements are, and what sort of math applications happen at the Technical Colleges in South Dakota.



Saturday, 2:40 PM

Raya Nagel

Dakota H

Isanti Community Schools

Glitter... Not My Thing.

rnagel@santeschools.org

Elementary, Middle School, High School, College, Pre-Service

relationship building, classroom management

School discipline is broken. Generally, our students who need the most help are viewed as disrespectful, out of control, beyond help, and are usually the recipients of our most ineffective and punitive interventions. Come, listen, and collaborate about applicable relationship building strategies that are effective and will transform the culture you have within your classroom walls.

Wrap-Up & Reflection Discussions - Saturday 3:30-4:15 PM

Saturday 3:30 PM **Science Wrap-up and Reflect**

Dakota A

Join SDSTA Leadership and offer your feedback from the conference and recommendations for future events. Turn in your survey for a chance to win a free conference registration to the 2024 SD STEM Ed Conference.

Saturday 3:30 PM **Math Wrap-up and Reflect**

Dakota E

Join SDCTM Leadership and offer your feedback from the conference and recommendations for future events. Turn in your survey for a chance to win a free conference registration to the 2024 SD STEM Ed Conference.

Saturday 4:30 - 6:30 PM

Prairie A

SDCTM & SDSTA Officers and Conference Leadership Joint Board Meeting

SD STEM ED Board Chair & JPDC Board - SDCTM & SDSTA Officers and Conference Leadership meet to reflect & discuss current conference outcomes and strategize for upcoming event(s). If you are interested in helping to manage the conference and be part of the Joint Board, please contact SD STEM Ed Board Chair Cindy.Kroon@k12.sd.us. Next Year's Conference will be February 1, 2, & 3, 2024.

#TIE23

April 24-25, 2023
The Monument, Rapid City

Featuring Dr. Catlin Tucker



Bestselling blended learning author, international trainer, and keynote speaker

Dr. Tucker will be presenting multiple times on Monday, including a book signing and an in-depth on Tuesday.

Join us for:

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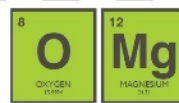
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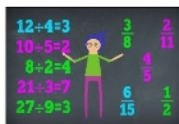
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NOVA brings you stories from the frontlines of science.



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I < 3 Math



Wild Kratts



What the Physics?



Cyberchase



Peg + Cat



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Sanford PROMISE provides STEM education and outreach for Sanford Research. We are working to inspire the next generation of scientists, problem solvers, and thinkers.

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DAKOTA STATE
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Representatives will be exhibiting on Friday from 8:00 AM until 5:30 PM.

(Most will be available on Saturday till noon.) These include:

Amplify	Samantha Berg & Kevin Mauser
Badlands National Park	Ed Welsh
Black Hills Parks and Forests Association	Andrea Fountain & Julie Brazell
BHSU & Sanford Underground Research Facility	Chad Ronish & Deann Kertzman
CPM Educational Program	Laura Bain & Lisa Comfort
Dakota State University	Fenecia Homan
Department of Dairy & Food Sciences at SDSU	Cheyenne Edmundson & Dr. Clifford Hall
Envirothon and Project Learning Tree	Marnie Lammle
ExploreLearning	Toni Milleret & Laura Chervenak
Fenworks	Brandan Burkhart & Gannon Karsky
Imagine Learning / Edgenuity	Chet Riddle
National Academies of Sciences, Engineering, & Medicine	*
National Inventors Hall of Fame	Kristin Thorsen & Hannah Hall
Oceti Wakan	Faith Holmes & Lora Catches
RightStart Mathematics	Maren Ehley
Sanford Research	Benjamin Benson & Louisa Otto
Sanford Underground Research Facility	Erin Lorraine Woodward
SD EPSCoR	*
SD Game Fish and Parks Outdoor Campus	Cheyenne Parke & Joseph Salvati
Seeds of Change Research	Beth Hunt & Mike Amolins
South Dakota Discovery Center	Kristine Heinen & Jennifer McIntyre
South Dakota Education Association	Rich Mittelstedt & Lou Ann Jensen
South Dakota Mines	Ashli Maddox
SDSU - College of Natural Sciences	Brandy Netty & Clara Greenhagen
SD Mines-Materials & Metallurgical Engineering	Katrina Donovan & Deborah Mitchell
South Dakota Public Broadcasting	Steven Rokusek
South Dakota State Library	Kathleen Slocum & Joshua Easter
STEMscopes Math	Heidi Florcruz
Technology & Innovation in Education (TIE)	Rebecca Myers & Nicole Uhre Balk
University of South Dakota	Wendy Thorson

Graduate Credit Conference credit will be offered through Dakota Wesleyan University. You may register for one-hour of credit at the 599 level. Attendance at 15 hours worth of sessions, lunches, and/or the banquet are required to earn graduate credit from Dakota Wesleyan University along with assignments listed in the syllabus. You must register online to receive this graduate credit at the following link:

<https://store.dwu.edu/NonDegreeCredit>. Registration for credit will close at 5 pm on Friday, February 3. Make sure to register for the SD STEM Ed Conference! A syllabus listing course requirements can be found at: <https://docs.google.com/document/d/1adYrCQZ6XSy2gzdLUy5I6pTU7ju1vbPc/edit?usp=sharing&oid=113560598293920855703&rtpof=true&sd=true>. Please remember that you must submit all assignments by the due date listed in the syllabus in order to receive credit for the course. Please also note that there is no withdrawal date for courses running for 21 days or fewer, therefore once you register you will not be able to withdraw from this course. For more information, contact Dr. Ashley Digmann at (605) 995-2891 or at Ashley.Digmann@dwu.edu.

– Next year’s conference will be February 1, 2, & 3, 2024 --

The 2023 Conference Committee would like to offer a Special Thanks to . . .

Dakota Wesleyan University and Dr. Ashley Digmann for handling the credit.

All speakers for their dedication to the future of mathematics and science education.

All exhibitors for their enthusiastic participation.

The Huron Area Chamber of Commerce, The Huron Convention and Visitors Bureau for a great deal of help and cooperation.

The Huron Events Center & Crossroads Hotel for their help and generous hospitality.

All the conference participants who make all of our efforts worthwhile and without whom there would be no conference.

THANKS Sanford Health and PROMISE for the donation & sponsorship of our conference.

THANKS to Sanford for providing lanyards.

Thank you to the SD DOE for providing the books that you received.



THANK YOU to SD EPSCoR
for the donation & sponsorship of our conference

A SPECIAL *THANKS* GOES TO *TIE* FOR HELPING US WITH PROJECTORS!

(This year’s TIE Conference is April 24-25, 2023 in Rapid City.)

Next year’s SD STEM Ed conference will be February 1, 2, & 3, 2024.

The 2023 February STEM Ed Conference is a joint venture of the South Dakota Science Teaching Association (SDSTA) and the South Dakota Council of Teachers of Mathematics (SDCTM) Note: There is a common registration form for the conferences. One form is used to register for all activities, including SDSTA and SDCTM memberships. The best discount on the registration rate is Early Registration by Dec. 15th. There is still a discount for paid Pre-Registration between Dec. 16th – Jan. 24th. Anything thereafter will be considered On-Site Registration. On-Site Registration rates are: ONE-day (SDCTM or SDSTA members) \$175, Non-members \$225, Students \$70 includes the Noon Luncheon for that day TWO-day (SDCTM or SDSTA members) \$200, Non-members \$250, Students \$80 includes the Noon Luncheon for both days The Friday Night Banquet is NOT included in the registration fee. A ticket for the banquet may be obtained at an additional cost of \$30. {Registration & payment after Jan. 24th will be considered as on-site registration.} Because of a limited printing budget, the program was available in advance at the SDCTM website [www.sdctm.org] or SDSTA website [www.sdsta.org]. The printed Schedule-at-a-Glance will be distributed on site with the registration materials.

2023 SD STEM Ed Conference

Sponsored by SDSTA & SDCTM

Please take time to respond to the following questions concerning the conference. This information will help the program committee take steps to improve future conferences.

Circle one in each group:

Your Content Area: Math Science Both STEM Other _____

Your Grade Band: Elementary Middle School High School College Other

Circle which no cost-to-you items you enjoyed; or X those we could do without:

Morning: donut holes & coffee; All day: pop; Other _____

What presentation or presentations did you feel were the most useful or helpful?

What made it (or them) good?

Were there any presentations that disappointed you?

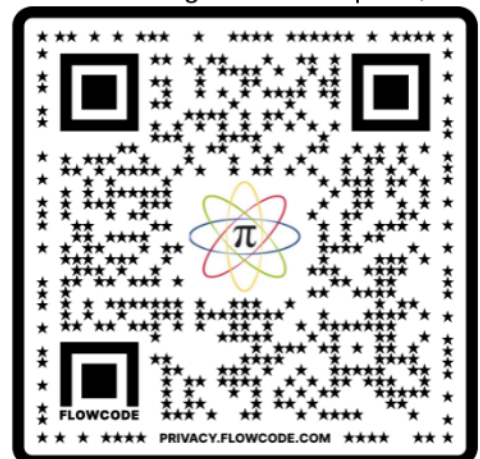
Please give us your overall assessment of the conference along with any comments you would like to share.

Detach and fill in the following for a final prize to be sent after the conference. To register for the prize, turn in this entry along with your evaluation form (or submit online) .

Name

Address

City, State, Zip Code





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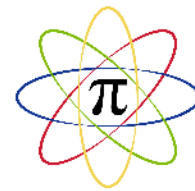
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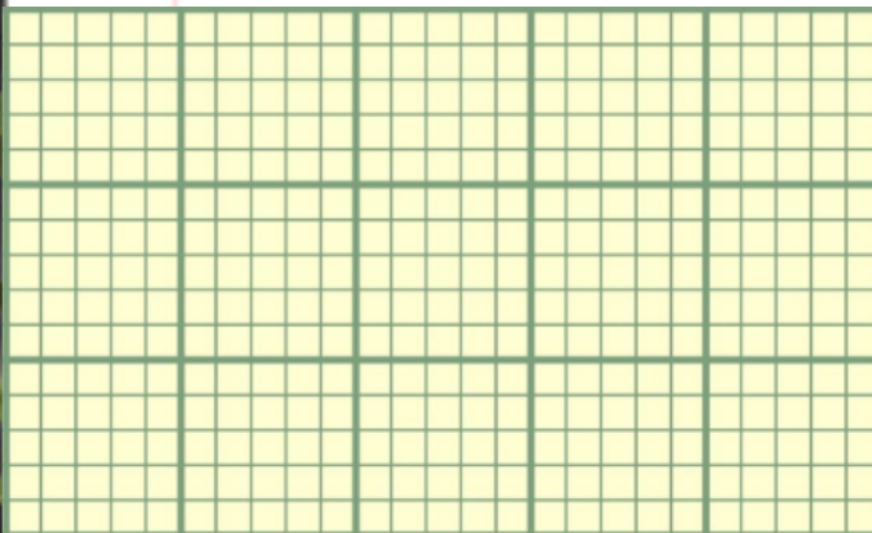
SDSTA Webmaster:

James Stearns
James@SDSTA.org



This sentence contains exactly threee errors.

Parallel lines have so much in common that it's a shame they'll never meet.



A photon checks into a hotel & is asked if he has any luggage. The photon replies "No, I'm traveling light."

