

**32nd**

# SD STEM Ed Conference

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

**February 1, 2, & 3, 2024  
Crossroads Hotel-Huron Event Center  
Huron, SD**

**Teaching on the Edge of  
Understanding and at  
the Speed of Learning**

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Graduate Credit is available through BHSU-Dr. **Deann Kertzman**  
Next year’s conference will be **February 6, 7, & 8, 2025.**



**Banquet Speaker - Dr. Graham Fletcher** keynote titled: "*Teaching on the Edge of Understanding and at the Speed of Learning.*" Graham Fletcher has served in education as a classroom teacher, math instructional lead, and currently, as a math specialist. He is continually seeking new and innovative ways to support students and teachers in their development of conceptual understanding in elementary mathematics. He is a co-author of "Building Fact Fluency" and openly shares many of his resources at [gfletchy.com](http://gfletchy.com).

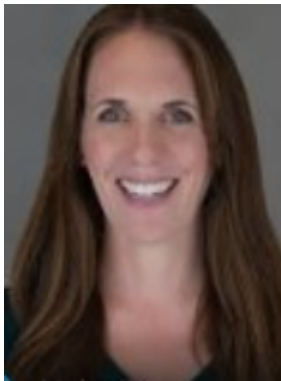
***Dr. Bobson Wong (Teaching Writing A Focus on Equity in Math Instruction)***

Dr Wong has taught high school math in New York public school since 2005. He is a four time recipient of the Math for America Master Teacher Fellowship and the 2022 winner of the MfA Muller Award for Professional Influence in Education. He is the co-author of "The Math Teacher's Toolbox" (Jossey-Bass, 2020) and "Practical Algebra: A Self-Teaching Guide" (Wiley, 2022) as well as numerous articles. In 2022-23, Bobson was chair of the Nominations & Elections Committee of NCTM.



***Cherie Bornhorst (Little Shop of Physics)***

Cherie graduated with a B.S. in Natural Sciences with a minor in Physics Education from Colorado State University. She spent 10 years teaching high school Physics in Minnesota and Colorado. She served as the CO/WY American Association of Physics Teachers (AAPT) President and started the Colorado Quarknet Center, which focuses on helping current high school teachers bring real research data into the high school classroom setting. Cherie is also the long-time organizer of the Denver Area Physics Teacher Meetings, where she regularly brings together area Physics teachers to collaborate, share ideas and best practices. She currently works for the Little Shop of Physics, an informal science outreach program at CSU, sharing her love of science with K-12 students and working with area teachers to support science education in the local schools.



***Dr. Ian Her Many Horses (STEM collaborative), featured speaker***

**Ian Her Many Horses** grew up on the Rosebud Reservation and is a graduate of Todd County High School and the University of Colorado at Boulder (B.S. Computer Science, Math Ed. Certification). He has taught Math and Computer Science in the past at Todd County HS, as well as worked for CU-Boulder as the program coordinator for the Indigenous Alliance Program, which is a STEM recruitment program for Native HS students. Currently, he is a PhD candidate in CU-Boulder's School of Education focusing on Computer Science Education.



# 2024 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 1, 2024

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

### Friday, February 2, 2024

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 Exhibitor Hallway

11:50 AM - 12:50 PM Friday Luncheon Prairie A, B, C

*(cost included in the registration fee - Hamburger/Bratwurst Buffet)*

12:50 PM– 1:10 PM Networking, Exhibitors 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 Imagine Learning - Thank you Chet Riddle

6:30 PM Friday Evening Banquet Prairie A, B, C

*(Cost is \$35 - Chicken Almondine {requires separate ticket})*

### Saturday, February 3, 2024

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 2024 Planner

<b>Thursday, Feb. 1, 2024</b>		
	First Choice	Second Choice
7:00 PM	Science Showcase    Prairie B	Math PotLuck    Prairie C

<b>Friday, Feb. 2, 2024</b>		
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 &amp; C</i>	
	Title: <i>OPENING SESSION - Conference Welcome</i>	
8:30 AM	Location: <i>Prairie B &amp; C</i>	Location: <i>Dakota A or Dakota B</i>
	Title: <i>President's Panel Discussion</i>	Title:
9:30 AM	Location:	Location:
	Title:	Title:
10:30 AM	Location:	Location:
	Title:	Title:
11:50-12:50	<b>Friday Noon Luncheon in Crossroads Hotel – Prairie A, B, C</b>	
12:50-1:10	<b>Exhibitor Networking: Exhibitor</b>	
1:10 PM	Location:	Location:
	Title:	Title:
2:10 PM	Location:	Location:
	Title:	Title:
3:00 PM	<b>Exhibitor Networking: Exhibitor</b>	
3:30 PM	Location:	Location:
	Title:	Title:
4:30 PM	<i>SDSTA BUSINESS MEETING in Dakota A</i> <i>SDCTM BUSINESS MEETING in Dakota B</i>	
5:30	Social hour Sponsored by Imagine Learning - Thank you Chet Riddle	
6:30 PM	Friday Night Banquet in Prairie Ballrooms A, B, C <i>Teaching on the Edge of Understanding and at the Speed of Learning</i> (Banquet Tickets Required-Cost is \$35) <i>Graham Fletcher - speaker</i>	

<b>Saturday, Feb. 3, 2024</b>		
	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	<b>Exhibitor Networking: Exhibitor Session</b>	
11:30-12:30	<b>Saturday Noon Luncheon in Crossroads Hotel – Prairie A, B, C</b>	
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 B
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

### Science Showcase

Prairie B

SDSTA President Ashley Armstrong & President-Elect 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 (or send an email to [officers@SDSTA.org](mailto:officers@SDSTA.org) to post to their web). Pizza will be provided for those who attend!**



Thursday, 7:00 PM

### Math Potluck

Prairie C

SDCTM President Dan VanPeurseem & President-Elect Sharon Vestal

**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!**

Share the Classroom Treasures (free items)

Check the hall between the Salons and Prairie B & C

Available now till Saturday 2:40 PM

**- Friday 7:00 AM -**

**Conference Onsite Registration Opens - Crossroads Lobby**

**- Friday 8:00 AM -**

**Conference Welcome for ALL**

Friday, 8:00 AM

Pres, Vice Pres, Registrar

Prairie A, B, C

SD Public Schools

### Opening Session – Conference Welcome for All

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

**Math, Science, STEM, ...**

Featured Speakers, SDCTM President Dan VanPeurseem, SDSTA President Ashley Armstrong, and others will give you a Conference overview including, but not limited to introduction of Featured Speakers, Conference layout, and will answer any questions that arise.

## - Friday 8:30 AM -

**Friday, 8:30 AM**

President's Panel Discussion

### **President's Panel Discussion – Topics to include**

SDCTM President Dan VanPeurseem    SDSTA President Ashely Armstrong

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

Lifeboat Competition!

Representatives from the different areas of education are on an island that is sinking. With all the supplies, there is only room for one person on the lifeboat. This person will need to restart civilization in the new homeland. Come and judge which of the areas of education adequately convinced the audience as the superiority of their area to gain the last available seat on the lifeboat! *(Disclaimer: These are “semi-professional” actors and any comments, hazing, smack-talking , etc. is not a reflection of their true respect and admiration for each of the disciplines represented)*

**Prairie A, B, C**

SDCTM & SDSTA

[SDCTM.org](http://SDCTM.org)    [SDSTA.org](http://SDSTA.org)

**Math, Science, STEM**

**Friday, 8:30 AM**

{ Repeats on Friday, 1:10 in Dakota C }

Naomi Alhadeff

### **Eco-Schools US: A New & Sustainable Path Forward**

[AlhadeffN@nwf.org](mailto:AlhadeffN@nwf.org)

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

Naomi Alhadeff will discuss the long-established Eco-Schools US program and how teachers can have a positive impact on the planet using student-led actions. Learn about the Eco-Schools framework and how it guides teachers and students to create a more sustainable classroom or school. Using three main pathways Climate, Wildlife and Biodiversity, & Resilient and Healthy Communities, students and teachers will be able to track and visualize their impact.

**Dakota A**

National Wildlife Federation

[nwf.org](http://nwf.org)

**Math, Science, STEM**

**Friday, 8:30 AM**

Joseph Salvati

South Dakota Game, Fish, and Parks/ SDSU Extension and 4-H

### **Educational Opportunities with SD GFP and SDSU Extension and 4-H**

[joseph.salvati@state.sd.us](mailto:joseph.salvati@state.sd.us)

Elementary, Middle School, High School

Learn all about educational experiences that are offered for free for teachers and their students through The Outdoor Campus. Also, find out about free and engaging curriculums that are built to be integrated into your class scheduled to teach students about outdoor and environmental focused topics.

**Dakota B**

<https://gfp.sd.gov/education/>

**Science**

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

**Friday, 9:30 AM**

**Featured Speaker**

Bobson Wong

### **Incorporating Equity Tasks into Everyday Math Classrooms**

[mr@bobsonwong.com](mailto:mr@bobsonwong.com)

Elementary, Middle School, High School

In this session, we describe what we call equity tasks, short activities that incorporate four student goals that relate to equity - rigor, identity, diversity, and justice. We also share a rubric that we created to evaluate equity tasks and examples of equity tasks that can be embedded into our teaching.

**Prairie A, B, C**

Bayside HS (NYC Public Schools)

<http://bobsonwong.com>

**Math**

**Friday, 9:30 AM**

Darwin Daugaard

## Science in a Suitcase

[ddaugaard@ogknights.org](mailto:ddaugaard@ogknights.org) Middle School, High School

This session will show a variety of demos that I have done in my classroom over the years. Most are physics based.

**Friday, 9:30 AM**

Nicol Reiner

## Focused Observation in Math & Science Classrooms

[nreiner@sanfordlab.org](mailto:nreiner@sanfordlab.org)

Elementary, Middle School, High School, Administrative

We all have the same goal: increase 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, 9:30 AM**

Cheyenne Parke

## Fish Adaptations Lesson in the Classroom with SD GFP

[cheyenne.parke@state.sd.us](mailto:cheyenne.parke@state.sd.us) <https://gfp.sd.gov/toc-west/> Elementary, Middle School

In this workshop teachers will participate in a hands-on activity called Fashion A Fish. Teachers will learn the different adaptations that fish have and their purpose. Teachers will then create a fish with adaptations randomly drawn from a stack of cards. We then share our creations and talk about how the fish will survive with its adaptations. This program is taught to 2nd-8th graders and can be adapted for older students as well.

**Dakota A**

Bishop O'Gorman High School

**Science**

**Dakota B**

Sanford Underground Research Facility

[sanfordlab.org](http://sanfordlab.org)

**Science, Math, STEM**

**Dakota C**

SD GFP- Outdoor Campus Rapid City



**SOUTH DAKOTA  
STATE UNIVERSITY**

**College of Natural Sciences**

**Friday, 9:30 AM**

Jennifer Schulte & Andrew Kramer

## Integrating Edison Robots in the Classroom

[Jennifer.Schulte@dsu.edu](mailto:Jennifer.Schulte@dsu.edu)

Elementary, Middle School, High School **STEM**

Integrating Edison Robots in the classroom enhances programming education by providing a hands-on, interactive experience. These versatile robots enable students to learn coding fundamentals through creative and engaging problem-solving activities. With their user-friendly interface for varying skill levels, Edison Robots make coding accessible, preparing students for a tech-driven future.

**Dakota E**

Dakota State University

**Friday, 9:30 AM**

Tanya Dodson

**Reimagine the Power of Student Discourse & Inquiry in the Everyday Classroom**

*tanya.dodson@imaginelearning.com*

Elementary, Middle School, High School

Join us to learn how Imagine Learning's Illustrative Mathematics and Twig Science elevates student learning through engagement, daily inquiry and student discourse.

**Dakota F**

Imagine Learning

*https://www.imaginelearning.com/*

**Science, Math, STEM**

**Friday, 9:30 AM**

Marcy Kickhafer

**CRA in the Math Classroom (Concrete - Representational - Abstract)**

*marcyraye.k@gmail.com*

Elementary, Pre-Service

**Dakota G**

Math Consultant & MCTM member

**Math**

Are your students "understanding the math" or just "doing the math"? Participants will learn and be engaged in an activity around math standard(s) using the CRA mathematical best practice. Focus will be for grades K-5. CRA allows your students to learn the math for understanding rather than just to "do". Students need to understand the math and not just replicate the math the teacher is showing.

**Friday, 9:30 AM**

Katrina Donovan & Deborah Mitchell

**Art + Engineering: Materials, Metal Clay, and More!**

*katrina.donovan@sdsmt.edu; deborah.mitchell@sdsmt.edu*

Elementary, Middle School

**Salon 1 & 2**

South Dakota Mines - Materials and Metallurgical Engineering

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

**Science, STEM Interdisciplinary, Creativity, Entrepreneurial**

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.

**Friday, 9:30 PM**

Jeffrey Peterson

**Teaching Science with Storylines**

*jeff.peterson@k12.sd.us*

Elementary, Middle School, High School

**Symposium**

West Central School District

**Science**

Salamanders, Fireflies, Football, CottonWood trees, Holy Moley, and more. This session will provide an opportunity for attendees to consider implementing authentic storylines in their classroom. Students' work samples will be shared, and a sample lesson will be taught.



**MONUMENT  
HEALTH**

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

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

Ian Her Many Horses

Dakota A

CU Teach School of Education

## Why Computer Science Should Matter to South Dakota Educators & Students

Elementary, Middle School, High School (relevant examples vary with audience)

Science & Math

At a professional level, almost no discipline remains untouched by computer science, and students interested in STEM disciplines should be given the opportunity to see and understand what computer science will mean for their future. This session will assist STEM Educators in understanding the role that computer science should take in their classrooms. Specifically, this session will include discussions of practices and opportunities within, and outside of, the state that lead to meeting NGSS and Common Core Standards that better prepare K-12 students for the technological world that they live within.

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

Graham Fletcher

Dakota B

Math Specialist

## Demystifying the Fraction Rules We Teach

[gfletchy@gmail.com](mailto:gfletchy@gmail.com)

[www.gfletchy.com](http://www.gfletchy.com)

Elementary, Middle School

Math

Many educators have been asked to teach fractions through conceptual understanding. The problem with a conceptual approach is that many of us were taught fractions through rules, tricks, and gimmicks. In this session, we'll identify the tricks we use, unpack why these tricks work, and explore how we can help build an understanding of fractions in our students that is sustainable and scalable.

Friday, 10:30 AM

Brenda Murphey

Dakota C

RC South Middle School

## Bug Bistro is now OPEN!!!

[Brenda.Murphey@k12.sd.us](mailto:Brenda.Murphey@k12.sd.us)

Middle School, High School

Science, STEM

Last year, South Middle School was awarded dollars from the Kelly Lane Grant! The project centered around bugs! Yes, bugs and the nutritious proteins they offer when we add them to our culinary menu! Well, come see what we did with these bugs! You won't leave hungry!!

Friday, 10:30 AM

Leslie Sauder

Dakota E

Northern State University

## These Cars are Mint! Incorporating the Engineering Design Process in STEM

[leslie.sauder@northern.edu](mailto:leslie.sauder@northern.edu)

[www.sauderscience.com](http://www.sauderscience.com)

Elementary, Middle School

STEM

How to incorporate the Engineering Design Process in STEM activities. In this workshop we will make cars using inexpensive materials along with STEM lab sheets that walk students through the EDP.

**Friday, 10:30 AM**

Christine Wood & Madison Kovarna

**Dakota F**

SDSU Extension, SD 4-H

## Science through the Lens of Agriculture

*christine.wood@sdstate.edu; madison.kovarna@sdstate.edu*      *extension.sdstate.edu/science-technology-engineering-and-math-stem*

Elementary

**Science, Math, STEM, Interdisciplinary, CTE, Agriculture**

In an Ag state like South Dakota, what better phenomena can be found than agriculture? Today's youth have little direct exposure to production agriculture, but it impacts them daily. Through Adopt-A-Cow, youth explore how food reaches their plate. They explore genetics, nutrition, food science, agriculture careers & so much more.

**Friday, 10:30 AM**

Marcy Kickhafer

**Dakota G**

Math Consultant, MCTM member

## Math Language Routine - Information Gap

*marcyraye.k@gmail.com*

Middle School, High School

**Math, Interdisciplinary**

Participants will learn about Math Language Routine, how I have changed various problems in the MLR Information Gap activity. This routine will have your students using academic vocabulary, engaging in math discussion, and using collaboration to solve a mathematical problem. MLRs are research-based from Stanford University to promote language and content development in mathematics. Get ALL your students using academic vocabulary. We will be working on a 5th/6th grade problem as well as a Geometry problem (don't let that scare you away, there will be scaffolds available.)

**Friday, 10:30 AM**

Katrina J. Donovan & Deborah Mitchell

**Salon 1 & 2**

South Dakota School of Mines

## STEM Materials Science Kits

*katrina.donovan@sdsmt.edu; deborah.mitchell@sdsmt.edu*      *sites.google.com/sdsmt.edu/art-and-engineering/home*

Elementary, Middle School

**Science, Math, STEM**

Seven hands-on modules for attendees to experience. The attendees will learn about Glass Fibers, Magic Color Beads and UV Light, Silly Putty Science, Shape Memory Alloy, Fiber Optics, Heated Aluminum Nails, and Fluorescence. Attendees will walk out with their very own mini materials kit (\$49 value for free!)

**Friday, 10:30 AM**

Matt Miller & Larry Browning

**Symposium**

South Dakota State University

## Visual Thinking Strategies - How can we use this

### strategy to encourage students to engage in science?

*matt.miller@sdstate.edu; larry.browning@sdstate.edu*

*https://www.sdstate.edu/chemistry-biochemistry-and-physics*

Elementary, Middle School, High School, College

**Science, STEM, Interdisciplinary**

Visual Thinking Strategies (VTS) is an educational non-profit that trains educators in schools, museums, and institutions of higher education to use a student-centered facilitation method to create inclusive discussions. How can this be used to engage students in science creativity?

**Empower AND GUIDE YOUR STUDENTS**

UNIVERSITY OF SOUTH DAKOTA SCHOOL OF EDUCATION

Learn more about online advanced degree options at USD in Science/Technology/Math (STM)

- Elementary Education - Science/Technology/Math (M.A.)
- Secondary Education - Science/Technology/Math (M.A.)
- Technology for Education & Training (M.S.)

605-658-6140  
gradadmissions@usd.edu  
USD.EDU/TRE



## - Friday 11:20-11:50 AM -

**Friday, 11:20 AM Networking and Visit with the Exhibitors** Exhibitor Hallway

Conference attendees have the opportunity to network with each other 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.

## LUNCH - Friday 11:50 AM-12:50 PM - 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 PM - Friday 12:50-1:10 PM - Exhibitor Hallway**

## Networking and Visit with the Exhibitors

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. Drawings will be posted around the Registration Table & winners may claim before they go to the Banquet.

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

**Friday, 1:10 PM** **Featured Speaker**

Ian Her Many Horses

**Dakota A**

CU Teach School of Education

### **Why Computer Science Should Matter to South Dakota Educators & Students**

Elementary, Middle School, High School (relevant examples vary with audience)

**Science & Math**

At a professional level, almost no discipline remains untouched by computer science, and students interested in STEM disciplines should be given the opportunity to see and understand what computer science will mean for their future. This session will assist STEM Educators in understanding the role that computer science should take in their classrooms. Specifically, this session will include discussions of practices and opportunities within, and outside of, the state that lead to meeting NGSS and Common Core Standards that better prepare K-12 students for the technological world that they live within.

**Friday, 1:10 PM** **Featured Speaker**

Graham Fletcher

**Dakota B**

Atlanta, GA

### **The Power of Progressions:**

### **Untangling the Knotty Areas of Teaching and Learning Mathematics**

[gfletchy@gmail.com](mailto:gfletchy@gmail.com)

[www.gfletchy.com](http://www.gfletchy.com)

Elementary

**Math**

As more teachers look to add high-yield tasks to their repertoire, the struggle to make it all work becomes real. Let's examine how problem-based lessons can be used throughout the scope of a unit and how we can harness their power to move student thinking forward. We'll identify strategies and explore some tasks that help us find a healthy balance between application, conceptual understanding, and procedural fluency.

**Friday, 1:10 AM** { Repeats of Friday, 8:30 }

Naomi Alhadeff

## **Eco-Schools US: A New & Sustainable Path Forward**

AlhadeffN@nwf.org

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

Naomi Alhadeff will discuss the long-established Eco-Schools US program and how teachers can have a positive impact on the planet using student-led actions. Learn about the Eco-Schools framework and how it guides teachers and students to create a more sustainable classroom or school. Using three main pathways Climate, Wildlife and Biodiversity, & Resilient and Healthy Communities, students and teachers will be able to track and visualize their impact.

**Dakota C**

National Wildlife Federation

*nwf.org*

**Math, Science, STEM**

**Friday, 1:10 PM**

Andrew Sathoff

## **Utilizing Free Online Resources for Integrated Biology Labs**

*andrew.sathoff@dsu.edu*

Middle School, High School

**Dakota F**

Dakota State University

**Science**

I will highlight free online resources from the American Phytopathological Society's Education Center. Plant pathology is an applied, interdisciplinary field, which makes it a great fit for general biology labs in rural South Dakota. Also, I'll discuss how Zooniverse (citizen science) lab activities can be integrated into your courses.

**Friday, 1:10 PM**

Marcy Kickhafer

## **Clothesline Math and Which One Doesn't Belong**

*marcrye.k@gmail.com*

Elementary, Middle School, High School

**Dakota G**

Math Consultant & MCTM member

**Math, Interdisciplinary**

During this session, participants will learn about two different classroom engagement activities. Clothesline Math is an interesting way to get your students engaged in number sense. Which One Doesn't Belong allows students to see a problem from different viewpoints and emphasizes that what is important is the justification of their answer. Both of these activities are pretty easy to implement into your classroom tomorrow. I will have problems/resources available for grades K-12.

**Friday, 1:10 PM**

Katrina Donovan & Deborah Mitchell

South Dakota Mines - Materials and Metallurgical Engineering

## **Art + Engineering: Materials, Metal Clay, and More!**

*katrina.donovan@sdsmt.edu; deborah.mitchell@sdsmt.edu*

*sites.google.com/sdsmt.edu/art-and-engineering/home*

Middle School, High School, College

**Science, STEM, Interdisciplinary, Creativity, Entrepreneurial**

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.

**Salon 1 & 2**

**Friday, 1:10 PM**

Kyle Cronin & Shawn Zwach

**Symposium**

Dakota State University

## **DSU Mobile Cyber Lab: Let Us Bring Experiential Learning to You!**

*kyle.cronin@dsu.edu; shawn.zwach@dsu.edu*

Middle School, High School, Pre-Service, Administrative

**Math, STEM, CTE, Computer and Cyber Science**

Dakota State has developed a robust set of mobile labs and activities that expose students to a variety of cyber-related concepts including programming, cybersecurity, networking, and artificial intelligence. We will demonstrate some of the activities and share how your students and schools can access the lab.



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



Friday, 2:10 PM **Featured Speaker** Prairie A  
Bobson Wong Bayside HS (NYC Public Schools)

### Teaching Math as a Language

*mr@bobsonwong.com*

*http://bobsonwong.com*

Elementary, Middle School, High School **Math**

Many math teachers teach reading and writing without realizing it. Thinking about math as a language allows us to adopt successful techniques used for English Language Learners. We will examine some problems that arise when using mathematical symbols and discuss strategies for fostering mathematical communication and promoting mathematical precision.

Friday, 2:10 PM

Laurie Boswell

### Engaging Tasks to Encourage Discourse (Gr. 3-5)

*laboswell@gmail.com*

Elementary

Prairie B

Big Ideas Math, author

**Math**

Many attributes of polygons: side length, angle measure, symmetry, perimeter, and area can be explored using paper folding, perimeter pieces, square tiles, and grid paper. We'll work through a series of tasks that help students make sense of these attributes. Tasks are designed to have entry levels for all students.

Friday, 2:10 PM

Prairie C

Ashley Digmann, Kenedy Koepsell & Bailey Spaans  
Dakota Wesleyan University

### Unlocking Minds: AI-Powered Math Breakout Box Adventures

*ashley.digmann@dwu.edu; kenedy.koepsell.21@dwu.edu;*

*bailey.spaans.21@dwu.edu*

Middle School, High School, College, Pre-Service

**Math**

Break into the "future" of education. Experience the thrill of solving an AI-generated breakout box. Uncover the magic behind it as we reveal the innovative AI techniques that shaped this immersive learning experience. We will challenge you to reimagine education, innovate with AI, and embrace the "future" of learning.

**BE KIND STAY POSITIVE THINK SUBARU**

A large, stylized, black cursive signature that reads "Schulte".



**SUBARU**

**Friday, 2:10 PM**

Spencer Cody (presenting for Heather Bryan)

## **Nourish the Future: Tomorrow's science is looking for leaders**

*Spencer.Cody@k12.sd.us (Heather@educationprojects.org)*

Middle School, High School

Introduce students to high-tech STEM careers through the lens of agriculture! Learn about teacher leadership opportunities and explore free resources from [nourishthefuture.org](http://nourishthefuture.org) that connects your curriculum to a real-world context.

**Dakota A**

Nourish the Future

*Nourishthefuture.org*

**Science, STEM**

**Friday, 2:10 PM**

Cassie Soeffing

## **Citizen Science with NASA**

*Cassie\_soeffing@strategies.org*

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

Learn about one of NASA's Earth Science apps and be ready for the April 8, 2024 solar eclipse! Find out about clouds, mosquito habitats, land cover and tree observations you and your students can contribute using any smart device.

**Dakota B**

Institute for Global Environmental Strategies

*strategies.org*

**Science, Interdisciplinary**

**Friday, 2:10 PM**

Chad Ronish

## **Flash Kaboom, Sound and Light Part 1**

*cronish@sanfordlab.org*

Middle School

Come explore a lesson that allows your students to investigate the phenomenon of counting the time between a flash of lightning and the sound of thunder to determine your distance from a lightning strike. This lesson launches the SURF unit for middle school science.

**Dakota C**

Sanford Underground Research Facility

*sanfordlab.org*

**STEM**

**Friday, 2:10 PM** **Featured Speaker**

Cherie Bornhorst, Misty Brave, Julie Scheffel & Madi de Vries

## **Oglala Lakota College and the Little Shop of Physics -**

### **Our Hands-On Approach to Teaching Science**

*cheriebornhorst@gmail.com*

Middle School, High School, College, Pre-Service

The Little Shop of Physics is a science outreach program from Colorado State University. For the last 20 years we've partnered with our friends at Oglala Lakota College -- and together we strive to spread the message that science is something anyone can do, anywhere, with anything, through our accessible hands-on experiments.

**Dakota E**

Little Shop of Physics

*https://www.lsop.colostate.edu*

**Science, STEM, Interdisciplinary**

**Friday, 2:10 PM**

Billy Mawhiney

## **STEM Beyond The Bell**

*jsebern@sdafterschoolnetwork.org; bmawhiney@sdafterschoolnetwork.org*

Elementary, Middle School

Out-of-School Time (OST) programs represent an opportunity for expanded STEM programming beyond the school bell. The South Dakota Afterschool Network (SDAN) seeks to facilitate collaboration that brings school districts, OST programs, and community partners together towards common goals for students. This session explores the potential of these efforts and resources available through SDAN.

**Dakota F**

South Dakota Afterschool Network

*sdafterschoolnetwork.org*

**STEM**

**Friday, 2:10 PM**

James Stearns, Larry Browning & Darwin Daugaard

### **SD - AAPT Business Meeting & Photo Contest**

*James.Stearns@k12.sd.us; Larry.Browning@SDstate.edu; DDaugaard@ogknights.org*

High School, College, Pre-Service

This is the annual meeting of the SD 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. <https://sdsta.k12.sd.us/SDAAPT/2024Photo/default.html>

**Dakota G**

Abdn School Dist/NB, SDSU, O’Gorman

*sdaapt.sdsta.org*

**Science**

**Friday, 2:10 PM**

Katrina J. Donovan & Deborah Mitchell

### **STEM Materials Science Kits**

*katrina.donovan@sdsmt.edu; deborah.mitchell@sdsmt.edu*

Middle School, High School, College

Seven hands-on modules for attendees to experience. The attendees will learn about Glass Fibers, Magic Color Beads and UV Light, Silly Putty Science, Shape Memory Alloy, Fiber Optics, Heated Aluminum Nails, and Fluorescence. Attendees will walk out with their very own mini materials kit (\$49 value for free!)

**Salon 1 & 2**

South Dakota School of Mines

*sites.google.com/sdsmt.edu/art-and-engineering/home*

**Science, Math, STEM**

**Friday, 2:10 PM**

Denise Clemens, Seth Loofbourrow, Rise Jongeling, Landra Knodel

### **Bee Curriculum in Our Schools**

*denise.clemens@k12.sd.us; seth.loofbourrow@k12.sd.us; rise.jongeling@k12.sd.us; Landra.Knodel@k12.sd.us*

Middle School, High School

**Symposium**

South Dakota Schools

**Science, Math, STEM, Interdisciplinary, CTE**

The presentation will be an opportunity to hear and see about curriculum and ideas for middle school and high school educators to implement the study of bees into their classrooms. Handouts, resources and stories will be shared by the presenters.

Share the Classroom Treasures (free items)

Check the hall between the Salons and Prairie B & C

Available now till Saturday 2:40 PM

Friday, 3:00 PM

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

Exhibitor Hallway

### **Networking and Visit with the Exhibitors**

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.

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

Friday, 3:30 PM **Featured Speaker**

Bobson Wong

## Think Inside the Box

[mr@bobsonwong.com](mailto:mr@bobsonwong.com)

Elementary, Middle School, High School

We discuss how the “box” method or area model of multiplication has applications throughout elementary, middle school, and high school math. We will learn how to use the box method to multiply and divide numbers, multiply and divide polynomials, write equivalent polynomials by completing the square, and solve polynomial equations.

**Prairie A**

Bayside HS (NYC Public Schools)

<http://bobsonwong.com>

**Math**

Friday, 3:30 PM

Laurie Boswell

## For the Love of Geometry (Grades 6-12)

[laboswell@gmail.com](mailto:laboswell@gmail.com)

Middle School, High School

**Prairie B**

Big Ideas Math, author

**Math**

A good math problem should be interesting, have different entry points and solution strategies, allow for extensions, and connect to important mathematics. I'll share a collection of good problems to remind you why you love geometry. If geometry is not your first love, you will still love the problems!

Friday, 3:30 PM

Kevin Smith

## Math Isn't Yucky: Games & Activities for K-8 Students

[kevin.smith@dsu.edu](mailto:kevin.smith@dsu.edu)

Elementary, Middle School

**Prairie C**

Dakota State University

<http://www.kevindsmith.org>

**Math**

In this session, you'll learn about several games & activities that you can do with students to show them that math isn't yucky! You'll have a chance to see several games and activities in action from Mathigon, Math for Love, Youcubed, Desmos, and more. The games and activities are easy to integrate into your existing class to keep students excited about math.



**SOUTHEAST** Technical College

Friday, 3:30 PM

Stephanie Higdon

**Cultivating Indigenous Research Communities and Leadership in Education & STEM Alliance: An opportunity for educators to develop culturally relevant STEM resources**

*stephanie.higdon@bhsu.edu*

Middle School

Join members of the Cultivating Indigenous Research Communities for Leadership in Education and STEM (CIRCLES) Alliance to learn about the goals of this NSF funded project. Participants will also engage in a culturally relevant STEM activity and hear about the efforts being made to support educators in effective, equitable teaching with connections to Indigenous STEM.

**Dakota A**

Black Hills State University- CIRCLES Alliance

*https://circlesalliance.org/*

**Science, Math, STEM**

Friday, 3:30 PM

Cassie Soeffing

**GLOBE Observer**

*Cassie\_soeffing@strategies.org*

Middle School, High School, College

Have you ever wanted to be an Earth explorer right from your backyard? Join this Earth adventure and find your inner scientist. Discover the incredible potential of your smartphone and the NASA GLOBE Observer app.

**Dakota B**

Institute for Global Environmental Strategies

*strategies.org*

**Science, Interdisciplinary**

Friday, 3:30 PM

Chad Ronish

**Flash Kaboom, Sound and Light Part 2**

*cronish@sanfordlab.org*

Middle School

Come explore the last lesson in the SURF Sound and Light middle school unit where your students confirm their understanding of using the speed of sound and the speed of light to determine their distance from a lightning strike, and apply the concept to the LZ Dark Matter detector to reveal the mystery of dark matter.

**Dakota C**

Sanford Underground Research Facility

*sanfordlab.org*

**STEM**

At 4:30, both SDSTA and SDCTM will have their annual business meetings. Every member is invited to attend. This is an election year for SDSTA. SDSTA will be meeting in Dakota A and SDCTM will be meeting in Dakota B. The Social Hour begins as the meetings end. The Banquet begins at 6:30.

Friday, 3:30 PM **Featured Speaker**

Cherie Bornhorst, Misty Brave, Julie Scheffel & Madi de Vries

**Oglala Lakota College and the Little Shop of Physics -**

**Our Hands-On Approach to Teaching Science**

*cheriebornhorst@gmail.com*

Middle School, High School, College, Pre-Service

The Little Shop of Physics is a science outreach program from Colorado State University. For the last 20 years we've partnered with our friends at Oglala Lakota College -- and together we strive to spread the message that science is something anyone can do, anywhere, with anything, through our accessible hands-on experiments.

**Dakota E**

Little Shop of Physics

*www.lsop.colostate.edu*

**Science, STEM, Interdisciplinary**

Friday, 3:30 PM

Fenecia Homan

## Expanding Cyber Education and Career Pathways

[fenecia.homan@dsu.edu](mailto:fenecia.homan@dsu.edu)

Middle School, High School, Administrative

The Governor's Cyber Academy at Dakota State is expanding awareness of and access to cyber education and career pathways for students throughout the state through transferrable, university-level dual credit cyber coursework and K-12 cyber enrichment opportunities. We will highlight key components and share how your district can get involved.

Dakota F

Governors Cyber Academy at Dakota State University

<http://dsu.edu/cyberacademy>

**STEM, CTE, Computer and Cyber Science**

Friday, 3:30 PM

Larry Browning, {appearing remotely - Steve Wignall}

## Exploring Quantum Effects with LEDs

[Larry.Browning@sdstate.edu](mailto:Larry.Browning@sdstate.edu); { [swignall4@unl.edu](mailto:swignall4@unl.edu) }

High School, College, Pre-Service

Participants will explore ways to present quantum effects with Light Emitting Diodes and build some simple and inexpensive equipment to show how different colors of light contain different amounts of energy.

Dakota G

South Dakota State University

**Science**

Friday, 3:30 PM

Betsy Schamber

## ChatGPT: The future of STEM Lesson Planning

[Betsy.Schamber@dsu.edu](mailto:Betsy.Schamber@dsu.edu)

Pre-K - 12

ChatGPT is an artificial intelligence tool that can be used to support lesson planning. This session will highlight a pilot program with preservice teachers using ChatGPT to combine South Dakota Science Standards with Engineering and Technology standards to create a STEM lesson plan. Topics will include use of ChatGPT, formatting prompts for lesson plan purposes, and the human feedback used to ensure lessons are grade appropriate while meeting the unique needs of the classroom. Examples in this session will focus on STEM lesson planning; however, the methods used could be applied to all content areas and grade levels.

**Symposium**

Dakota State University

**STEM - All**

## - Business Meetings, Social & Banquet -

Friday, 4:30 PM

SDSTA

### Business Meeting

All members or interested members of the SD Science Teaching Association are invited to attend. This is the annual SDSTA business meeting and this is an election year – all members are eligible to vote.

Dakota A

[SDSTA.org](http://SDSTA.org)

Friday, 4:30 PM

SDCTM

### 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 all members are eligible to attend.

Dakota B

[SDCTM.org](http://SDCTM.org)



Thank You to all Speakers for your dedication to math & science education.  
 Thank you to all exhibitors for your enthusiastic participation!

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

**Friday 5:30-6:30 PM**

Networking Social

Make new friends and renew old friendships! Join your colleagues for pre-banquet refreshments and professional networking. *Thank you Imagine Learning & Chet Riddle for sponsoring this.*

Lobby



**Friday, 6:30 PM**

**SD STEM Ed Awards Banquet**

**Prairie A, B & C**

**Featured Speaker:** Graham Fletcher

[www.gfletchy.com](http://www.gfletchy.com)

Teaching on the Edge of Understanding and at the Speed of Learning

**Session Description:** There are many things to consider when we engage students in mathematics. What makes our task extremely difficult is that we teach a specific age of students that function and think in multiple grade levels. This makes differentiation seem impossible, but it doesn't need to always feel this way. Let's explore how the purposeful use and sequence of the right tasks can unlock what students know and inform our next move in the progression of learning.

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Meet Graham!  
 Session Presenter at SD STEM Ed Conference

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 800-848-9500

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[sdms.edu/art-and-engineering](https://sdms.edu/art-and-engineering)

**SOUTH DAKOTA MINES**

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

Saturday, 7:00 AM

Allen Hogie & Dr. Jennifer Fowler

### Breakfast for SD PAEMST State Level Finalists and Past Awardees

[allen.hogie@k12.sd.us](mailto:allen.hogie@k12.sd.us); [drrangerjen@gmail.com](mailto:drrangerjen@gmail.com)

Elementary, Middle School, High School

A breakfast honoring 2021, 2022, and 2023 State Level Finalists & all Past Awardees.

Prairie C

SD PAEMST Mathematics Coordinator

<https://paemst.nsf.gov>

Science, Math



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

Saturday, 8:00 AM **Featured Speaker**

Graham Fletcher

Prairie A

Atlanta, GA

## Assessing Student Thinking through Context, Coherence, and the Questions In-Between

[gfletchy@gmail.com](mailto:gfletchy@gmail.com)

Elementary

[www.gfletchy.com](http://www.gfletchy.com)

Math

As more math educators look to embed problem-solving and number routines into their toolkits, the struggle to move away from traditional assessment practices can be difficult. Let's examine how the context and coherence of the tasks we choose invite us to ask more meaningful questions that unlock students' thinking.

Saturday, 8:00 AM

Nathaniel Raak

Prairie B

Mitchell Technical College

## Math, Business, and The Farming Game

[nathaniel.raak@mitchelltech.edu](mailto:nathaniel.raak@mitchelltech.edu)

Middle School, High School, College

Math

During covid, I discovered the Farming Game with my kids and recognized the potential it had to convey business concepts as well as practice fundamental math skills. During this session, find out what I learned in the classroom and get a chance to play.

Saturday, 8:00 AM

Larry Browning

Prairie C

South Dakota State University

## What's that color?



[sdepscor.org](http://sdepscor.org)

### Free STEM Modules

Go to [sdepscor.org/modules](http://sdepscor.org/modules) for STEM modules!

### STEM MODULES ARE FOR:



Researchers



Educators

#### CONNECTING RESEARCH TO THE CLASSROOM

SD EPSCoR STEM Modules offer free curriculum enhancement resources for STEM (Science, Technology, Engineering, & Math) teachers to help educators access inquiry-based learning experiences to spark interest in K-12 students for pursuing STEM careers.

#### TEACHER TRAININGS

The education component of the [NSF Track-1 project](#) involves development of STEM K-12 curriculum modules, conducting teacher workshops, and offers stipends. Participants will strengthen their understanding of three-dimensional science teaching and receive support in meeting South Dakota's K-12 Science Standards. Learn more at [sdepscor.org/teachers](http://sdepscor.org/teachers).

[Larry.Browning@sdstate.edu](mailto:Larry.Browning@sdstate.edu)

Middle School, High School

Science

Using inexpensive lights, paint samples, and a phone app, we can explore human perception of color and quantify it with the RGB scale. Bring your phone and I'll bring the lights and paint samples.

Saturday, 8:00 AM

Julie Bruckner

Dakota A

Kimball School

## Nerf Guns in Elementary Math/Science

[julie.r.bruckner@k12.sd.us](mailto:julie.r.bruckner@k12.sd.us)

Elementary **Science,**

**Math, STEM**

In this session you will get to EXPERIENCE the math and science connected to Nerf Guns. See how something most kids have experience with can be a motivational tool to learn and practice math and science. The target audience is 3rd-5th grade but can be modified for younger and older grades. Come become a kid again and see how fun learning can be.

**Saturday, 8:00 AM**

Annamarie Dobbs

**Dakota B**

South Dakota State University

## **Notetaking and Vertical Whiteboards:**

### **How Students Take Notes in a Thinking Classroom**

*annamarie.dobbs@gmail.com*

Middle School, High School, College

**Math**

Learn how I have used vertical whiteboards and notetaking strategies to help students learn and remember mathematics. This session will focus on random grouping, classroom discussion, and graphic organizers. I will provide examples of how teachers can make changes that will transform their classrooms into thinking classrooms.

**Saturday, 8:00 AM**

Tim Klavon

**Dakota C**

Black Hills State University

## **Engaging Elementary Students' Scientific Evaluations Through Narrative Nonfiction**

*timothy.klavon@bhsu.edu*

Elementary

**Science**

Children's literature has been used to engage young students in various topics. This workshop will introduce elementary school teachers to a nonfiction narrative story about fossils that is accompanied by an interactively scaffolded worksheet. This lesson was tested in 3rd and 4th grade classrooms with promising results.

**Saturday, 8:00 AM** **Featured Speaker**

Cherie Bornhorst, Misty Brave, Julie Scheffel & Madi de Vries

**Dakota E**

Little Shop of Physics

## **Oglala Lakota College and the Little Shop of Physics -**

### **Our Hands-On Approach to Teaching Science**

*cheriebornhorst@gmail.com*

Elementary, Middle School, Pre-Service

<https://www.lsop.colostate.edu>

**Science, STEM, Interdisciplinary**

The Little Shop of Physics is a science outreach program from Colorado State University. For the last 20 years we've partnered with our friends at Oglala Lakota College -- and together we strive to spread the message that science is something anyone can do, anywhere, with anything, through our accessible hands-on experiments.

**Saturday, 8:00 AM**

Sadia Risse

**Dakota F**

Bennett County Middle School

## **STEAM/STEM in Every Classroom**

*sadia.risse@k12.sd.us*

Elementary, Middle School, High School

**STEM, Interdisciplinary**

STEAM is a hands-on learning approach that incorporates Science, Technology, Engineering, Arts, and Mathematics. This class is normally taught as a stand-alone model or an after-school club. However, STEAM/STEM principles are ones that can be incorporated into any subject at any grade level. Within this session I hope to teach everyone the STEAM/STEM principles and how I incorporated them into an English course and a World History course. You will walk away from this session with ideas and tips for how to transform your class into a STEM/STEAM version of that class.

**Saturday, 8:00 AM**

Robert Dahlenburg

**Dakota G**

Rapid City Area Schools - Southwest Middle School

## **Integrating Engineering Teams in the Classroom**

*robert.dahlenburg@k12.sd.us*

Middle School

**Science**

Explore the fusion of engineering skills and the classroom environment in our workshop. Discover innovative strategies for integrating engineering teams into educational settings, fostering collaboration and real-world problem-solving skills for students.

**Saturday, 8:00 AM**

Mark Kreie

## **Mathigon: The Hottest Math Resource Since Desmos**

[mark.kreie@k12.sd.us](mailto:mark.kreie@k12.sd.us)

Elementary, Middle School, High School

Mathigon is quickly becoming one of the most powerful mathematics tools on the internet. Participants will learn about the Mathigon Polypad tools and explore methods to engage students. Mathigon offers tools for all ages. Please bring a laptop or tablet.

**Salon 1**

Brookings High School

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

**Math**

**Saturday, 8:00 AM**

Amy Strong

## **Build Strong Investigative Skills in STEM to Address a Significant Environmental Concern**

[amy.strong@cengage.com](mailto:amy.strong@cengage.com)

High School

Ocean acidification and its effects on marine organisms is a growing environmental concern. This complex and pressing issue will be used to address STEM investigative skills.

**Salon 2**

National Geographic Learning

<https://ngl.cengage.com/>

**Science, STEM**

**Saturday, 8:00 AM**

Crystal McMachen & Shannon Bren

## **Tales from a Building Thinking Classroom - Year 2**

[crystal.mcmachen@k12.sd.us](mailto:crystal.mcmachen@k12.sd.us); [shannon.bren@k12.sd.us](mailto:shannon.bren@k12.sd.us)

Elementary, Middle School, High School

Come listen to the joys and struggles of implementing a Building Thinking Classroom in its second full year of implementation. Come learn how we have built from last year and are continuing to constantly learn and grow in the process of trying to implement Peter Liljedahl's strategies. You will hear our take on what works and doesn't. We are middle school teachers, but our experiences can resonate with elementary and high school teachers as well.

**Symposium**

Southwest Middle School - RCAS

**Math**



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Thank You to Olympic Chevrolet, Buick, GMC of Huron for covering the conference costs of up to 25 **Educators Rising** students and their advisors so that they may attend the Friday sessions of the conference **FREE OF CHARGE!**

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

Saturday, 9:00 AM

Prairie A

Stephanie Higdon

Black Hills State University- CIRCLES Alliance

## Building Thinking Classrooms in Mathematics- Panel Discussion

[stephanie.higdon@bhsu.edu](mailto:stephanie.higdon@bhsu.edu)

Elementary, Middle School, High School, Pre-Service

Math

Have you considered implementing strategies from Peter Liljedahl's book "Building Thinking Classrooms in Mathematics?" Come listen to mathematics educators from elementary through high school share implementation struggles and success stories. Hear about what they have learned as they have implemented some of the 14 practices from the book in their own classroom.

Saturday, 9:00 AM

Prairie B

John Williams & Nicole Melhaff

University of South Dakota

## Getting into the Game:

### How Science Olympiad can give your Students a chance to flourish in STEM

[john.williams@usd.edu](mailto:john.williams@usd.edu); [nicole.mehlhaff@k12.sd.us](mailto:nicole.mehlhaff@k12.sd.us)

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

Middle School, High School

Science, Math, STEM, Interdisciplinary

Do you wonder how to best support your curious STEM students in ways that encourage creativity, collaboration, and critical thinking? Veteran coach, Nicole Mehlhaff, will provide a "starter kit" for STEM teachers interested in starting a Science Olympiad team. We will also discuss state-level financial/competition support for new teams.

Imagine Learning provides digital-first PreK-12 learning solutions for core instruction, supplemental and intervention, courseware, and virtual school services. Our mission is to ignite learning breakthroughs with forward-thinking solutions at the intersection of people, curricula, and technology. We serve 15 million students — partnering with more than half of districts nationwide.

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imagine language & literacy | imagine mypath

imagine learning | imaginelearning.com

Saturday, 9:00 AM

Prairie C

Larry Browning

South Dakota State University

## Measuring the Speed of Sound 3+ Ways

[Larry.Browning@sdsu.edu](mailto:Larry.Browning@sdsu.edu)

High School

Science

Participants will measure the speed of sound using at least three techniques. Bring your earbuds.

Saturday, 9:00 AM

Dakota A

Deann Kertzman

Black Hills State University

## Leveraging Digital Tools for Reading and Writing in STEM

[deann.kertzman@bhsu.edu](mailto:deann.kertzman@bhsu.edu)

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

Interdisciplinary

In this session, we will explore free and easily accessible digital tools designed to increase accessibility to text. Technical, mathematical and scientific text can be a challenge when learning through reading and writing. My goal for this interactive session is to increase awareness of useful tools for you and your students. Bring your device, if possible.

**Saturday, 9:00 AM** **Featured Speaker**

Bobson Wong

## Using Math Talk to Foster Equity

[mr@bobsonwong.com](mailto:mr@bobsonwong.com)

Elementary, Middle School, High School

Speaking and writing are critical parts of language, but we often don't emphasize them in math classes. We'll discuss why students need to speak and write more and how these conversations demystify math and make instruction more equitable for all students. We'll also share specific strategies that facilitate student conversations.

**Dakota B**

Bayside HS (NYC Public Schools)

<http://bobsonwong.com>

**Math**

**Saturday, 9:00 AM**

Dan Van Peurse

## Don't Fret Those Geometric Sequences

[Dan.VanPeurse@usd.edu](mailto:Dan.VanPeurse@usd.edu)

High School, College

A fun application of geometric sequences is the position of frets on a guitar. In this session, we will talk about building a 3 string cigar box guitar and where to position the frets. One can even be creative and create a scale with more than the traditional 12 keys.

**Dakota C**

USD

**Math**

**Saturday, 9:00 AM** **Featured Speaker**

Cherie Bornhorst, Misty Brave, Julie Scheffel & Madi de Vries

## Oglala Lakota College and the Little Shop of Physics -

### Our Hands-On Approach to Teaching Science

[cheriebornhorst@gmail.com](mailto:cheriebornhorst@gmail.com)

Elementary, Middle School, Pre-Service

The Little Shop of Physics is a science outreach program from Colorado State University. For the last 20 years we've partnered with our friends at Oglala Lakota College -- and together we strive to spread the message that science is something anyone can do, anywhere, with anything, through our accessible hands-on experiments.

**Dakota E**

Little Shop of Physics

<https://www.lsop.colostate.edu>

**Science, STEM, Interdisciplinary**

**Saturday, 9:00 AM**

Spencer Cody

## NASA/IPAC Teacher Archive Research Program:

### Getting Teachers Involved in Authentic Astronomical Research.

[Spencer.Cody@k12.sd.us](mailto:Spencer.Cody@k12.sd.us)

Middle School, High School

NITARP, the NASA/IPAC Teacher Archive Research Program, gets teachers involved in authentic astronomical research. We partner small groups of largely high school educators with a mentor professional astronomer for an original research project.

**Dakota F**

Edmunds Central School District

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

**Science, Math, STEM, Interdisciplinary**

**Saturday, 9:00 AM**

Emily Siemonsma

## How Does Air Flow: Integrating Underground Data Science in MS/HS Classrooms

[Emily.Siemonsma@jacks.sdstate.edu](mailto:Emily.Siemonsma@jacks.sdstate.edu)

Middle School, High School

Data is all around us and is a useful tool in the math classroom! Come learn about underground air flow data from the Sanford Underground Research Facility and discuss ways your students can explore this data. Please bring your computer to engage in a data exploration activity.

**Dakota G**

Brookings SDSU

**STEM**

**Saturday, 9:00 AM**

Mark Kreie

### **K-8 Math Teachers: Desmos Classroom is for you!**

[mark.kreie@k12.sd.us](mailto:mark.kreie@k12.sd.us)

Elementary, Middle School

Desmos Classroom is creating a mathematics curriculum for grades K-5 to pair with their current 6-8 curriculum. Participants will explore the 6-8 curriculum and see a sneak peek of the K-5 curriculum as they learn about how Desmos Classroom activities can build student identity and increase engagement in the classroom. Please bring a laptop or tablet. Intended for grades K-8.

**Salon 1**

Brookings High School

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

**Math**

**Saturday, 9:00 AM**

Anne Lewis & Jeff Zimprich

### **Soil Health Principles**

[annelewis@sd-discovery.org](mailto:annelewis@sd-discovery.org); [jzimp1962@gmail.com](mailto:jzimp1962@gmail.com)

Elementary, Middle School, High School

Soil is literally and figuratively the foundation of South Dakota. Learn the five soil health principles with former State Conservationist Jeff Zimprich and how to integrate the principles into your classroom using hands-on activities. Attendees are entered into a drawing for a Solvita Soil Biology Respiration kit. Makes a great lab for grade 5-12!

**Salon 2**

South Dakota Discovery Center

[sd-discovery.org](http://sd-discovery.org)

**Science, CTE**

**Saturday, 9:00 AM**

Nicol Reiner

### **Enhancing Learning with Belonging**

[nreiner@sanfordlab.org](mailto:nreiner@sanfordlab.org)

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

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.

**Symposium**

Sanford Underground Research Facility

[sanfordlab.org](http://sanfordlab.org)

**Science, Math, STEM, Interdisciplinary, CTE**

**Saturday, 10:00 AM** **Featured Speaker**

Ian Her Many Horses

CU Teach School of Education

### **Why Computer Science Should Matter to South Dakota Educators & Students**

Elementary, Middle School, High School (relevant examples vary with audience)

**Science & Math**

At a professional level, almost no discipline remains untouched by computer science, and students interested in STEM disciplines should be given the opportunity to see and understand what computer science will mean for their future. This session will assist STEM Educators in understanding the role that computer science should take in their classrooms. Specifically, this session will include discussions of practices and opportunities within, and outside of, the state that lead to meeting NGSS and Common Core Standards that better prepare K-12 students for the technological world that they live within.

**Dakota A**





Saturday, 10:00 AM **Featured Speaker**

Bobson Wong

## Think Inside the Box

mr@bobsonwong.com

Elementary, Middle School, High School

We discuss how the “box” method or area model of multiplication has applications throughout elementary, middle school, and high school math. We will learn how to use the box method to multiply and divide numbers, multiply and divide polynomials, write equivalent polynomials by completing the square, and solve polynomial equations.

**Dakota B**

Bayside HS (NYC Public Schools)

<http://bobsonwong.com>

**Math**

Saturday, 10:00 AM

Cindy Kroon

## Family Math: Something Great

cindy.kroon@k12.sd.us

Elementary

**Dakota C**

Montrose SchoolDistrict #43-2

**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, 10:00 AM

Julie Dahl

## Formative Assessments That Work

jdahl@sanfordlab.org

Elementary, Middle School

**Dakota E**

SURF E&O

<https://sanfordlab.org/educators>

**Science**

What are they thinking? Figuring out what students know while they are in the process of learning 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.

Saturday, 10:00 AM

Louisa Otto

## Healthy Kids 101:

### Building Blocks of Health Literacy

[louisa.otto@sanfordhealth.org](mailto:louisa.otto@sanfordhealth.org)

[promise.sanfordhealth.org](http://promise.sanfordhealth.org)

Elementary

**Science, STEM**

Learn how health literacy can be woven into the elementary curriculum with resources from Sanford PROMISE and Sanford fit. These resources can help children to learn about their bodies and make healthy choices.

**Dakota F**

Sanford PROMISE

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PROMISE**

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#### About Us

Sanford PROMISE provides STEM education and outreach for Sanford Research. We're working to inspire the next generation of scientists, problem solvers, and thinkers. Have students interested in science? Have them sign up for newsletter to stay up to date on all our academic year and summer programming.



#### Lesson Plans

Visit our website to find resources for your classroom.



#### Community Lab

Request a visit to our Community Lab or bring educators to your classroom.



#### Equipment Lending Library

Put real-world science equipment in the hands of your students



#### Professional Development

Learn cutting-edge science techniques and concepts to share with your students.



Mailbox : [SanfordOutreach@sanfordhealth.org](mailto:SanfordOutreach@sanfordhealth.org)  
Website: [promise.sanfordhealth.org](http://promise.sanfordhealth.org)

**Saturday, 10:00 AM**

John Williams Possible; TBD

## Engineering is Elementary Pt 1- Designing the Storm-Proof Building

[john.williams@usd.edu](mailto:john.williams@usd.edu)

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

Elementary, Middle School, Pre-Service

In this engineering module that won't break the bank, we will engage in a model lesson to design wind-resistant buildings. We will discuss engineering teaching as we participate in the activity as late elementary/ middle school students.

**Dakota G**

University of South Dakota

Science, STEM

**Saturday, 10:00 AM**

Mark Kreie

## Target Based Grading in a High School Mathematics Classroom

[mark.kreie@k12.sd.us](mailto:mark.kreie@k12.sd.us)

**Salon 1**

Brookings

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

High School

Math

Have you considered changing to a standards-based grading system? Come and learn about why I redesigned the way I assess students to a target-based model (vs. a standards-based model), how I implemented the model, and how it is working.

**Saturday, 10:00 AM**

Anne Lewis

## Ignite: Braiding Western STEM and Indigenous Ways of Knowing

[annelewis@sd-discovery.org](mailto:annelewis@sd-discovery.org)

**Salon 2**

South Dakota Discovery Center

Elementary, Middle School, High School

[sd-discovery.org](http://sd-discovery.org)

Science, Interdisciplinary

The Ignite Curriculum is a place-based, hands-on K-5 STEM curriculum developed in partnership with Todd County. In this session, we will delve into integrating the Oceti Sakowin Essential Understandings with STEM for all grade levels.

**Saturday, 10:00 AM**

Matt Miller

**Symposium**

South Dakota State University

## Papua New Guinea - The Dreams of STEM Education

[matt.miller@sdstate.edu](mailto:matt.miller@sdstate.edu)

<https://www.sdstate.edu/chemistry-biochemistry-and-physics>

Elementary, Middle School, High School

STEM

Recently 30 students arrived at South Dakota State University from Papua New Guinea with a scholarship from their government to complete a STEM degree. The goal is to enhance their country through STEM education. What can we do in South Dakota to help STEM teachers in Papua New Guinea? How does this translate to improvements for us?

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## 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.

Subaru Retailer of the Year



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

Saturday, 12:40 PM **Featured Speaker**

Dakota A

Ian Her Many Horses

CU Teach School of Education

### Why Computer Science Should Matter to South Dakota Educators & Students

Elementary, Middle School, High School (relevant examples vary with audience)

Science & Math

At a professional level, almost no discipline remains untouched by computer science, and students interested in STEM disciplines should be given the opportunity to see and understand what computer science will mean for their future. This session will assist STEM Educators in understanding the role that computer science should take in their classrooms. Specifically, this session will include discussions of practices and opportunities within, and outside of, the state that lead to meeting NGSS and Common Core Standards that better prepare K-12 students for the technological world that they live within.

Saturday, 12:40 PM

Dakota C

Dan Van Peurse, Sharon Vestal & Matt Miller

USD & SDSU

### Meet Your Future Teachers

*Dan.VanPeurse@usd.edu; Sharon.Vestal@sdstate.edu; Matt.Miller@sdstate.edu*

Elementary, Middle School, High School

Interdisciplinary

Come have an open discussion with our teacher education students. They would love to hear about your advice and will have plenty of questions for you.

*These four mini-sessions are offered during one regular Session*

**Saturday, 12:40 PM**

Rise Jongeling

**Lift Off Space Training**

[rise.jongeling@k12.sd.us](mailto:rise.jongeling@k12.sd.us)

Middle School, High School

Science teachers can apply for The Lift Off summer experience which includes a week in Houston, TX to learn about Rockets, Space, and the Science and Engineering that can be connected to the classroom.

**Dakota E**

Sioux Falls School District - Axtell Park

**Science, STEM**

**Saturday, 12:40 PM**

Sheila McQuade

**Make Your Slide Presentations More Engaging**

[smcquade@ogknights.org](mailto:smcquade@ogknights.org)

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

This is truly applicable to all ages. My sample presentations are for a HS math classroom, but you can use Pear Deck at any level. Using Pear Deck (free) you can make your slide presentations more engaging. You can get/give immediate feedback and hold kids accountable using this free addon.

**Dakota E**

Bishop O'Gorman High School

**Interdisciplinary**

**Saturday, 12:40 PM**

Bree Oatman & Peggy Norris

**Nationwide Eclipse Ballooning Project**

[bree.oatman@lowerbruleschools.org](mailto:bree.oatman@lowerbruleschools.org)

High School

**Science, Math, STEM, Interdisciplinary, CTE**

Learn about opportunities for students to engage in research related to the solar eclipse.

**Dakota E**

Lower Brule High School

**Saturday, 12:40 PM**

Naomi Alhadeff

**Eco-Schools US: A New & Sustainable Path Forward**

[AlhadeffN@nwf.org](mailto:AlhadeffN@nwf.org)

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

Learn about the Eco-Schools framework and how it guides teachers and students to create a more sustainable classroom or school-Using three main pathways Climate, Wildlife and Biodiversity, & Resilient and Healthy Communities.

**Dakota E**

National Wildlife Federation

[nwf.org](http://nwf.org)

**Math, Science, STEM**

**Saturday, 12:40 PM**

Benjamin Benson & Chad Ronish

**Radiation Unveiled: Merging Pop Culture and Teaching**

[Benjamin.Benson@sanfordhealth.org](mailto:Benjamin.Benson@sanfordhealth.org); [cronish@sanfordlab.org](mailto:cronish@sanfordlab.org)

Middle School, High School

Uncover the intersection of radiation and popular culture in this enlightening teacher's event. Decode the relevance of Fukushima, Oppenheimer, and solar flares for enriching your discussions about radiation in medicine lessons. Join Chad Ronish for guidance on incorporating underground lab education and unravel the ethical facets of radiation with Ben Benson from the PROMISE team.

**Dakota F**

Sanford Research (PROMISE)

[www.sanfordlab.org](http://www.sanfordlab.org)

**Science, Math, STEM, Interdisciplinary, CTE**

Saturday, 12:40 PM

John Williams

## Engineering is Elementary-Pt. 2-Building and Testing Storm-Proof Buildings

[john.williams@usd.edu](mailto:john.williams@usd.edu)

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

Elementary, Middle School, Pre-Service

Dakota G

University of South Dakota

Science, STEM, Interdisciplinary

In the second session of this two part series, we will build and test our wind-resistant buildings (model prototypes). We will then share our results and discuss best-practices when facilitating an engineering module in this grade band.

Saturday, 12:40 PM

\*\*\* Canceled \*\*\*

Gregg McNabb & Jeff Sebern

## Forming Sustainable Relationships Between Local School Districts & OST Programs

[greggm@theclubforboys.org](mailto:greggm@theclubforboys.org)

Salon 1

OST Programs

<https://theclubforboys.org/>

STEM

Elementary, Middle School

This presentation is an open forum and discussion format. It will start with some initial talking points about developing and nurturing relationships and questions but would then encourage attendee participation through question/answer and brainstorming ideas that participants could take back and implement within their organizations.

Saturday, 12:40 PM

Anne Lewis

## MacroBlitz - Part I

[annelewis@sd-discovery.org](mailto:annelewis@sd-discovery.org)

High School, College

MacroBlitz is an exciting new project from National Geographic to survey aquatic macroinvertebrates and add them to iNaturalist. Be part of the beta testing of educational resources to improve your macro ID skills. Participate in MacroBlitz Part 2 to learn how to use iNaturalist.

Salon 2

South Dakota Discovery Center

[macroblitz.org](http://macroblitz.org)

Science, CTE

Saturday, 12:40 PM

Spencer Cody

Symposium

Edmunds Central School District

## Apiaries in the Classroom: Educating South Dakota's Youth about Honey Production through Educational Beehives

[Spencer.Cody@k12.sd.us](mailto:Spencer.Cody@k12.sd.us)

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

Elementary, Middle School, High School

Science, STEM, Interdisciplinary, CTE

This program aims to dramatically increase the exposure to and consumption of locally produced honey by developing a network of apiaries and supporting curriculum for preK-12.



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Dakota State University's Cyber Academy is designed to give high school students a jump-start into high-demand cyber occupations.

Students who complete all coursework will complete the first year for a bachelor's degree in Computer Science, Artificial Intelligence, Cyber Operations, or Cyber Leadership.

For more information

[dsu.edu/cyberacademy](https://dsu.edu/cyberacademy)

[admissions@dsu.edu](mailto:admissions@dsu.edu)



# Breakout Sessions - Saturday 1:40-2:30 PM

**Saturday, 1:40 PM** **Featured Speaker**

Bobson Wong

## Incorporating Equity Tasks into Everyday Math Classrooms

[mr@bobsonwong.com](mailto:mr@bobsonwong.com)

Elementary, Middle School, High School

In this session, we describe what we call equity tasks, short activities that incorporate four student goals that relate to equity - rigor, identity, diversity, and justice. We also share a rubric that we created to evaluate equity tasks and examples of equity tasks that can be embedded into our teaching.

**Prairie A**

Bayside HS (NYC Public Schools)

<http://bobsonwong.com>

**Math**

**Saturday, 1:40 PM**

Ashley Armstrong

## Effective Talking Strategies: Enhancing Communication in Education

[aarmstrong@sanfordlab.org](mailto:aarmstrong@sanfordlab.org)

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

In education, effective communication is paramount. Educational professionals need to engage students, collaborate with colleagues, and connect with parents to create a thriving learning environment. This session is designed to empower educators with a comprehensive set of talking strategies to improve communication and foster an inclusive and supportive educational ecosystem.

**Prairie B**

Sanford Underground Research Facility

<https://sanfordlab.org/>

**Saturday, 1:40 PM**

Shalese Stroup

## Un-bee-lievable Simulations that will have Your Students Buzzing

[shalese.stroup@explorellearning.com](mailto:shalese.stroup@explorellearning.com)

Elementary

Explore life in the hive, visit flower patches to determine the best food sources, and then perform a waggle dance to let the other bees know where to go. Gain an understanding of how honeybees impact our environment through pollination. SDDOE Science Educators have full free access to ExploreLearning Gizmos.

**Prairie C**

ExploreLearning

[go-el.com](http://go-el.com)

**Science, STEM**

**Saturday, 1:40 PM**

Lynne Jones

## Full STEAM Ahead

[ljones@washingtonpavilion.org](mailto:ljones@washingtonpavilion.org)

Elementary

In this hands-on, interactive session, experience how literature and STEAM can come together in fun and innovative ways. Leave with 10 hands-on, standards based lesson plans to implement in your program.

**Dakota A**

Washington Pavilion

[www.washingtonpavilion.org](http://www.washingtonpavilion.org)

**Interdisciplinary**



**Lisa Weier**  
Teaching & Learning  
Coordinator  
[Lisa.Weier@sdea.org](mailto:Lisa.Weier@sdea.org)  
605-222-1920

**SDEA BRIDGE**  
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DEVELOPMENT**



Learning Management System

Saturday, 1:40 PM

Laura Bain

## Using Algebra Tiles, from Multiplying Polynomials to Factoring & Completing the Square

[laurabain@cpm.org](mailto:laurabain@cpm.org)

High School

In this session, teachers will explore algebra tiles and learn how to use them to complete algebraic multiplication, factoring, and completing the square exercises. Participants will practice problems they can use with students to build their conceptual understanding. A series of problems are included in the session handout.

Dakota B

CPM Educational Program

[cpm.org](http://cpm.org)

Math

Saturday, 1:40 PM

Sharon Vestal & Hannah Caffee

## All Aboard the SD Elementary Teacher STEM Initiative

[sharon.vestal@sdsu.edu](mailto:sharon.vestal@sdsu.edu); [Hannah.Caffee@bhsu.edu](mailto:Hannah.Caffee@bhsu.edu)

Elementary

Come experience an integrated STEM activity and learn about attending a summer Elementary STEM workshop. The SD Elementary Teacher STEM Initiative is a project funded by the SD Department of Education and facilitated by the SD Board of Regents, BHSU, and SDSU.

Dakota C

South Dakota State University

STEM, Interdisciplinary

Saturday, 1:40 PM

Craig Rebich & Whitney Blindert

## Food Totally Transfers

Dakota E

Vivayic/Relevant Classroom

[crebich@vivayic.com](mailto:crebich@vivayic.com); [wblindert@midwestdairy.com](mailto:wblindert@midwestdairy.com)

<https://www.foodagsci.ed.org>

Middle School, High School **Science, STEM**

In this hands-on workshop, attendees learn how phenomenon-based transfer tasks assess students' NGSS knowledge in a food & agriculture context. Open to all teachers looking for unique assessments in science. Attendees will leave with a bank of NGSS-aligned transfer task assessments and knowledge for implementation.

Saturday, 1:40 PM

Dakota F

Benjamin Benson & Louisa Otto Sanford Research (PROMISE)

## Predictions and Populations: Starter Kit for Understanding Artificial Intelligence

[Benjamin.Benson@sanfordhealth.org](mailto:Benjamin.Benson@sanfordhealth.org); [Louisa.Otto@sanfordhealth.org](mailto:Louisa.Otto@sanfordhealth.org)

[research.sanfordhealth.org/sanford-promise](http://research.sanfordhealth.org/sanford-promise)

Middle School, High School

**Science, Math, STEM, Interdisciplinary, CTE**

Explore the interactions among AI, Biology, and Computer Science. Learn how to engage students in a hands-on lesson demonstrating practical applications of statistics and algorithmic thinking to better understand principles of modern health care and clinical research.



**Saturday, 1:40 PM**

John Williams

**Dakota G**

University of South Dakota

## **Putting Robots to Good Use--A Guided Workshop to Increase the Educational Impact of YOUR Robot Technology in STEM Education**

[john.williams@usd.edu](mailto:john.williams@usd.edu)

[www.usd.edu/research-and-faculty/faculty-and-staff/john-williams](http://www.usd.edu/research-and-faculty/faculty-and-staff/john-williams)

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

**Science, Math, STEM, Interdisciplinary, Teacher Education**

Do you have robotics tech available in your school but feel it is underutilized? In this session, we will briefly discuss a framework for effective use of robotics in STEM education, then use the bulk of the session to develop new impactful ideas for robotics integration in your STEM teaching. (If possible, bring one of your robots along to the session!)

**Saturday, 1:40 PM**

Joy Lundgren, Ann Anderson, Michelle Wysuph, Lynn Arnold

**Salon 1**

Rapid City School District

## **Developing Student Thinking**

[joy.lundgren@k12.sd.us](mailto:joy.lundgren@k12.sd.us); [ann.m.anderson@k12.sd.us](mailto:ann.m.anderson@k12.sd.us); [michelle.wysuph@k12.sd.us](mailto:michelle.wysuph@k12.sd.us); [lynn.arnold@k12.sd.us](mailto:lynn.arnold@k12.sd.us)

Elementary, Middle School

**Science, Math, STEM, Interdisciplinary, CTE**

How do we leverage Computational Thinking to help students struggle through more complex problem solving tasks? Basic information about Computational Thinking will be presented with a focus on what it is and how it can be introduced into existing lesson content.

**Saturday, 1:40 PM**

Anne Lewis

**Salon 2**

South Dakota Discovery Center

## **MacroBlitz - Part 2**

[annelewis@sd-discovery.org](mailto:annelewis@sd-discovery.org)

[macroblitz.org](http://macroblitz.org)

High School, College

**Science, CTE**

MacroBlitz is an exciting new project from National Geographic to survey aquatic macroinvertebrates and add them to iNaturalist. Be part of the beta testing of educational resources to add aquatic macroinvertebrate observations to iNaturalist. Participate in MacroBlitz Part 1 to practice macroinvertebrate identifications.

**Saturday, 1:40 PM**

Larry Browning & Madhav Nepal

**Symposium**

South Dakota State University

## **iLEARN Partners at Rosebud**

[Larry.Browning@sdstate.edu](mailto:Larry.Browning@sdstate.edu); [madhav.nepal@sdstate.edu](mailto:madhav.nepal@sdstate.edu)

[openprairie.sdstate.edu/](http://openprairie.sdstate.edu/) search for iLEARN

Elementary, Middle School, High School

**Science**

Immersive Learning Experiences And Rural Networking (iLEARN) is a partnership between South Dakota State University and Rosebud Economic Development Corporation (REDCO) to promote food sovereignty through interactive K-12 lesson plan development among teachers in the Mission, SD area. Examples can be found on <https://openprairie.sdstate.edu/> if you search for iLEARN. We will report on the last two summers and a school year of partnership and provide information about how you can also get involved.



**Naomi Alhadeff**

*Regional Education Manager*

**National Wildlife Federation**

Northern Rockies, Prairies, and Pacific

[AlhadeffN@nwf.org](mailto:AlhadeffN@nwf.org)



**EcoSchools U.S.**  
NATIONAL WILDLIFE FEDERATION

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

**Saturday, 2:40 PM**

Bobbi Jo Bohnet

## **Spheros in the Classroom (K-12)**

*bobbi.bohnet@k12.sd.us*

Elementary, Middle School

Educating teachers on the usages of Spheros as an introduction to robotics and coding

**Prairie A**

Clark School District

**Science, Math, STEM**

**Saturday, 2:40 PM**

Shalese Stroup

## **STEM in Secondary Grades? There's a Gizmo for that!**

*shalese.stroup@explorelarning.com*

Middle School, High School

Enhance STEM lessons with inquiry-based instruction that encourages learning math and science concepts through discovery. In this interactive session, educators can explore effective strategies for leveraging simulations and fostering student engagement and scientific discourse. SDDOE Science Educators have full free access to ExploreLearning Gizmos.

**Prairie B**

ExploreLearning

*go-el.com*

**Science, STEM**

**Saturday, 2:40 PM**

Lisa Weier

## **Health and Safety in the Classroom**

*lisa.weier@sdea.org*

Elementary, Middle School, High School, Administrative

The South Dakota Education Association (SDEA) hears your concerns. At the 2023 Representative Assembly, members voted to approve several new business items to address health and safety concerns in the classroom. Join this informative session to hear about the steps SDEA is taking to make your voices heard.

**Prairie C**

South Dakota Education Association

*<https://www.sdea.org/>*

**Interdisciplinary**

**Saturday, 2:40 PM**

Raegan Kleinpeter

## **STEM Exploration, Kits for Your Classroom!**

*raegankleinpeter@sd-discovery.org*

Elementary, Middle School

You have an in-state resource for easy hands-on STEM exploration! Join this session for a fun time digging into these flexible, curriculum enhancing resources that cover a variety of topics and grade levels that can be used by anyone that wants to bring engaging science to young people.

**Dakota A**

South Dakota Discovery Center

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

**STEM**

**Saturday, 2:40 PM**

Laura Bain

## **Create an Environment to Support Independent Learners**

*laurabain@cpm.org*

Middle School, High School

In this hands-on session, participants will put their problem-solving skills to the test as they collaborate to solve a rich, unfamiliar mathematical task. Participants will come away with strategies to redesign their classrooms to support students as they become more independent learners and grow their intellectual capacity.

**Dakota B**

CPM Educational Program

*[cpm.org](http://cpm.org)*

**Math**

**hand2mind** Growing minds with hands-on learning

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The purpose of The Outdoor Campus' is to provide hands-on experiences in hunting, fishing and other outdoor skills. Free educational classes for youth, adults, families groups, and schools are held throughout the year.

Our goal for school programming is to provide exciting and fulfilling educational opportunities that enrich the concepts that teachers are already covering in the classroom with an exciting outdoor educational addition. Our programming is designed to align with state education standards and give students the opportunity to learn and experience things they may not typically receive in the classroom.

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605.394.2310 TOCWest@state.sd.us

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605.362.2777 TOC@state.sd.us

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[www.sanfordlab.org/educators](http://www.sanfordlab.org/educators)



**Saturday, 2:40 PM**

Larry Browning & Matt Miller

### **Matt and Larry - the Errors Tour**

*Larry.Browning@sdstate.edu; matt.miller@sdstate.edu*

Middle School, High School

Taylor Swift has The Eras Tour, but Matt and Larry have The Errors Tour. Come see how many errors they can make in 50 minutes. And they are willing to come to your school too - please!

**Dakota E**

South Dakota State University

**Science**

**Saturday, 2:40 PM**

Nicol Reiner

### **An Opportunity for Phenomena**

*nreiner@sanfordlab.org*

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

There are phenomena all around us, but do we notice? What are the opportunities and places around us that offer phenomena to spark student curiosity and drive exploration? Come hear about world leading unsettled science being studied at Sanford Underground Research Facility and discuss connections to K-12 classroom learning.

**Dakota F**

Sanford Underground Research Facility

*Sanfordlab.org*

**Science, STEM**

**Saturday, 2:40 PM**

John Williams

### **Modeling in Science -- Using Student-Generated Models**

#### **to Make Thinking Visible and Track Changes in Understanding**

*john.williams@usd.edu*

*www.usd.edu/research-and-faculty/faculty-and-staff/john-williams*

Elementary, Middle School, High School, Pre-Service

**Dakota G**

University of South Dakota

**Science, STEM**

Scientific modeling is a powerful, but often misutilized tool in the science teacher's toolbox. If employed correctly, modeling has the power to motivate high-order thinking in students. We will first discuss best-practices for modeling in science, and then attempt to apply these principles to a lesson/module/unit you teach.

**Saturday, 2:40 PM**

Emily Berry

### **Science is Human!**

*eberry@sanfordlab.org*

Elementary, Middle School, High School

This session will explore how people engage with science differently based on their own experiences, perspectives, and world views. Participants will explore how people are a part of science, and how human biases impact scientific understanding. In turn, how is student engagement impacted by their intersecting identities?

**Salon 1**

Sanford Underground Research Facility Education & Outreach

*sanfordlab.org*

**Science, Interdisciplinary**

**Saturday, 2:40 PM**

Terri Mehlhaff

### **Math Unpacked Standards**

*terri.mehlhaff@state.sd.us*

Elementary, Middle School, High School

The South Dakota Department of Education (SD DOE) will walk you through a guided tour of the Math Unpacked Standards documents. This session will show other valuable resources the Department offers to help you and your school take a deeper dive into your math scores and ways to increase them.

**Salon 2**

SD DOE

**Math**

Saturday, 2:40 PM

Spencer Cody

## Pole of Inaccessibility: Bringing Ocean Science to North America's Great Interior

Spencer.Cody@k12.sd.us

Elementary, Middle School, High School

Join us as we explore how NOAA Teacher at Sea can bring stimulating ocean science content to the classroom through a wide range of technology and media applications.

Symposium

Edmunds Central School District

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

Science, Math, STEM, Interdisciplinary, CTE

**South Dakota Discovery Center**

**Contact Us!**  
 (605) 224-8295  
 info@sd-discovery.org  
 805 W. Sioux Ave., Pierre

**BUILDING STEM CONFIDENCE**

RESOURCES FOR EDUCATORS, SCHOOLS, & STUDENTS

Register for Summer Professional Development, Book a STEMventure, and Find Opportunity Today:

**SD-DISCOVERY.ORG**

## 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 2025 SD STEM Ed Conference.

Saturday 3:30 PM

### Math Wrap-up and Reflect

Dakota B

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 2025 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 6, 7, & 8, 2025

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**SCHOLARSHIPS AVAILABLE**

[sdsmt.edu/SummerCamps](http://sdsmt.edu/SummerCamps)



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

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

<u>- Company Name -</u>	<u>Representative(s)</u>
CPM Educational Program	Lisa Comfort, Laura Bain
ExploreLearning	Dawn Rowley, Shalese Stroup
Fenworks	Gannon Karsky, Kale Stroup
Governors Cyber Academy at DSU	Fenecia Homan, Kyle Cronin
Hand 2 Mind	Matt Kattman
Imagine Learning	Chet Riddle, Tonya Dodson
imaginX	Girish Prabhu, Fine Taufatofua
Monument Health Center	Anna Whetham, MBA-HCM
National Geographic Learning   Cengage	Laura Reynolds, Amy Strong
National Wildlife Federation	Naomi Alhadeff
Project Learning Tree	Marnie Lammle
Sanford PROMISE	Louisa Otto, Benjamin Benson
Sanford Underground Research Facility	Emily Berry, Chad Ronish
SAVVAS Learning	Mike Limmer, Michelle Dykstra
SD EPSCoR	Danielle Van Peurse, Kinchel Doerner
SDSU College of Natural Sciences	Brandy Netty
South Dakota Discovery Center	Jennifer Mcintyre
South Dakota Education Association	Lisa Weier, Korey Erickson
South Dakota GPF - Outdoor Campus	Cheyenne Parke, Joseph Salvati
South Dakota Mines	Ashli Maddox
SD Mines-Materials & Metallurgical Engineering	Katrina Donovan, Deborah Mitchell
Southeast Technical College	Julie Olson
University of South Dakota Graduate Admissions	Wendy.J.Thorson
WorldStrides	TBD



Graduate Credit will be offered through Black Hills State 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 BHSU along with assignments listed in the syllabus. Credit registration information is online at the following link: <http://sdctm.org/documents/credit/2024.syllabus.pdf> Registration for credit will close at 5 pm on Friday, February 2. Make sure to register for the SD STEM Ed Conference! 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. DEANN KERTZMAN at (605) 642.6571 or at [Deann.Kertzman@bhsu.edu](mailto:Deann.Kertzman@bhsu.edu)

– Next year’s conference will be February 6, 7, & 8, 2025 --

The 2024 Conference Committee would like to offer a Special Thanks to . . .

Black Hills State University and Dr. **DEANN KERTZMAN** 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.

*THANKS* to Imagine Learning for sponsoring  
the pre-Banquet Friday Social



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

(This year’s **T&E** Conference is April 14-16, 2024 in Sioux Falls.)

**Next year’s SD STEM Ed conference will be February 6, 7, & 8, 2025.**

The 2024 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) \$200, Non-members \$250, Students \$70 includes the Noon Luncheon for that day TWO-day (SDCTM or SDSTA members) \$225, Non-members \$275, 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 \$35. {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.

# 2024 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).

<https://forms.gle/YysH6mrfZVqSjzC8>

\_\_\_\_\_

Name

\_\_\_\_\_

Address

\_\_\_\_\_

City, State, Zip Code



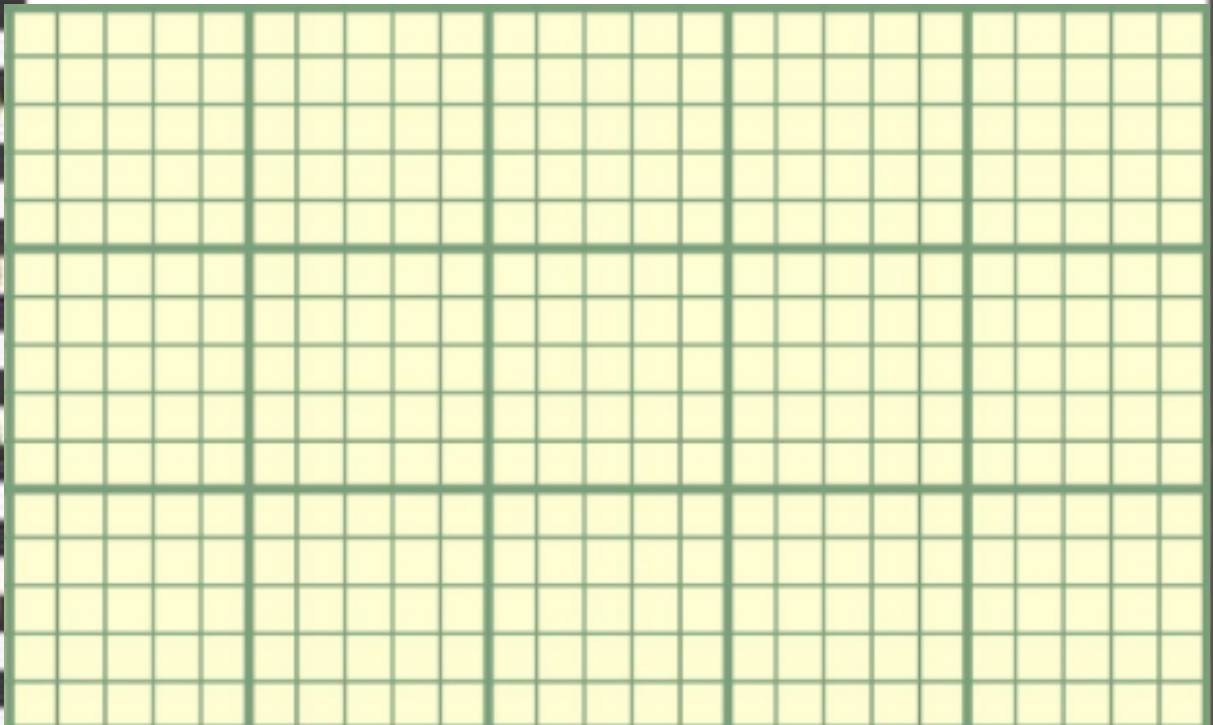


What did one tectonic plate say when it bumped into the other?

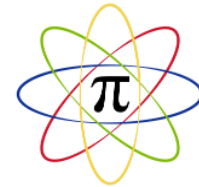
What did the triangle say to the circle?

You should never start a conversation with pi. It could go on forever.

Guess what seems odd to me.



Sorry, my fault! You're pointless. Numbers that can't be evenly divided by two!



## SDSTA

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## SD STEM Ed

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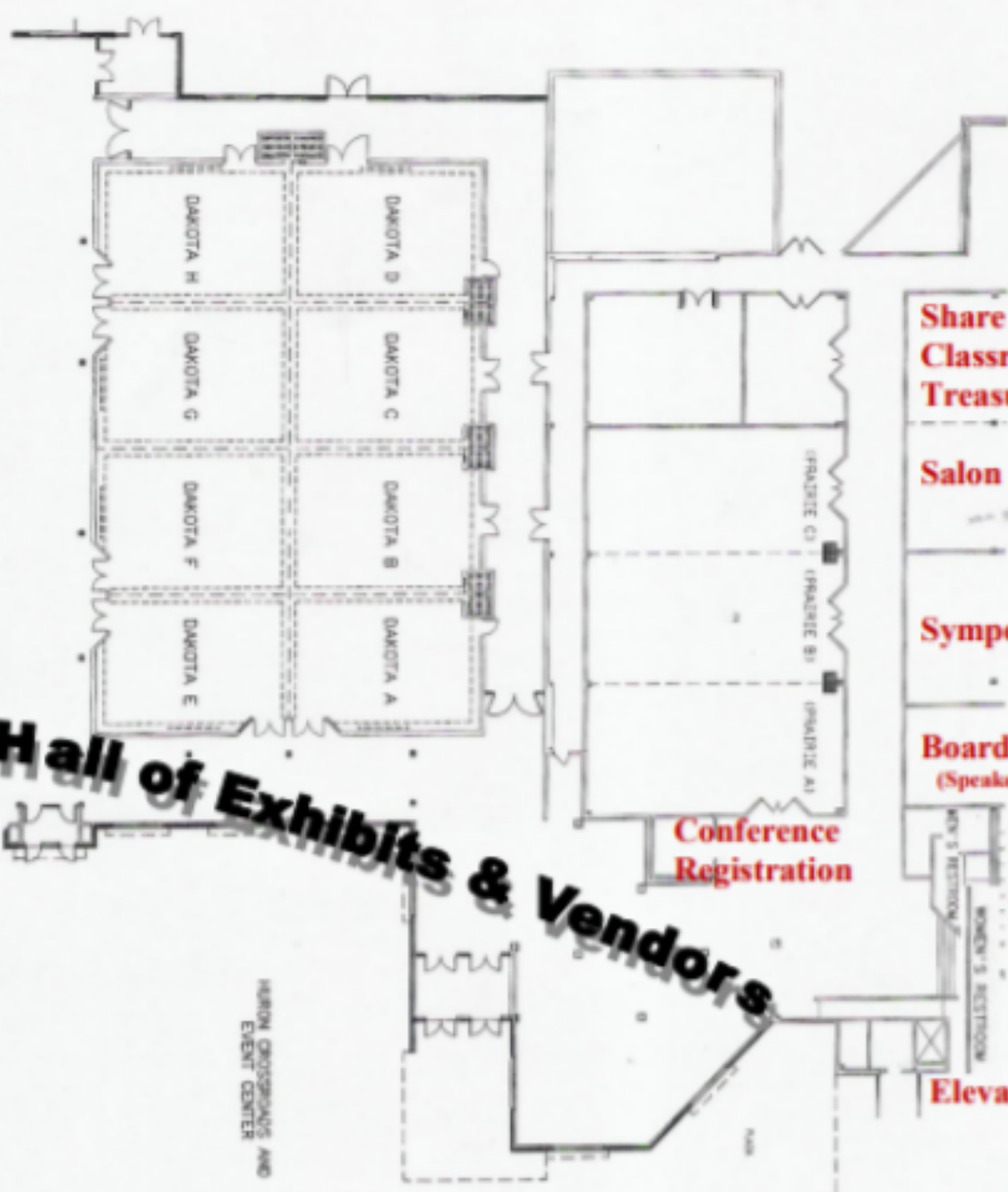
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