

30th  
Annual

# SD STEM Ed Conference

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

**February 3, 4, & 5, 2022  
Crossroads Hotel-Huron Event Center  
Huron, SD**

*Together Again !!!*

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Graduate Credit is available through DWU-Mitchell.

Next year's conference will be **February 2, 3, & 4, 2023.**



**BANQUET SPEAKER** — **Jim Mathews** has been a faculty member at Siena College for almost 40 years where he has held a joint appointment in the mathematics and computer science departments. He has conducted numerous workshops for mathematics educators, directed and consulted on many grant projects, and helped establish undergraduate and graduate programs for mathematics and science teachers at Rensselaer Polytechnic Institute. Jim has been recognized with a NYNEX award for Excellence in Education and was an inaugural inductee into the New York State Mathematics Educators Hall of Fame. When not working, Jim likes to run, bike, hike, and ski. He also enjoys puzzles and games, magic, reading and activities with family.

**OTHER FEATURED SPEAKERS**

**Travis Lape** is entering his 9th year with the Harrisburg School District where he currently serves as the Innovative Programs Director. Travis is passionate about creating learning environments that leverage the best instructional practices that we know get the largest effect on learning. In 2015 Travis was recognized for his work with integrating technology into classrooms by being named TIE Technology Leader of the Year. Travis believes that by empowering learners to drive their learning we can start to create a new system that honors all learners and their cultures. When Travis is not at work you can find him hanging out with his wife Lynn and their two boys DJ and Tyler.



**Dr. David Costello** is an author who has recently published two books Making Math Stick: Classroom strategies that support the long-term retention of math concepts and Using What Works: Strategies for Developing a Literacy-Rich Environment in Math. David is a principal, who has held many roles. He taught in the primary division before assuming roles of numeracy interventionist, numeracy coach, numeracy leader, and curriculum consultant for Prince Edward Island. David has also instructed university courses focused on curriculum, differentiation, mathematics, and literacy. He facilitates professional learning sessions in the area of mathematics and school development.

**SURF - BHSU**

**Ashley Armstrong, Chad Ronish, Julie Dahl, Deb Wolf, Peggy Norris, & Nicol Reiner**



Sanford Underground Research Facility (SURF)- Education & Outreach  
 The Education and Outreach (E&O) program is a collaborative venture between Sanford Underground Research Facility and Black Hills State University. Our purpose is to use the excitement and promise of deep underground science and engineering to inspire and engage students, educators, scientists, and members of the general public. We have developed an array of original K-12 education resources— including phenomena-based curriculum units, school presentations, field trip experiences, and teacher professional development opportunities that showcase SURF and its experiments. By making connections across diverse communities, learning from and with one another, the Education and Outreach team strives to advance equity and excellence in STEM education for all students.

# 2022 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 3, 2022

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

### Friday, February 4, 2022

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

8:00 AM - 5:00 PM Exhibits Open Pre-Function Area

8:00 AM – 8:30 AM Opening Session & Keynote Prairie A & B

8:30 AM - 11:20 AM Morning Sessions (See Program)

11:20 AM – 11:50 AM Networking, Exhibitor & Poster Session Exhibitor Hallway

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

*(cost included in the registration fee)*

12:50 PM– 1:10 PM Networking, Exhibitors & Poster Session Exhibitor Hallway

1:10 PM - 4:20 PM Afternoon Sessions (See Program)

4:30 PM SDCTM Business Meeting Dakota A

SDSTA Business Meeting Dakota E

5:30PM-6:30 PM Social Hour Pre-Function Area

Sponsored by Edgenuity & Vendors

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

(Cost is \$25)

### Saturday, February 5, 2022

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)*

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

4:30 PM Joint SDCTM & SDSTA Prairie A & B

Executive Board Meeting

**SD STEM Ed Conference 2022 Planner**

Thursday, Feb. 3, 2022				
	First Choice		Second Choice	
7:00 PM	Science Showcase	Prairie B	Math Pot Luck	Prairie C

Friday, Feb. 4, 2022				
Remember to visit the exhibits in the Lobby and Hallways of the Crossroads Hotel.				
	First Choice		Second Choice	
8:00 AM	Session #: F100      OPENING SESSION			
	Location:                  Prairie A, B			
	Title:                          Together Again !			
8:30 AM	Session #:		Session #:	
	Location:		Location:	
	Title:		Title:	
9:30 AM	Session #:		Session #:	
	Location:		Location:	
	Title:		Title:	
10:30 AM	Session #		Session #	
	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 and Poster Session</b>			
1:10 PM	Session #:		Session #:	
	Location:		Location:	
	Title:		Title:	
2:10 PM	Session #:		Session #:	
	Location:		Location:	
	Title:		Title:	
3:00 PM	<b>Exhibitor Networking: Exhibitor and Poster Session</b>			
3:30 PM	Session #:		Session #:	
	Location:		Location:	
	Title:		Title:	
4:30 PM	SDCTM BUSINESS MEETING in Dakota A SDSTA BUSINESS MEETING in Dakota E			
5:30	Social hour Sponsored by <a href="http://imaginethefutureoflearning.com">imaginethefutureoflearning.com</a> & Aaron Cole			
6:30 PM	Friday Night Banquet in Prairie Ballrooms A, B, C (Banquet Tickets Required-Cost is \$25)                  Jim Matthews - speaker			

Saturday, Feb. 5, 2022				
	First Choice		Second Choice	
8:00 AM	Session #:		Session #:	
	Location:		Location:	
	Title:		Title:	
9:00 AM	Session #:		Session #:	
	Location:		Location:	
	Title:		Title:	
10:00 AM	Session #:		Session #:	
	Location:		Location:	
	Title:		Title:	
10:50 AM	<b>Exhibitor Networking: Exhibitor and Poster Session</b>			
11:30-12:30	<b>Saturday Noon Luncheon in Crossroads Hotel – Prairie A, B, C</b>			
12:40 PM	Session #:		Session #:	
	Location:		Location:	
	Title:		Title:	
1:40 PM	Session #:		Session #:	
	Location:		Location:	
	Title:		Title:	
2:40 PM	Session #:		Session #:	
	Location:		Location:	
	Title:		Title:	
3:30-4:15	Wrap-up and Reflect – Science in Dakota A		Wrap-up and Reflect – Math in Dakota E	
4:30 PM	SDCTM & SDSTA JOINT BOARD MEETING IN Prairie A & B			

Next Year's Conference will be February 2, 3, & 4, 2023



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

Thursday, 7:00 PM

## tpb7 Science Showcase

*Prairie B*

**SDSTA President Michelle Bartels & Ally Bowers**

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



Thursday, 7:00 PM

## tpc7 Math Potluck

*Prairie C*

**SDCTM President Sheila McQuade**

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



## Friday 7:00 AM

Conference Registration Opens - Crossroads Lobby

### Share the Classroom Treasures - Salon II

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

## Friday 8:00 AM

Friday, 8:00 AM

## fpa0 Opening Session

*Prairie A & B*

**Featured Speakers & Presidents** SDCTM President Sheila McQuade and SDSTA President Michelle Bartels will give a conference overview, introduce featured speakers, and answer any or all questions that may arise.



**Multiple pathways  
to STEM careers.**

**SOUTHEAST**  
Technical College

605-367-6040 | [SOUTHEASTTECH.EDU](http://SOUTHEASTTECH.EDU)



## Breakout Sessions - Friday 8:30-9:20 AM

Friday, 8:30 AM

### fpc1{Repeats as fpc2} **3D Learning for a World of 8 Billion**

**Prairie C**

**Lynda Venhuizen** South Dakota State University  
lynda.venhuizen@sdstate.edu

High School Science

Engage in hands-on activities (problem-solving challenges, simulations and modeling) that use real-world data sets and 3-D learning to analyze and think critically about some of the key ecological topics in Biology and Environmental Science courses (including AP) – population trends, climate change, land use, biodiversity, and ecosystem health.

Friday, 8:30 AM

### fda1 **Refrigerator Math**

**Dakota A**

**Susan Gilkerson** Rutland  
susan.gilkerson@k12.sd.us

Elementary, Middle School, High School Math

During work time some students finish quickly, while others need more time to think. In this presentation I will tell what I do with Pickles, Ketchup, and Mustard to help kids stay engaged.

Friday, 8:30 AM

### fdb1 **Shifting to Mastery - Competency Based Education Models** **Dakota B**

**Dr. Cari Kennedy** Technology and Innovation in Education  
ckennedy@tie.net

ALL Both

<https://www.tie.net/carikennedy>

The increasing gap between how school works and how the world works has sparked deep interest in Competency Based/Standards Based Education (CBE), especially its focus on designing learning experiences where students can authentically practice essential skills. This session will focus on the what and how of (CBE) in the Math and Science Classroom.

Friday, 8:30 AM

### fdc1 **The Essential Exponential—Al Bartlett's Message to the Future** **Dakota C**

**Larry Browning** Physics Department, South Dakota State University  
Larry.Browning@sdstate.edu

High School Science, Math

Al Bartlett wrote and presented "Arithmetic, Population and Energy: Sustainability 101" a total of 1,742 times. His message will be summarized and updated. The University of Nebraska Center for Science, Mathematics, & Computer Education provided copies of Al's book "The Essential Exponential! (For the Future of Our Planet)" for participants.



**SOUTH DAKOTA  
STATE UNIVERSITY**  
College<sub>4</sub> of Natural Sciences

Friday, 8:30 AM

**fdd1{Repeats as fdd2}** **Using Multiple Representations to Make Connections in Algebra**

*Dakota D*

**Julie Jackson & Laura Bain** CPM  
juliejackson@cpm.org laurabain@cpm.org

Middle School, High School Math  
<https://cpm.org>

Participants will engage in activities designed to develop a rich understanding of the connections between a table, graph, rule, and context for quadratic functions. They will solve challenging problems and explore ways the connections can be used to enrich learning and analyze how emphasizing multiple representations can help develop students into powerful problem-solvers.



Friday, 8:30 AM

**fde1** ***The Right Stuff: Advocating for Quality Instructional Materials*** *Dakota E*

**Sharla Dowding** Black Hills State University  
sharla.dowding@bhsu.edu

Elementary, Middle School, High School Science, Math

Hear how to use FREE resources as you seek curriculum materials for math, science, and/or ELA. Dr. Dowding has been reviewing science materials with EdReports since 2018. EdReports is an organization committed to increasing the capacity of educators to seek, identify, and demand the highest quality instructional materials. The heart of the commitment is providing FREE instructional materials reviews "For Educators, By Educators."

Friday, 8:30 AM **Featured Session**

**fdf1** **Creating Engagement Using Phenomena**

*Dakota F*

**Chad Ronish** SURF - BHSU  
chad.ronish@bhsu.edu; cbutler@tie.net; pam.bartlett@k12.sd.us

Elementary, Middle School, High School, Informal Educators Science

Come experience engagement, based on real world phenomena, like we do it in the classroom. Participants will see how we take a lesson from phenomena to assessment of learning.

Friday, 8:30 AM

**fdg1** **A Close Look at the South Dakota State Standards for Mathematics Definition of Fraction**

*Dakota G*

**Ashley Jairam** University of South Dakota  
ashley.jairam@usd.edu

Elementary Math

We will complete an activity using pattern blocks to help us understand the definition of fraction found in the South Dakota State Standards. We will then see how this definition of fraction can be applied to equivalent fractions, comparing fractions, adding and subtracting fractions, and multiplying and dividing fractions.

Friday, 8:30 AM

**GIS in Your Classroom: Incorporate Mapping Activities with a Free Platform and Ready Made Lesson Plans**

*Dakota H*

**Julie Erickson** TIE/BHSSC Elementary, Middle School, High School Science, Math  
jerickson@tie.net <https://tie.net>

Utilizing GIS enables students to think critically about real-world content and make inferences using data. Students have the opportunity to analyze, create and make connections with real data in all content areas. Learn ways to incorporate ArcGIS Online with prepared lesson plans and learn how to create your own maps.



Exploring color theory, glass blowing, metal casting and blacksmithing in hands-on curriculum  
Working with an Artist-in-Residence  
Developing STEAM-influenced design/lab projects directly with industrial partners



**SOUTH DAKOTA MINES**

Friday, 8:30 AM {This session has limited materials for the first 20 participants}

**STEAM: Materials, Metal Clay, and More!**

*Salon 1*

**Katrina Donovan & Deborah Mitchell** SDSM&T Elementary & Middle School Science, Math, Art  
katrina.donovan@sdsmt.edu  
<https://sites.google.com/sdsmt.edu/art-and-engineering/home>

Kinesthetic learning is an important skill to have as an engineer or artist. Attendees will manipulate the metal clay while learning about the materials properties and how to integrate similar modules into a classroom setting, and they will have the opportunity to leave the conference with metallic art.

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

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

**Teaching to Understand the World We Live In**

*Prairie B*

**Jim Matthews** Siena College Middle School, High School Science, Math  
matthews@siena.edu <https://www.siena.edu/faculty-and-staff/person/james-matthews/>

There are five reasons to teach/learn mathematics and science. One of them is so that we can better understand the world and universe. We will share concrete examples of interesting problems that can help achieve this goal.

Friday, 9:30 AM

**fpc2{Repeat of fpc1} 3D Learning for a World of 8 Billion**

**Prairie C**

**Lynda Venhuizen** South Dakota State University  
lynda.venhuizen@sdstate.edu

High School Science

Engage in hands-on activities (problem-solving challenges, simulations and modeling) that use real-world data sets and 3-D learning to analyze and think critically about some of the key ecological topics in Biology and Environmental Science courses (including AP) – population trends, climate change, land use, biodiversity, and ecosystem health.

Friday, 9:30 AM

**fda2 Fun Math Routines for the Elementary Classroom**

**Dakota A**

**Kevin Smith** DSU  
kevin.smith@dsu.edu

Elementary Math  
[www.kevindsmith.org](http://www.kevindsmith.org)

Are you looking for ways to get students interested and excited about math? In this session, you'll learn about several math routines that can be used to get students thinking and talking about mathematics. Each routine is easy to implement and is a great way to implement the Standards for Mathematical Practice in your classroom. Here is a list of the routines that might be shared in this session: Esti-Mysteries, Cube Conversations, Splat, Tile Area Questions, The Maze Hundreds Chart

Friday, 9:30 AM

**fdb2 Universal Design for Learning - Accessing Learning for ALL Students**

**Dakota B**

**Cari Kennedy** Technology and Innovation in Education  
ckennedy@tie.net

K-12 Math & Science  
<https://www.tie.net/carikennedy>

The Universal Design for Learning (UDL) is best practice and vital for all teachers and learners. UDL provides a variety of strategies and resources to help meet diverse learning needs, improve accessibility to learning opportunities, and increase student success. This session will include understanding the framework and how to make learning accessible for ALL learners.

Friday, 9:30 AM

**fdc2{Repeats as fdc3} Geometry: To the Moon!**

**Dakota C**

**Paul Kuhlman** Avon  
paul.kuhlman@k12.sd.us

High School Science, Math

As Ralph Kramden would say " Bang, Zoom, you are going to the moon!" Start the year off with a bang in geometry as you learn how to apply some geometric principles to astronomical measurements such as the circumference of the earth, distance to the moon, etc.



Dakota Lions Sight & Health  
Eye and Tissue Donation



Friday, 9:30 AM

**Using Multiple Representations to Make Connections in Algebra**

*Dakota D*

**Julie Jackson & Laura Bain** CPM Middle School, High School Math  
juliejackson@cpm.org laurabain@cpm.org <https://cpm.org>

Participants will engage in activities designed to develop a rich understanding of the connections between a table, graph, rule, and context for quadratic functions. They will solve challenging problems and explore ways the connections can be used to enrich learning and analyze how emphasizing multiple representations can help develop students into powerful problem-solvers.



Empowering mathematics students and teachers for 30 years through exemplary curriculum, professional development, and leadership

- + Curriculum written by a team of experienced teachers
- + Problem-based lessons for active student engagement
- + Free, comprehensive professional learning progression to support teacher expertise, growth, and leadership
- + Educational nonprofit 501(c)(3)

We are pleased to support the SD STEM Ed Conference. Stop by our booth to meet with a CPM mentor teacher, see our materials, and request a preview.

Visit [CPM.org/cpminfo](http://CPM.org/cpminfo) or scan the QR code to get more information and view our conference sessions.

**MORE MATH FOR MORE PEOPLE**



Friday, 9:30 AM

**Super Fun Prototyping Spectacular: Design Thinking, Making, & Creative Problem Solving for STEM**

*Dakota E*

**Micah Lande** SD School of Mines & Technology Elementary, Middle School, High School Science, Math, Engineering  
micah.lande@sdsmt.edu <http://lande.sdsmt.edu>

High-flying paper engineering, death-defying rapid prototyping, and out-of-this-world low-cost tools will transform your brilliant ideas into amazing physical things. Design thinking and making are increasingly popular approaches for radical, learner-centered, holistic STEM learning experiences. This hands-on workshop introduces design thinking and maker-based pedagogies ready to employ in your STEM course.

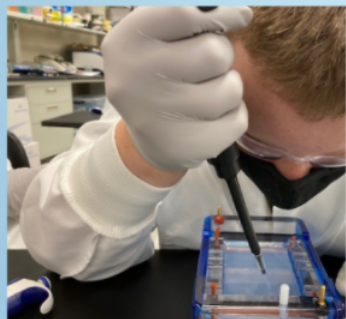
Friday, 9:30 AM **Featured Session**

**STEM Education and Afterschool Partnerships**

*Dakota F*

**Chad Ronish** SURF - BHSU Elementary, Middle School, High School, Informal Educators Science  
chad.ronish@bhsu.edu

Let's discuss how to leverage K-12 and afterschool programs to provide students with an authentic science experience and time for inquiry-based learning. No time for labs??? After School programs have the time you need to give your students a chance to learn beyond the classroom.



Stay up to date by subscribing to our newsletter.

Sanford PROMISE provides STEM education and outreach for Sanford Research. We're working to inspire the next generation of scientists, problem solvers, and thinkers. Visit the website to find **lesson plans, videos, printables, request a visit from us, or borrow equipment!**



[promise.sanfordhealth.org](http://promise.sanfordhealth.org) | @SanfordPROMISE





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

**fdg2 Creating Opportunities to Use the Standards for Mathematical Practice**

**Dakota G**

**Nicol Reiner** SURF - BHSU  
Nicol.Reiner@bhsu.edu

Elementary, Middle School, High School Math

What does the M in STEM look like at Sanford Underground Research Facility (SURF)? Connect to the mathematics around us to create opportunities to engage in the standards for mathematical practice. Come experience mathematical challenges from the science and engineering at SURF. Let's model, persevere, contextualize, decontextualize, and critique reasoning.

Friday, 9:30 AM {This session has limited materials for the first 20 participants}

**fs12 STEAM: Materials, Metal Clay, and More!**

**Salon 1**

**Katrina Donovan & Deborah Mitchell** SDSM&T High School & Collegiate Level Science, Math, Art  
katrina.donovan@sdsmt.edu  
<https://sites.google.com/sdsmt.edu/art-and-engineering/homem>

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.



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

Friday, 10:30 AM

**fda3{Repeats as fda5} Improving the Feedback Process**

**Dakota A**

**Kevin Smith** Dakota State University  
kevin.smith@dsu.edu

Elementary, Middle School, High School Science, Math  
<http://www.kevindsmith.org/>

Providing feedback to our students is one of the most important things we do as teachers. In this session, you'll be introduced to a tech tool called Floop. Floop allows you to quickly provide feedback to students on their work. The tool is free (paid options available) and it's awesome.

Friday, 10:30 AM

**fdc3 Creating Culturally Sustaining Curriculum**

**Dakota B**

**Bree Oatman** South Dakota Discovery Center  
breeoatman@sd-discovery.org

Elementary, Middle School Science

www.sd-discovery.org

Learn about how to create a culturally sustaining curriculum that integrates the Oceti Sakowin Essential Understandings with math and science standards. Bring lesson topic ideas and leave the session with a plan for how to culturally bridge between Indigenous Knowledge and Western Science and Math.



Friday, 10:30 AM

**fdc3{Repeat of fdc2} Geometry: To the Moon!**

**Dakota C**

**Paul Kuhlman** Avon  
paul.kuhlman@k12.sd.us

High School Science, Math

As Ralph Kramden would say " Bang, Zoom, you are going to the moon!" Start the year off with a bang in geometry as you learn how to apply some geometric principles to astronomical measurements such as the circumference of the earth, distance to the moon, etc.

Friday, 10:30 AM

**fd3{Repeats as fdd5} Patterns with Purpose: Using Multiple Representations to Make Connections in Linear Algebra**

**Dakota D**

**Laura Bain & Julie Jackson** CPM Educational Program  
laurabain@cpm.org juliejackson@cpm.org



Middle School, High School Math

<https://cpm.org/>

Building conceptual understanding of slope and y-intercept... Easier said than done. Join us for some fun and engaging problem solving with patterns as we work as a virtual team to shift between the multiple representations of the linear web. Learn how your students can (and will) make connections between a table, graph, rule, and pattern to fully understand and apply  $y=mx+b$  in multiple contexts.

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

**fd3{Repeats as sde5} INVENT. CREATE. EXPLORE.**

**Dakota E**

**Travis Lape** Harrisburg School District  
travis.lape@k12.sd.us

Elementary, Middle School, High School Science

Come to a hands-on session that will explore circuits through a fun hands-on way. Learning is much more enjoyable through play. Come experience the fun of making circuits and creating engaging lessons.

Friday, 10:30 AM

**fd3 Now . . . Take My Microscope – Please!**

**Dakota F**

**Larry Browning** Physics Department, South Dakota State University  
Larry.Browning@sdstate.edu

Middle School, High School Science

Come and build a simple projection microscope. I have parts and tools and you can magnify things in liquids. Fun for biology and interesting optical physics for only a few dollars – but your first one is free.

Friday, 10:30 AM

**fdg3{Repeats as sda4} CRISPR and Genome Editing: Where Do I Start? *Dakota G***

**Benjamin Benson & Louisa Otto** Sanford Research Middle School, High School Science  
benjamin.benson@sanfordhealth.org Louisa.otto@sanfordhealth.org <https://research.sanfordhealth.org/sanford-promise>

CRISPR has rapidly moved from a bacterial immune system to gene therapy "wonder drug". Engage in a hands-on CRISPR related learning experience that can be rolled out to your students when you get back to class on Monday. This hands-on activity will help you to learn about the history of gene editing technology and how it is currently being employed. After completion of this activity, you will be ready to digest news articles and current events related to CRISPR.

Friday, 10:30 AM

**fdh3{Repeats as fdh4} Cardboard Winter Olympics: Let the Games Begin! *Dakota H***

**Marie Steckelberg** Steckelberg Consulting Elementary, Middle School Science  
marie@steckelbergconsulting.com  
<https://SteckelbergConsulting.com>

The Winter Olympics are happening in Beijing in February 2022. Experience creative ways your students can engineer cardboard props and "play" the Winter Olympics! Participants will leave with ideas and tools to create these engineering challenges and an understanding of the engineering design process in a student focused learning environment.



Friday, 10:30 AM {This session has limited materials for the first 20 participants}

**fs13{Repeat of fs11} STEAM: Materials, Metal Clay, and More! *Salon 1***

**Katrina Donovan & Deborah Mitchell** SDSM&T Elementary & Middle School Science, Math, Art  
katrina.donovan@sdsmt.edu <https://sites.google.com/sdsmt.edu/art-and-engineering/home>

Kinesthetic learning is an important skill to have as an engineer or artist. Attendees will manipulate the metal clay while learning about the materials 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 11:20-11:50 AM

Friday, 11:20 AM

### fHALL **Networking, Exhibitor and Poster Session**

*Exhibitor Hallway*

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

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

Friday, 11:50 AM

### fpABC **LUNCH :**

*Prairie A, 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.



# South Dakota Discovery Center

*Your hands-on science playground*

## Friday 12:50-1:10PM

Friday, 12:50 PM

### fHALL **Networking, Exhibitor and Poster Session**

*Exhibitor Hallway*

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! Drawing winners from this session will be placed on a bulletin board in the Registration area to be checked after the Business Meetings & before the banquet - prizes must be claimed

6:30 PM Friday

As a member, you may attend  
and vote at the Friday 4:30  
Business Meeting.

## Friday 1:10-2:00PM

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

### fpa4{Repeats as ss4} **Making Math Stick: Strategies to Support Understanding and Recall of Concepts**

**Prairie A**

**David Costello**

dacostello@edu.pe.ca

K-12 Math

Have you ever heard students say "I forget doing that"? Far too often, instruction prioritizes short-term performance at the expense of learning. Making Math Stick is about instructional and learning strategies that support students in recalling and applying previous learning to solve novel situations. In this session, I'll stress a broader view of learning that is more than getting information into the heads of students. It's about encoding, consolidating and retrieval. Students will be able to recall previous learning to solve novel problems. Instruction and learning is mixed and spaced during the year.

Friday, 1:10 PM

### fpb4 **Investigating Rangeland Systems and Practices: Enhancing Sustainable Agriculture Curriculum in South Dakota**

**Prairie B**



**Krista Ehlert, Jessalyn Bachler & Christine Wood** South Dakota State University Middle School Science  
krista.ehlert@sdstate.edu; jessalyn.bachler@sdstate.edu; christine.wood@sdstate.edu <https://extension.sdstate.edu>

The protection and preservation of rangelands is integral to key ecosystem services within the North Central Region such as biodiversity, recreation, and food and fiber production. Educating youth through a sustainable agriculture curriculum can serve as the direct link to the future sustainability of rangelands in the Great Plains and South Dakota. This project is focused on educating youth in grades 6, 7, and 8 about sustainable agriculture through a lens of rangeland systems and practices.

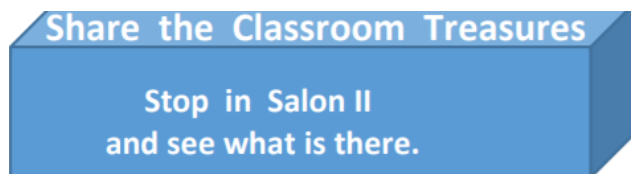
Friday, 1:10 PM

### fpc4 **Hands-on Healthy Soil**

**Prairie C**

**Anne Lewis** SD Discovery Center Elementary Science  
annelewis@sd-discovery.org <https://soileducationnetwork.org>

Use phenomena, thinking routines and literature to teach about the world under our feet. Meet multiple standards across the curriculum.



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

**fda4 Respecting Students as Young Mathematicians and Scientists *Dakota A***

**Jim Matthews** Siena College  
matthews@siena.edu

Elementary, Middle School, High School, 4-12 Science, Math  
<https://www.siena.edu/faculty-and-staff/person/james-matthews/>

School mathematics and science symposiums are comparable to school music concerts, sporting events, and theater productions. They provide students with the opportunity to emulate professionals. We will share ideas on running a math symposium that also apply to extending a typical science fair.

Friday, 1:10 PM

**fdb4{Repeats as sdb3} The South Dakota Assessment System- Free, Focused, Formative Assessments and Teaching Resources *Dakota B***

**Stephanie Higdon** SD DOE stephanie.higdon@state.sd.us Grades 3rd-High School Math

The word assess comes from the Latin word, assidere which is translated as, “to sit beside.” Formative assessments are a time for educators to learn from their students; what do they know and understand, where do misconceptions lie, and how to adjust teaching to resolve. Come join me in this session to learn about the South Dakota assessment system and teaching resources provided. {Participants are recommended to bring computers/technology.}

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

**fdc4 Sound and Light, Part 1 *Dakota C***

**Peggy Norris** SURF - BHSU  
pnorris@sanfordlab.org

Elementary, Middle School, High School Science  
[www.sanfordlab.org/educators](http://www.sanfordlab.org/educators)

The E&O team at the Sanford Underground Research Facility has developed a physical science unit on waves. While this unit targets mastery of the middle school wave standards, it can be used at upper elementary and high school also. Part 1 will focus on energy transfer in waves.



Friday, 1:10 PM

**fdd4 What is Wi-Fi? *Dakota D***

**Michael Benjamin** Mitchell Technical College  
michael.benjamin@mitchelltech.edu

Middle School, High School Science, Math

In today’s world of portable devices there’s nothing better than the wireless network to keep us connected. Wireless provides the ability to keep all of our favorite devices such as cell phones, tablets, firesticks, smart TVs, etc. connected when there is no wired connection available. Wi-Fi is the most common access medium for work, home and in between. This presentation will introduce you to Wi-Fi and how you can analyze your Wi-Fi environment.



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

**fde4{Repeats as sde6} STEM, Meet Design Thinking**

**Dakota E**

**Travis Lape** Harrisburg School District  
travis.lape@k12.sd.us

Elementary, Middle School, High School Science

In this session we will explore design thinking and how it can enhance your learning environment. Don't we all want "Problem Finders and Solution Designers?" Come see how this structure could help support the work you are already doing.

Friday, 1:10 PM

**fdf4 PhyPhoX Phone Swing for Pendulum labs**

**Dakota F**

**Larry Browning** Physics Department, South Dakota State University  
Larry.Browning@sdstate.edu

High School Science

The free app, Phyphox, uses your phone's sensors to investigate the world and find patterns in data. One such experiment for pendulums will be studied in detail and several ways to use it will be discussed. Also, participants can build a "phone swing" to use in their classrooms.



Friday, 1:10 PM

**fdg4 {Repeats as sdd3} Empowering Learners through Voice and Choice** **Dakota G**

**Rebecca Myers** TIE  
RMyers@tie.net

Elementary, Middle School, High School Science, Math  
<https://tie.link/RM>

This session will have attendees exploring opportunities that allow learners to take the learning into their own hands by providing options on pace, assessment, classroom activities, or assignment options to increase engagement and learning potential.

Friday, 1:10 PM

**fdh4{Repeat of fdh3} Cardboard Winter Olympics: Let the Games Begin!** **Dakota H**

**Marie Steckelberg** Steckelberg Consulting  
marie@steckelbergconsulting.com

Elementary, Middle School Science  
<https://SteckelbergConsulting.com>

The Winter Olympics are happening in Beijing in February 2022. Experience creative ways your students can engineer cardboard props and "play" the Winter Olympics! Participants will leave with ideas and tools to create these engineering challenges and an understanding of the engineering design process in a student focused learning environment.

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

## Friday 2:10-3:00PM

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

### **fpa5 Making Math Stick: Digging Deeper into Strategies to Support Understanding and Recall of Concepts**

**Prairie A**

**David Costello**

K-6 Math

dacostello@edu.pe.ca

Have you ever heard students say "I forget doing that"? Far too often, instruction prioritizes short-term performance at the expense of learning. Making Math Stick is about instructional and learning strategies that support students in recalling and applying previous learning to solve novel situations. In this session, I'll stress a broader view of learning that is more than getting information into heads of students. It's about encoding, consolidating and retrieval. Students will be able to recall previous learning to solve novel problems. Instruction and learning is mixed and spaced during the year.

Friday, 2:10 PM

### **fpb5 School Enrichment Through 4-H**

**Prairie B**

**Christine Wood, Charles Martinell & Sara Koepke** SD 4-H

Elementary Science, Agriculture

Christine.Wood@sdstate.edu Charles.Martinell@sdstate.edu Sara.Koepke@sdstate.edu <https://extension.sdstate.edu/>

The reach of SD 4-H extends beyond the county fair into both after school and classrooms. This session will introduce participants to 'Adopt a Cow' and 'Chicks in the Classroom'. These programs provide youth opportunities to explore animal development and growth, as well as investigate the agricultural and food supply chain.



Friday, 2:10 PM

### **fpc5 Teacher Efficacy and Its Role in Student Identity**

**Prairie C**

**Ally Bowers** Hanson School District

Elementary, Middle School, High School Science, Math

alison.bowers@k12.sd.us

This session will delve briefly into John Hattie's meta analyses in educational research, identity and its role in the classroom, and how these relate to concrete strategies for group work.

Friday, 2:10 PM

### **fda5{Repeat of fda3} Improving the Feedback Process**

**Dakota A**

**Kevin Smith** Dakota State University

Elementary, Middle School, High School Science, Math

kevin.smith@dsu.edu

<http://www.kevindsmith.org/>

Providing feedback to our students is one of the most important things we do as teachers. In this session, you'll be introduced to a tech tool called Floop. Floop allows you to quickly provide feedback to students on their work. The tool is free (paid options available) and it's awesome.

Friday, 2:10 PM

**fdb5 What is the Buzz about Data Science?**

**Dakota B**

**Stephanie Higdon** SD DOE  
stephanie.higdon@state.sd.us

High School Math

There is a high demand for the field of data science, but a shortage of qualified data scientists. Come build your own understanding of Data Science, explore resources to use with students and learn ways of how to best support South Dakota students so that they can be competitive in their future.

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

**fdc5 Sound and Light, Part 2**

**Dakota C**

**Peggy Norris** SURF - BHSU  
pnorris@sanfordlab.org

Middle School, High School Science  
[www.sanfordlab.org/educators](http://www.sanfordlab.org/educators)

This session will continue exploring the activities in the Sanford Lab Sound and Light unit. This hour will focus on measurements of the speed of sound and light, and is appropriate for middle and high school teachers. Educators can attend one or both sessions.

Friday, 2:10 PM

**fdd5{Repeat of fdd3} Patterns with Purpose: Using Multiple Representations to Make Connections in Linear Algebra**

**Dakota D**

**Laura Bain & Julie Jackson** CPM Educational Program  
laurabain@cpm.org juliejackson@cpm.org

Middle School, High School Math  
<https://cpm.org/>

Building conceptual understanding of slope and y-intercept... Easier said than done. Join us for some fun and engaging problem solving with patterns as we work as a virtual team to shift between the multiple representations of the linear web. Learn how your students can (and will) make connections between a table, graph, rule, and pattern to fully understand and apply  $y=mx+b$  in multiple contexts.

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

**fde5{Repeats as sde4} Build A Bot and Watch It Go**

**Dakota E**

**Travis Lape** Harrisburg School District  
travis.lape@k12.sd.us

Elementary, Middle School Science

Come test your problem solving skills as well as create a fun story along the way. This session will be a hands-on experience geared towards giving learners a task and watching how they attack it.

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

**fdf5 Putting Real World TE in STEM!**

**Dakota F**

**Chad Ronish** SURF - BHSU Middle School, High School, Informal Educators Science, Math, Industrial Arts & Ag  
chad.ronish@bhsu.edu

Finding phenomena to drive students in the science or math classroom is easy when real world CTE courses are included in curriculum planning. Find out how to bring the engineering and technology of hands-on real life application into the Science and Math classroom.

Friday, 2:10 PM

**fdg5 Stoichiometry and Equations**

**Darwin Daugaard** Dell Rapids Public High School  
darwin.daugaard@k12.sd.us

**Dakota G**

High School Science

This session is to help demonstrate how to do general stoichiometry problems and those involving limiting reagents. I use a grid method and will demonstrate it. If attending, your input on what you do is invited along with ideas on other chemistry topics.

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

Friday, 3:00 PM

**fHALL Networking, Exhibitor and Poster Session**

*Exhibitor Hallway*

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.

**Friday 3:30PM-4:20PM**

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

**fpa6{Repeats as spa2} Problem Solving in a Mathematically Literate Environment: Going Beyond Surface Level**

**David Costello**  
dacostello@edu.pe.ca

**Prairie A**

K-12 Math

Problem solving is the focus in many classes; however, instruction must go beyond surface level. Too often, instruction seems to focus on the task or strategy selection. In a literate environment, instruction moves beyond strategy selection to ask not only "what strategy did you use" but also "why that strategy," "how did you know that strategy would work," and "what would you have done if that strategy didn't work?" In this session, I will share opportunities for how teachers can dig deeper into problem solving so that students are not only providing surface level responses, but are engaged in thinking that supports their understanding of not only the mathematical concepts but their journey throughout the problem solving experience. Teachers will be provided strategies that can be applied to instructional and assessment practices as well as concrete evidence of the use of this approach in the class.

**TEACH THE SCIENCE**  
**ALL K-12 STUDENTS SHOULD KNOW**

The poster features the word "STEM" in large, bold letters. Each letter is decorated with various scientific and technological icons: 'S' has a DNA helix, 'T' has a laptop, 'E' has a circuit board, and 'M' has a lightbulb. Below the word, there are icons for a microscope, a beaker, and a pi symbol. The text below the word reads: "Our essential STEM education resources are free to download." and "www.nap.edu". At the bottom, it says "The National Academies of SCIENCES • ENGINEERING • MEDICINE".

Our essential STEM education resources are free to download.  
[www.nap.edu](http://www.nap.edu)

The National Academies of  
SCIENCES • ENGINEERING • MEDICINE

Friday, 3:30 PM

**fpb6 Think, Make, Create Mobile Lab**

**Christine Wood** SDSU Extension SD 4-H

Christine.Wood@sdsu.edu

<https://sdafterschoolnetwork.org/resources/tmc-trailers/>

The Think Create Make (TMC) Lab is a traveling trailer that can be easily transported to various programs across South Dakota. The labs are filled with high-quality, hands-on STEM activities. These small-but-mighty trailers can be delivered anywhere to bring a wide array of fun and educational projects to your program.

**Prairie B**

Elementary Science, Engineering, Art

<https://extension.sdsu.edu/>

Hands-on STEM activities brought straight to your afterschool program!



Learn more and reserve your trailer at <https://sdafterschoolnetwork.org/tmc-trailers>

Friday, 3:30 PM

**fpc6{Repeats as sdf6} Building Math Identity**

**Katie Jackson** Wessington Springs School District 36-2

kathryn.jackson@k12.sd.us

“I’m just not a math person!” - Unfortunately, this is a common phrase uttered in many math classes. Math identity has been shown to be crucial in predicting math success and pursuing STEM careers. This session will take a look at research-based math identity issues and strategies that can help build math identity in the classroom.

**Prairie C**

Elementary, Middle School, High School Math

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

**fda6{Repeat of fpb2} Teaching to Understand the World We Live In**

**Jim Matthews** Siena College

matthews@siena.edu

Middle School, High School Science, Math

<https://www.siena.edu/faculty-and-staff/person/james-matthews/>

There are five reasons to teach/learn mathematics and science. One of them is so that we can better understand the world and universe. We will share concrete examples of interesting problems that can help achieve this goal.

**Dakota A**

Friday, 3:30 PM

**fdd6{Repeats as spb2} Teaching Evolution with Technology**

**Alison Bowers** The Teacher Institute for Evolutionary Science

Alison.Bowers@k12.sd.us bvazquez@centerforinquiry.org

Middle School, High School Science

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

The Teacher Institute for Evolutionary Science has FREE student-guided units on evolution that cover all your evolution standards. The units take students to interactive web pages, online games, videos, and more. This session will give you access to all our free resources, including student response sheets, answer key/rubric, and exam.

**Dakota D**

Friday, 3:30 PM

**Meet The Future Teachers**

**Dakota E**

**Dan Van Peurse, Sharon Vestal & Matt Miller** USD & SDSU  
Dan.VanPeurse@usd.edu

All levels Science, Math

Come have a discussion with our future teachers. Answer their questions and share your wisdom.

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

**By Land or by Sea, Powered by the Wind**

**Dakota F**

**Chad Ronish** SURF - BHSU Elementary, Middle School, High School, Informal educators Science, Math  
chad.ronish@bhsu.edu

Participants will explore conversions of energy using tools and activities from KidWind. Sail boats and Sail cars will allow us to look at vector addition, measure velocity, and discuss energy transformations.



Friday, 3:30 PM

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

**Dakota G**

**James Stearns, Larry Browning & Darwin Daugaard** Middle School, High School, College Science  
James.Stearns@k12.sd.us; Larry.Browning@sdsta.org; Darwin.Daugaard@k12.sd.us <https://SDAAPT.SDSTA.org>

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

Friday, 3:30 PM

**Fractions of the Future**

**Dakota H**

**Kathleen Cotter Clayton** RightStart™ Mathematics by Activities for Learning, Inc. All Levels Math  
Kathleen@rightstartmath.com <https://rightstartmath.com/>

Fractions are a delight when they are taught the right way. Allow students to explore the simplicity and beauty of fractions of the future with a linear model, not with pie circle sets. When fractions are approached with this linear perspective, fractions can be easily taught, explored, and applied in daily life. Learn how to ask the right questions to guide your students to a solid understanding. Learn about activities and games to build confidence and develop a deep understanding of fractions. Uncover the joy of fractions!

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



# Business Meetings, Social & Banquet

Friday, 4:30 PM

## **SDCTM Business Meeting**

*Dakota A*

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.

Friday, 4:30 PM

## **SDSTA Business Meeting**

*Dakota E*

All members or interested members of the SD Science Teaching Association are invited to attend. This is the annual SDSTA business meeting and is a leadership election year and all members are eligible voters.

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

### **fHALL Networking Social**

*Lobby*

Make new friends and renew old friendships! Join your colleagues for pre-banquet refreshments and professional networking. {Thank you Aaron & Imagine Learning for sponsoring.}

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breakthroughs with  
K-12 science and  
mathematics programs  
from Imagine Learning.**

## **Friday 6:30-9:00PM**

### **fpABC SD STEM Ed**

### **Awards Banquet**

*Prairie ABC*

**Together Again! -**

**Featured Speaker: Jim Matthews**

**Why Do We Teach Mathematics? How about Science? Can You List the Five Reasons for Each?**



[Start Here](#)

**i** imagine learning

(Limited Tickets for the Banquet available at the registration table on Friday or during pre-registration.)



STEM Educators,  
help your students:

## **FIND THEIR PATH. OWN THEIR FUTURE.**

Southeast Tech offers STEM Exploration Events, group campus visits and STEM presentations at your school to introduce students to careers in science, engineering technology and math.

### **UPCOMING EVENTS**

- ▲ **March 7, 2022**  
Women in Science
- ▲ **May 11, 2022**  
Career Exploration Day

**S** **SOUTHEAST**  
Technical College

605-367-6040 | [SOUTHEASTTECH.EDU](http://SOUTHEASTTECH.EDU)

**THE  
SMART  
WAY UP**

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

### ss00 **Breakfast for SD PAEMST State Level Finalists and Past Awardees** *Salon 1*

**Allen Hogie & Dr. Jennifer Fowler** PAEMST Coordinators Elementary, Middle School, HS Science & Math  
Allen.Hogie@k12.sd.us DrRangerJen@gmail.com

A breakfast honoring 2020 and 2021 State Level Finalists and all Past Awardees.

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

Saturday, 8:00 AM

### spa1 **Introducing the Challenger Learning Center of South Dakota! Come See What We're All About!**

**Mark Iverson & JJ Clendenin** LATC & Watertown School Dist.  
Elem, Middle School & High School STEM  
mark.iverson@lakeareatech.edu jj.clendenin@k12.sd.us

We've got exciting news for the future of education in South Dakota! A Challenger Learning Center is about to be built in Watertown! Through the Learning Center, STEM learning experiences will engage students' critical thinking skills, promote teamwork in a real-time space mission environment, and create STEM career awareness through the Learning Center simulations. Come see what this exciting new project is all about and how you can get your students to experience it!



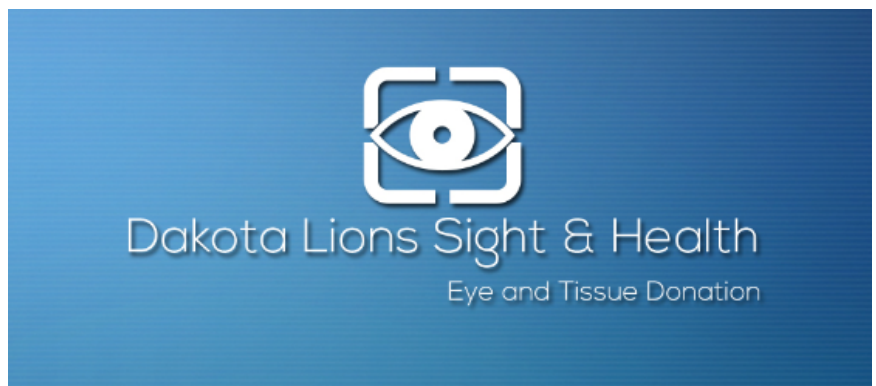
Saturday, 8:00 AM

### spb1 **The Importance of Counting and Place Value**

*Prairie B*

**Kathleen Cotter Clayton** RightStart™ Mathematics by Activities for Learning, Inc. Elem & Middle School Math  
Kathleen@rightstartmath.com <https://rightstartmath.com/>

Should we have our children count everything? What happens when they run out of fingers? And how in the world do we use counting with four-digit addition? Come to this workshop and learn effective and efficient ways to recognize quantities, understand place value, and master addition and subtraction.



Saturday, 8:00 AM

**spc1{Repeats as spc2}** **Using an Area Model to Teach Multiplying, Factoring, and Dividing Polynomials**

**Prairie C**

**Lisa Comfort** CPM Educational Program  
lisacomfort@cpm.org

High School Math  
cpm.org

Participants will be actively engaged in using algebra tiles and an area model to multiply polynomials. Algebra tiles will then be used for factoring and completing the square. Finally, we will use an area model for polynomial long division. The tiles support the transition from a concrete (manipulative) to an abstract (paper and pencil) model of mathematics.

Saturday, 8:00 AM

**sda1** **Get to Know Your Kidneys**

**Dakota A**

**Benjamin Benson & Steven Rokusek** Sanford Research  
benjamin.benson@sanfordhealth.org Steven.Rokusek@sdpb.org  
<https://research.sanfordhealth.org/sanford-promise>

Elementary, Middle School Science

Getting dirty and cleaning it up. Join the PROMISE team for a hands-on activity using a little dirt and grit to help middle school kids understand kidney structure and function. Stick around to learn about other science resources available from SDPB with Steven Rokusek.

Saturday, 8:00 AM

**sdb1** **Green Chemistry Certificate at SDSU**

**Dakota B**

**Matthew Miller, Melody Jewell, Sara Madsen, Douglas Raynie** SDSU Middle School, High School Science  
matt.miller@sdstate.edu; melody.jewell@sdstate.edu; sara.madsen@sdstate.edu; douglas.raynie@sdstate.edu  
<https://www.sdstate.edu/chemistry-biochemistry>

The Chemistry & Biochemistry Department at SDSU proposes a 12-credit Green Chemistry certificate. Two 3-credit courses have been offered in partnership with Beyond Benign, along with a 3 course safety series and a course entitled Chemistry Teaching Strategies. We will provide awareness to using more green practices in teaching chemistry.



SD Game, Fish and parks offers a variety of opportunities for Teachers of all grade levels! Field trips, loaner equipment, educational videos, downloadable lesson plans, and teacher training for Continuing Education



**GAME, FISH & PARKS**

OUTDOOR EDUCATION

Credits/Undergraduate/Graduate level credit. Trainings include NASP, HuntSafe, Project Wild, Project Learning Tree, and FishSD. Interested in an all inclusive teacher training? Consider Teacher Academy! Come join us at our booth to learn more!





Saturday, 8:00 AM

**sd1 Chaos Pendulum Make and Take**

**Dakota C**

**Larry Browning** Physics Dept. South Dakota State University  
Larry.Browning@sdstate.edu

High School Science, Math

Stop by and put together your own simple chaos pendulum. Skate bearings and 1/4" x 1 1/2 " wood and some hardware is all it takes. I'll bring the tools, bearings, hardware, and some sticks. You can paint yours later.

Saturday, 8:00 AM

**sdd1{Repeats as sdd4} Mathematical Models - Does Color Matter?**

**Dakota D**

**Deann Kertzman** Black Hills State University  
deann.kertzman@bhsu.edu

Elementary, Middle School, High School Math

Through the lens of student discourse, we will explore the impact of color when learners use manipulatives to model mathematics.

Saturday, 8:00 AM

**sde1 Applying Ambitious Science Teaching**

**Dakota E**

**Jennifer Fowler** SD DOE  
jennifer.fowler@state.sd.us <https://doe.sd.gov/>

Elementary, Middle School, High School Science

Join us to learn about how to incorporate Ambitious Science Teaching daily in your classroom. Explore the four core practices of planning for engagement, eliciting student ideas, supporting ongoing changes in student thinking, and drawing together evidence-based explanations. Ask about the 2-credit course being offered during spring semester.

Saturday, 8:00 AM

**sdf1 Apiaries in the Classroom: Educating South Dakota's Youth about Honey Production through Educational Beehives**

**Dakota F**

**Spencer Cody** Edmunds Central School District  
Middle School, High School Science  
Spencer.Cody@k12.sd.us <https://www.echs.k12.sd.us/>

The Edmunds Central School District is developing a network of apiaries and supporting curriculum geared toward educating South Dakota students in PreK-12.

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- » Activities & Games
- » Children's Books
- » Guide Books
- » DVDs

**BLACK HILLS PARKS & FORESTS ASSOCIATION**

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

Saturday, 8:00 AM

**sdg1 STEM Activities with Technology and Robots.**

*Dakota G*

**Julie Erickson** TIE/BHSSC Elementary, Middle School, High School Science, Math  
jerickson@tie.net <https://tie.net>

Open up the world of computational thinking with robots and technology activities. Engage every student, beginning in elementary school and get them excited about computer science. You will get an overview of Ozobots, Sphero, Edison and more. Learn how you can get started.

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

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

**spa2{Repeat of fpa6} Problem Solving in a Mathematically Literate Environment:  
Going Beyond Surface Level**

*Prairie A*

**David Costello**  
dacostello@edu.pe.ca

K-12 Math

Problem solving is the focus in many classes; however, instruction must go beyond surface level. Too often, instruction seems to focus on the task or strategy selection. In a literate environment, instruction moves beyond strategy selection to ask not only What strategy did you use? but also Why that strategy? How did you know that strategy would work? and What would you have done if that strategy didn't work? In this session, I will share opportunities for how teachers can dig deeper into problem solving so that students are not only providing surface level responses, but are engaged in thinking that supports their understanding of not only the mathematical concepts but their journey throughout the problem solving experience. Teachers will be provided strategies that can be applied to instructional and assessment practices as well as concrete evidence of the use of this approach in the class.

Saturday, 9:00 AM

**spb2{Repeat of fdd6} Teaching Evolution with Technology**

*Prairie B*

**Alison Bowers** The Teacher Institute for Evolutionary Science Middle School, High School Science  
Alison.Bowers@k12.sd.us bvazquez@centerforinquiry.org [www.tieseducation.org](http://www.tieseducation.org)

The Teacher Institute for Evolutionary Science has FREE student-guided units on evolution that cover all your evolution standards. The units take students to interactive web pages, online games, videos, and more. This session will give you access to all our free resources, including student response sheets, answer key/rubric, and exam.





Saturday, 9:00 AM

**spc2{Repeat of spc1} Using an Area Model to Teach Multiplying, Factoring, and Dividing Polynomials**

**Prairie C**

**Lisa Comfort** CPM Educational Program  
lisacomfort@cpm.org

High School Math  
cpm.org

Participants will be actively engaged in using algebra tiles and an area model to multiply polynomials. Algebra tiles will then be used for factoring and completing the square. Finally, we will use an area model for polynomial long division. The tiles support the transition from a concrete (manipulative) to an abstract (paper and pencil) model of mathematics.

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

**sda2 Research Experiences for Teachers: A Poster Session**

**Dakota A**

**Peggy Norris** SURF - BHSU  
pnorris@sanfordlab.org

Middle School, High School Science  
<http://sdspacegrant.sdsmt.edu/Default.htm>

Each summer, the South Dakota Space Grant Consortium offers fellowships for secondary science teachers to experience science and engineering research at one of the university campuses or research institutions in the state. This session will be a short panel discussion followed by an informal poster session presented by the 2021 fellowship recipients.

Saturday, 9:00 AM

**sdb2 Best Practices in Teaching Mathematics Regional Math Circles- What are they and why should I attend?**

**Dakota B**

**Stephanie Higdon** SD DOE  
stephanie.higdon@state.sd.us

Elementary, Middle School, High School Math

Come build your identity as a mathematical thinker, have fun engaging in math tasks and be a part of a community of current and future math educators from across the state! In this high energy session, educators will learn more about the structure, vision, and guiding principles of SD Regional Math Circles all while engaging in rich high level mathematics tasks. {Participants are recommended to bring computers/technology.}

Saturday, 9:00 AM

**sdc2 Ignite: Launch into the Future Oceti Sakowin Integrated STEM Kits**  
**Dakota C**

**Bree Oatman & Kristine Heinen** South Dakota Discovery Center  
breeoatman@sd-discovery.org

Elementary, Middle School Science  
[www.sd-discovery.org](http://www.sd-discovery.org)

Learn about a new curriculum resource for K-8 science that provides place-based, interdisciplinary STEM education by integrating the Oceti Sakowin Essential Understandings, and SD content standards in math, ELA, social studies and science. Find out how you or your school can check out the kits to use in the classroom.

Saturday, 9:00 AM

**sdd2{Repeat of fde2} Super Fun Prototyping Spectacular: Design Thinking, Making, & Creative Problem Solving for STEM**

**Dakota D**

**Micah Lande** SD School of Mines & Technology Elementary, Middle School, High School Science, Math, Engineering  
micah.lande@sdsmt.edu <http://lande.sdsmt.edu>

High-flying paper engineering, death-defying rapid prototyping, and out-of-this-world low-cost tools will transform your brilliant ideas into amazing physical things. Design thinking and making are increasingly popular approaches for radical, learner-centered, holistic STEM learning experiences. This hands-on workshop introduces design thinking and maker-based pedagogies ready to employ in your STEM course.

Saturday, 9:00 AM

**sde2 Science in SD using the NSTA Atlas**

**Dakota E**

**Jennifer Fowler** SD DOE Elementary, Middle School, High School Science  
jennifer.fowler@state.sd.us <https://doe.sd.gov/>

Are you wondering how your grade level of science fits in the K-12 progression? Are you wanting to support K-5 science in your district? Join this session as we dive into three-dimensional science using the NSTA Atlas to answer these questions and more!

Saturday, 9:00 AM

**sdf2{Repeats as sdd5} Phenomenal Soil**

**Dakota F**

**Anne Lewis & Julie Olson** South Dakota Discovery Center Middle School, High School Science  
annelewis@sd-discovery.org kernelmom@gmail.com [sd-discovery.org](http://sd-discovery.org)

Soil is the foundation for ecosystems and Earth systems science. Discover how soil can make a compelling phenomenon regardless of grade or science you teach. Plus, get the inside track on summer PD that offers stipends!

Saturday, 9:00 AM

**sdg2{Repeat of fdh1} GIS in Your Classroom: Incorporate Mapping Activities with a Free Platform and Ready Made Lesson Plans**

**Dakota G**

**Julie Erickson** TIE/BHSSC Elementary, Middle School, High School Science, Math  
jerickson@tie.net <https://tie.net>

Utilizing GIS enables students to think critically about real-world content and make inferences using data. Students have the opportunity to analyze, create and make connections with real data in all content areas. Learn ways to incorporate ArcGIS Online with prepared lesson plans and learn how to create your own maps.

*Please fill out your Evaluation of the Conference.  
We want next year's to be even better!*



Saturday, 9:00 AM

**ss2{Repeats as sdc5} Water Festival Videos and Assessment**

*Symposium*

**Samantha (Sami) Lebert, Matt Miller & Larry Browning** SDSU Elementary Science  
samantha.lebert@jacks.sdstate.edu; Matt.Miller@sdstate.edu; Larry.Browning@sdstate.edu

Our team created videos to illustrate various concepts for 5th graders during the online Water Festivals during COVID. We will show portions of these and ask you how you might use these videos, how effective they are, your suggestions for improvements, etc. Popcorn will be served.

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

Saturday, 10:00 AM

**sda3 Using Science to Teach Grit**

*Dakota A*

**Louisa Otto & Benjamin Benson** Sanford PROMISE Middle School Science  
louisa.otto@sanfordhealth.org benjamin.benson@sanfordhealth.org *promise.sanfordhealth.org*

A large part of scientific thinking is the ability to push past failure, try a new angle, and keep moving forward. Learn about a new middle school lesson from the PROMISE team called "What's in a Brain? More than Matter!" and try your hand at an experiment that will test your grit.

Saturday, 10:00 AM

**sdb3{Repeat of fdc6} The South Dakota Assessment System- Free, Focused, Formative Assessments and Teaching Resources**

*Dakota B*

**Stephanie Higdon** SD DOE Elementary, Middle School, High School, Grades 3rd-High School Math  
stephanie.higdon@state.sd.us

The word assess comes from the Latin word, assidere which is translated as, "to sit beside." Formative assessments are a time for educators to learn from their students: what do they know and understand, where do misconceptions lie, and how to adjust teaching to resolve misunderstandings. Come join me in this session to learn about the South Dakota assessment system and teaching resources provided.

Saturday, 10:00 AM

**sdc3 Why do I have to learn this?**

*Dakota D*

**Bree Oatman & Kristine Heinen** South Dakota Discovery Center Elementary, Middle School Science  
breeoatman@sd-discovery.org *www.sd-discovery.org*

Come learn about free programs and opportunities for you to help students see how what they learn in science and math gets used in various careers. Learn how to engage teens in networking and exploring STEM related careers either in your classroom or as a special club or event in your community. Find out how to partner with other communities around the US who are also doing similar work.

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

Saturday, 10:00 AM

**sdd3{Repeat of fdg4} Empowering Learners through Voice and Choice** *Dakota D*

**Rebecca Myers** TIE  
RMyers@tie.net

Elementary, Middle School, High School Science, Math  
<https://tie.link/RM>

This session will have attendees exploring opportunities that allow learners to take the learning into their own hands by providing options on pace, assessment, classroom activities, or assignment options to increase engagement and learning potential.

Saturday, 10:00 AM

**sde3 Showcase Your Teaching Practice and Win Money (PAEMST)** *Dakota E*

**Allen Hogie & Dr. Jennifer Fowler** PAEMST  
Allen.Hogie@k12.sd.us DrRangerJen@gmail.com

Middle School, High School Science, Math

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

Saturday, 10:00 AM

**sdf3 Teaching Math with Card Games? Yes, You Can!** *Dakota F*

**Kathleen Cotter Clayton** RightStart™ Mathematics by Activities for Learning, Inc.  
Kathleen@rightstartmath.com

All Levels Math  
<https://rightstartmath.com/>

Are you tired of flashcards? Does your students cry when you give another timed test? Are you frustrated because your students can't seem to remember the multiples of 7? Use games to teach and review math facts. This presentation will show you fabulous and effective math card games that are easy and fun. Imagine your kids asking you to practice their math facts! Come and discover games to help your students learn math!

Saturday, 10:00 AM

**sdg3{Repeat of fde6} Meet The Future Teachers** *Dakota G*

**Dan Van Peurse, Sharon Vestal & Matt Miller** USD & SDSU  
Dan.VanPeurse@usd.edu

All levels Science, Math

Come have a discussion with our future teachers. Answer their questions and share your wisdom.

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

**SS3 Interactive Classroom Presentations** *Symposium*

**Ashley Armstrong, Lizzy Katz & Emily Graber** SURF - BHSU Elementary, Middle School, High School Science  
Ashley.Armstrong@bhsu.edu elizabeth.katz@k12.sd.us emily.graber@k12.sd.us <https://www.sanfordlab.org/feature/k-12-stem-education>

Explore the interactive classroom presentations SURF has to offer. Come experience 'Hot Rocks,' an earth science presentation highlighting a geothermal energy experiment happening right here in South Dakota. We aim to help students figure out the science through hands-on exploration.

Up next is your last chance to visit with Conference Exhibitors. Remember that they're giving out tickets so you will be qualified to win valuable prizes at the noon meal.

[Next year's Conference](#)

[February 2, 3, & 4, 2023](#)

## Saturday 10:50-11:30AM

Saturday, 10:50 AM

### SHALL **Networking and Exhibitor Session**

*Exhibitor Hallway*

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 11:30AM-12:30PM

### spABC **Lunch:**

*Prairie ABC*

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

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

Saturday, 12:40 PM

### sda4{Repeat of fdg3} **CRISPR and Genome Editing: Where Do I Start?**

*Dakota A*

**Benjamin Benson & Louisa Otto** Sanford Research

Middle School, High School Science

[benjamin.benson@sanfordhealth.org](mailto:benjamin.benson@sanfordhealth.org) [Louisa.otto@sanfordhealth.org](mailto:Louisa.otto@sanfordhealth.org)

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

CRISPR has rapidly moved from a bacterial immune system to gene therapy "wonder drug". Engage in a hands-on CRISPR related learning experience that can be rolled out to your students when you get back to class on Monday. This hands-on activity will help you to learn about the history of gene editing technology and how it is currently being employed. After completion of this activity, you will be ready to digest news articles and current events related to CRISPR.

Saturday, 12:40 PM

### sdb4 **Family Math 3 (the Saga Continues) Grades K-2**

*Dakota B*

**Cindy Kroon** Montrose School Dist

Elementary Math

[cindy.kroon@k12.sd.us](mailto:cindy.kroon@k12.sd.us)

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

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-2)

Saturday, 12:40 PM

**Augmented Reality and Learning**

**Dakota C**

**Matthew Miller & Justin Hoogestraat** SDSU

Elementary, Middle School, High School Science

matt.miller@sdstate.edu justin.hoogestraat@jacks.sdstate.edu <https://www.sdstate.edu/chemistry-biochemistry>

An opportunity to use Augmented Reality (AR) software will be presented by the undergraduate student developer of the simulations. Elementary students were shown a game-like AR simulation describing density and evidence of learning and perceptions will be presented. We will also discuss the educational efficacy of the use of simulations.

Saturday, 12:40 PM

**Mathematical Models -**

**Does Color Matter?**

**Dakota D**

**Deann Kertzman** Black Hills State University

Elementary,

Middle School, High School Math

deann.kertzman@bhsu.edu

Through the lens of student discourse, we will explore the impact of color when learners use manipulatives to model mathematics.

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

**Build A Bot and Watch It Go**

**Dakota E**

**Travis Lape** Harrisburg School District

Elementary, Middle

School Science

travis.lape@k12.sd.us

Come test your problem solving skills as well as create a fun story along the way. This session will be a hands-on experience geared towards giving learners a task and watching how they attack it.

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

**It's Electric, But It's So Much More Than That.**

**Dakota F**

**Chad Ronish & Ashley Armstrong**

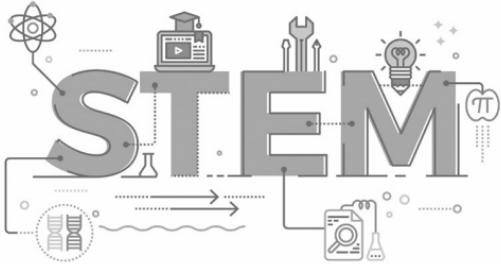
SURF - BHSU High School Science

chad.ronish@bhsu.edu Ashley.Armstrong@bhsu.edu

<https://www.sanfordlab.org/feature/k-12-stem-education>

Sanford Underground Research Facility Curriculum unit explores Newton's Law's, Coulomb's Law, Atomic Structure, Period Properties and concepts of electricity under the phenomenon of Neutrinos and the Deep Underground Neutrino Experiment (DUNE). Students will figure out these concepts and use them to solve science and engineering questions in this hands- on curriculum unit.

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Saturday, 12:40 PM

**sdg4 What's All the Buzz About Computer Science and Why Should I Care?**

**Dakota G**

**Julie Erickson** TIE/BHSSC  
jerickson@tie.net

Elementary, Middle School, High School Science, Math  
<https://tie.net>

Computer science, coding and computational thinking are hot topics in educational literature. Stay ahead of the game by looking at what's driving the conversation and how it can be incorporated into the classroom. There are a variety of free curriculum options along with professional development to facilitate implementation.

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

**ss4{Repeat of fpa4} Making Math Stick: Strategies to Support Understanding and Recall of Concepts**

**Symposium**

**David Costello**  
dacostello@edu.pe.ca

K-12 Math

Have you ever heard students say "I forget doing that"? Far too often, instruction prioritizes short-term performance at the expense of learning. Making Math Stick is about instructional and learning strategies that support students in recalling and applying previous learning to solve novel situations. In this session, I'll stress a broader view of learning that is more than getting information into heads of students. It's about encoding, consolidating and retrieval. Students will be able to recall previous learning to solve novel problems. Instruction and learning are mixed and spaced during the year.

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

Saturday, 1:40 PM

**spc5 STEM in the Elementary and Middle School Classroom**

**Prairie C**

**Leslie Sauder** Hamlin  
leslie.sauder@k12.sd.us

Elementary, Middle School STEM

When incorporating STEM activities in the classroom, how do we ensure that all aspects of STEM are included? Sessions will include STEM activities for both elementary and middle school students that incorporate all aspects of STEM. Hands-on activities included along with examples of additional lessons.

Saturday, 1:40 PM

**sda5 Science Demonstrations for Classroom Use**

**Dakota A**

**Steven Rokusek** South Dakota Public Broadcasting  
steven.rokusek@state.sd.us <https://www.sdpb.org/learn/>

Middle School, High School Science

During this session, participants will review classic (and not so classic) science demonstrations for use in the classroom. The session will be educational and entertaining! You do not want to miss this!



Saturday, 1:40 PM

**sdb5 Family Math 3 (the Saga Continues) Grades 3-5**

**Dakota B**

**Cindy Kroon** Montrose School Dist  
cindy.kroon@k12.sd.us

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

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 3-5)

Saturday, 1:40 PM

**sdc5{Repeat of ss2} Water Festival Videos and Assessment**

**Dakota C**

**Samantha (Sami) Lebert, Matt Miller & Larry Browning** South Dakota State University Elementary Science  
samantha.lebert@jacks.sdstate.edu Matt.Miller@sdstate.edu Larry.Browning@sdstate.edu

Our team created videos to illustrate various concepts for 5th graders during the online Water Festivals during COVID. We will show portions of these and ask you how you might use these videos, how effective they are, your suggestions for improvements, etc. Popcorn will be served.

Saturday, 1:40 PM

**sdd5{Repeat of sdf2} Phenomenal Soil**

**Dakota D**

**Anne Lewis & Julie Olson** South Dakota Discovery Center  
Middle School, High School Science  
annelewis@sd-discovery.org kernelmom@gmail.com

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

Soil is the foundation for ecosystems and Earth systems science. Discover how soil can make a compelling phenomenon regardless of grade or science you teach. Plus, get the inside track on summer PD that offers stipends!



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

**sde5{Repeat of fde3} INVENT. CREATE. EXPLORE.**

**Dakota E**

**Travis Lape** Harrisburg School District  
travis.lape@k12.sd.us

Elementary, Middle School, High School Science

Come to a hands-on session that will explore circuits through a fun hands-on way. Learning is much more enjoyable through play. Come experience the fun of making circuits and creating engaging lessons.

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

**sdf5 Dive into Summer Professional Development**

**Dakota F**

**Ashley Armstrong & Nicol Reiner** SURF - BHSU  
ashley.armstrong@bhsu.edu nicol.reiner@bhsu.edu

Elementary, MS, HS Science, Math  
<https://www.sanfordlab.org/>

Join the SURF team to learn about professional development opportunities offered to teachers across the state. This session will highlight in-person and virtual options for elementary, middle, and high school teachers in Summer 2022.

Saturday, 1:40 PM

**sdg5 Data Literacy in the Real World**

**Dakota G**

**Julie Erickson** TIE/BHSSC  
jerickson@tie.net

Elementary, Middle School, High School Science, Math  
<https://tie.net>

Data literacy is critical—being able to read and write effectively with data will help as you work with students, colleagues and in your personal life. This interactive session will explore data conversations, real life examples and more. Bring your device to follow along!

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

**ss15 Making Math Stick: Digging Deeper into Strategies to Support Understanding and Recall of Concepts**

**Symposium**

**David Costello**  
dacostello@edu.pe.ca

7-12 Math

Have you ever heard students say "I forget doing that"? Far too often, instruction prioritizes short-term performance at the expense of learning. Making Math Stick is about instructional and learning strategies that support students in recalling and applying previous learning to solve novel situations. In this session, I'll stress a broader view of learning that is more than getting information into the heads of students. It's about encoding, consolidating and retrieval. Students will be able to recall previous learning to solve novel problems. Instruction and learning is mixed and spaced during the year.

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

Saturday, 2:40 PM

**sdc6 CAPEs Across The States**

**Dakota C**

**Larry Browning Matt Miller, Sharon Vestal** South Dakota State University  
Larry.Browning@sdstate.edu Matt.Miller@SDSTATE.EDU; Sharon.Vestal@sdstate.edu

Elementary, MS, HS Science

This is an opportunity to bring chemistry and physics demonstrations and activities to your school. Matt and Larry will demonstrate some of their demonstrations and activities and ask if you are interested in having them visit. Trips are supported by our Noyce/REMAST grant. Sharon Vestal is PI.

Saturday, 2:40 PM

**sdd6 Backwards by Design: Creating a Quality Lesson Plan**

**Dakota D**

**Rebecca Myers** TIE  
RMyers@tie.net

Elementary, Middle School, High School Science, Math  
<https://tie.link/RM>

Learn efficient strategies for a backwards by design lesson planning process. Starting with the end result in mind will enable facilitators to better scaffold and present materials for their learners.

Saturday, 2:40 PM **Featured Session**

sde6{Repeat of fde4} **STEM, Meet Design Thinking**

*Dakota E*

**Travis Lape** Harrisburg School District  
travis.lape@k12.sd.us

Elementary, Middle School, High School Science

We will explore design thinking and how it can enhance your learning environment. Don't we all want "Problem Finders and Solution Designers?" Come see how this structure could help support the work you are already doing.

Saturday, 2:40 PM

sdf6{Repeat of fpc6} **Building Math Identity**

*Dakota F*

**Katie Jackson** Wessington Springs School District 36-2  
kathryn.jackson@k12.sd.us

Elementary, Middle School, High School Math

"I'm just not a math person!" - Unfortunately, this is a common phrase uttered in many math classes. Math identity has been shown to be crucial in predicting math success and pursuing STEM careers. This session will take a look at research-based math identity issues and strategies that can help build math identity in the classroom.

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

Saturday 3:30 PM

sda7 **Science Wrap-up and Reflect**

*Dakota A*

**SDSTA President**

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 2023 SD STEM Ed Conference.

Saturday 3:30 PM

sde7 **Math Wrap-up and Reflect**

*Dakota E*

**SDCTM President**

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 2023 SD STEM Ed Conference.

Saturday 4:30 - 6:30 PM

sda7 **SDCTM & SDSTA Officers and Conference Leadership Joint Board Meeting**

*Prairie A*

**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 2, 3, & 4, 2023.



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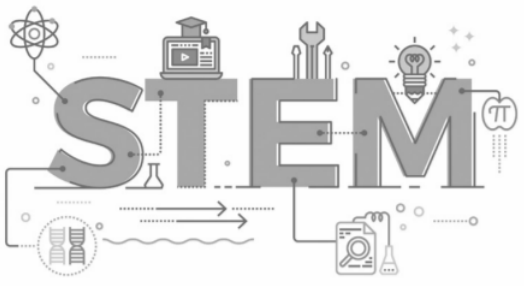
**Challenger**  
LEARNING CENTER

The Center will provide STEM experiences designed for K-12 students and more. The space-themed simulation-based experiences will be led by trained Flight Directors and take place in a fully immersive Space Station and Mission Control environment.

**CHALLENGER LEARNING CENTER OF SOUTH DAKOTA MISSION:** To inspire curiosity and advance learning in a STEM environment using a simulated, multi-sensory space mission experience.  
**VISION:** The STEM learning experience will engage students' critical thinking skills, promote teamwork in a real-time space mission environment, and create STEM awareness through the Learning Center simulations.

For more information, visit the crew at the CHALLENGER LEARNING CENTER booth during the conference.

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featuring **Sioux Falls**



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**UPCOMING EVENTS**

- ▲ **March 7, 2022**  
Women in Science
- ▲ **May 11, 2022**  
Career Exploration Day



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**Opportunities For K-12 Classrooms**

**School Presentations**

Invite an EO team member to visit with your students about the cutting-edge research happening at the Sanford Underground Research Facility and all that goes into supporting this work. Each presentation provides opportunities for students to connect personally with a presenter who can answer their questions and share real-life experiences.

*For topics and additional details*  
<https://sanfordlab.org/educators/school-presentations>

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Each curriculum module is aligned with South Dakota's K-12 Science Standards and provides students with engaging learning opportunities that will get students thinking (and talking) about science at a deeper level than ever before. You request the unit, we ship it; you facilitate the unit in your own classroom, then ship it back. We've included (almost) all the materials necessary.

There are fully digital options as well.

*For additional details, or to request a module*  
<https://sanfordlab.org/educators/curriculum-modules>

**Field Trips**

Bring your students to SURF where they can experience STEM principles in action. We offer a variety of tours, presentations, and hands-on activities for students. While physical opportunities to visit the lab are limited, technology makes it possible to take ANY classroom on a virtual tour of the Sanford Underground Research Facility!

*For additional details*  
<https://sanfordlab.org/educators/field-trips>

Education & Outreach  
Sanford Underground Research Facility  
430 E. Summit Street, Lead SD 57754

For questions or more information, please contact SURFeducation@bhsu.edu



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**SOUTH DAKOTA  
STATE UNIVERSITY**  
College of Natural Sciences

**STEM SUMMER CAMPS**

For middle school and high school students

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:

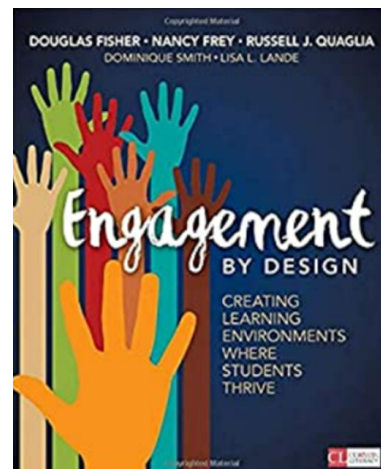
BHSU-SURF	Peggy Norris & Deann Kurtzman
Black Hills Parks & Forests Association	Andrea Fountain & Patty Ressler
Challenger Learning Center of SD	Mark Iverson & J. J. Clendenin
CPM Educational Program	Julie Jackson & Laura Bain
Dakota Lions Sight & Health	Chad Hohwieler &
Imagine Learning	Aaron Cole
National Academies of Sciences, Engineering	*
PROMISE Lab	Ben Benson & Kara McCormick
FightStart Mathematics	Kathleen Clayton
SD EPSCoR	*
South Dakota Afterschool Network	Karla Johnson & Billy Mawhiney
South Dakota Discovery Center	Anne Lewis & Bree Oatman
South Dakota Game, Fish & Parks	Lacy Elrod & David Parker
South Dakota Mines	Ashli Maddox & Zhengtao Zhu
South Dakota School of Mines	Katrina Donovan & Deborah Mitchell
SDSU – College of Natural Sciences	Layne Manson & Greg Heiberger
Southeast Technical College	Fenecia Foster
Steckelberg Consulting, LLC	Marie Steckelberg & Mari Biehl
Technology & Innovation in Education (TIE)	Julie Erickson

\* Name Tag Lanyards are compliments of Sanford

\* This book is provided through a generous grant awarded by the SD Department of Education. Special thanks to Kelly Royer and Jennifer Fowler at DOE.

Graduate Credit Conference credit will be offered through Dakota Wesleyan University. You may register for one-hour of credit at the 599 level. Attendance at 15 hours worth of sessions, lunches, and/or the banquet are required to earn graduate credit from Dakota Wesleyan University along with assignments listed in the syllabus. You must register online to receive this graduate credit at the following link: <https://store.dwu.edu/NonDegreeCredit>. Registration for credit will close at 5 pm on Friday, February 4. Make sure to register for the SD STEM Ed Conference! A syllabus listing course requirements can be found at:

[https://drive.google.com/file/d/1xMZ2ZHLP4uuwpxAxMKQ\\_6GekwvoNBQys/view?usp=sharing](https://drive.google.com/file/d/1xMZ2ZHLP4uuwpxAxMKQ_6GekwvoNBQys/view?usp=sharing). Please remember that you must submit all assignments by the due date listed in the syllabus in order to receive credit for the course. Please also note that there is no withdrawal date for courses running for 21 days or fewer, therefore once you register you will not be able to withdraw from this course. For more information, contact Dr. Ashley Digmann at (605) 995-2891 or at [Ashley.Digmann@dwu.edu](mailto:Ashley.Digmann@dwu.edu).



-- Next year's conference will be February 2, 3, & 4, 2023 --



The 2022 Conference Committee would like to offer a Special Thanks to . . .

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

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

All exhibitors for their enthusiastic participation.

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

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

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

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

*THANKS* to Andrew and Lisa Kunz for providing lanyards.



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

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

(This year's TIE Conference is April 4-5, 2022 in Sioux Falls.)

**Next year's SD STEM Ed conference will be February 2, 3, & 4, 2023.**

The 2022 Spring 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) \$95 Non-members \$145 Students \$55 includes the Noon Luncheon for that day TWO-day (SDCTM or SDSTA members) \$120 Non-members \$170 Students \$65 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 \$25. {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](http://www.sdctm.org)] or SDSTA website [[www.sdsta.org](http://www.sdsta.org)]. The printed Schedule-at-a-Glance will be distributed on site with the registration materials.

2022 SD STEM Ed Conference  
SDSTA & SDCTM

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

Circle one in each group:

Your Content Area:    Math    Science    Both    STEM    Other \_\_\_\_\_

Your Grade Band:    Elementary    Middle School    High School    College    Other

Circle which no cost-to-you items you enjoyed; or X those we could do without:  
Morning: donut holes & coffee;            All day: pop; Other \_\_\_\_\_

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

What made it (or them) good?

Were there any presentations that disappointed you?

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

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

\_\_\_\_\_  
Name

\_\_\_\_\_  
Address

\_\_\_\_\_  
City, State, Zip Code







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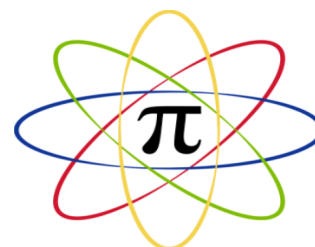
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