Always Question
Always Wonder!
Featured Speakers

BANQUET SPEAKER — Robert Pyatt has been the Associate Director, Cytogenetics & Molecular Genetics Labs at Nationwide Children's Hospital and Assistant Professor-Clinical at Ohio State University. Dr. Pyatt has just become the Clinical Molecular Genetics Laboratory Director at Sanford Health in Sioux Falls.

OTHER FEATURED SPEAKERS

Bill Kring - is a teacher. After graduating from Washington State University and earning his MAT from Harvard University, he taught 44 years, 24 at the high school level, 9 at the middle school level, and 11 as trainer and colleague. He taught in classrooms with students K–12 at the Ed Service Dist and students in a teacher education program. He taught students in various achievement situations, from remediation to Advanced Placement Calculus or the International Baccalaureate Program. Known as the “hot-air man”, Bill has spoken at numerous state, regional, and national conferences about using a hot-air (gas) balloon as a model for integer arithmetic. Bill continues to work toward improving mathematics teaching in a variety of settings.

Tricia Shelton - is a H. S. Science Teacher and Teacher Leader with a BS in Biology and MA in Teaching, who has worked for 20 years in Kentucky driven by a passion to help students develop critical and creative thinking skills. As a Professional Learning Facilitator and NGSS Implementation Team Leader, Tricia has worked with educators across the US to develop Best Practices in the classrooms. Tricia's current work is around NGSS and helping STEM students with critical and creative thinking. Shelton has published many articles. Look for sessions she’ll be presenting: Selecting Phenomena to Motivate Student Sense-making; How do I Know if this lesson is really 3-Dimensional?; Exploring the Science and Engineering Practices

Lenny VerMaas - loves math and has a lifelong passion to help students enjoy learning mathematics. His whole career has been in Nebraska, teaching 28 years in the middle and high school classrooms and with Educational Service Unit #6. During this time, he has been working with teachers on a wide range of instructional strategies, brain compatible learning, effective use of homework, vocabulary acquisition and student engagement. Sessions he’ll be presenting are: No One is Born With a Math Brain, Everybody's Brain Can Grow to Learn Math; Inch Boy; Who is Doing the Talking in Your Classroom? Homework Strategies for the Math Classroom that Engage Students; How Did You Do That? Number Tricks and Algebra

Barbara Mayes Boustead, Ph.D. - is a meteorologist, climatologist, and instructor with the National Weather Service. A Michigan native, Dr. Boustead has professional and research interests that include historical weather and climate events, severe and extreme weather, and improving teaching and communication of weather and climate concepts. Dr. Boustead is the president of the Laura Ingalls Wilder Legacy and Research Association (http://beyondlittlehouse.com/); additionally, she was co-chair of “LauraPalooza 2015: Through Laura’s Eyes” and "LauraPalooza 2017: Little Houses, Mighty Legacy: 150 Years of Laura Ingalls Wilder." Dr. Boustead writes in her blog, Wilder Weather (http://www.bousteadhill.net/wilder_weather/) in her spare time.
2018 Joint Professional Development Conference
South Dakota Science Teachers Association
South Dakota Council of Teachers of Mathematics

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

Program

Thursday, February 8, 2018
7:00 PM - 9:00 PM Evening Sessions (See Program)

Friday, February 9, 2018
7:00 AM - 4:20 PM Registration Open Pre-Function Area
8:00 AM - 5:00 PM Exhibits Open Pre-Function Area
8:30 AM - 11:20 AM Morning Sessions (See Program)
11:45 AM - 1:10 PM Friday Luncheon Prairie A, B, C
(cost included in the registration fee)
1:30 PM - 4:20 PM Afternoon Sessions (See Program)
4:30 PM SDCTM Business Meeting Dakota C
SDSTA Business Meeting Dakota G
5:30-6:30 PM Networking Time (Social Hour) Pre-Function Area
CASH BAR-Hors d'oeuvres sponsored
by SD EPSCoR and Fisher Scientific
6:30 PM Friday Evening Banquet Prairie A, B, C
(Cost is $25)

Saturday, February 10, 2018
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 - Noon Exhibits Open Pre-Function Area
8:30 AM - 11:20 PM Morning Sessions (See Program)
12:00 PM - 1:00 PM Saturday Luncheon Prairie A, B, C
(cost included in the registration fee)
1:00 PM - 3:30 PM Afternoon Sessions (See Program)
4:00 PM Joint SDCTM & SDSTA Prairie A
Executive Board Meeting
### Thursday, Feb. 8, 2018

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### Friday, Feb. 9, 2018

**Remember to visit the exhibits in the Lobby and Hallways of the Crossroads Hotel.**

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**Noon**

**Friday Noon Luncheon in Crossroads Hotel – Prairie A, B, C**

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**6:30 PM**

**Friday Night Banquet in Prairie Ballrooms A, B, C**

(Banquet Tickets Required - Cost is $25)

### Saturday, Feb. 10, 2018

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**11:30 AM**

**Last Chance to Visit Exhibitors!**

**12:00 PM**

**Saturday Noon Luncheon in Crossroads Hotel – Prairie A, B, C**

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**3:00 PM**

**Wrap-up and Reflect**

**Prairie A (Science)** or **Prairie B (Math)**

**4:00 PM**

**SDCTM & SDSTA JOINT BOARD MEETING IN THE Prairie A**
Thursday

7:00 PM

Session: 1
Thursday
Prairie B
Math

Host:
Allen Hogie
SDCTM President
Allen.Hogie@k12.sd.us
www.sdctm.org

Math Potluck
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

8:05 AM

Session: 3
Friday
Prairie A

CONFERENCE WELCOME

Hosts: Mark Kreie of Brookings High School
Mark Iverson of Watertown High School

IGNITE SDSTA/SDCTM Joint Conference
Get students of all ages out of their seats and talking with "Which One Doesn't Belong?"

FRIDAY

8:30 AM

Session: 4
Friday
Prairie A
Science

FEATURED SPEAKER
Barbara Mayes Bousted
NOAA
Barbara.Mayes@noaa.gov

Wilder Weather: Connecting Weather and Climate to Lessons from Laura Ingalls Wilder
Explore weather & climate through the lens of Laura Ingalls Wilder’s The Long Winter. We will discuss how climate influences weather patterns, the process of documenting historical and modern communities. Repeat as Session 32

Math & Science Business Meetings 4:30 today.
All members are invited to attend.
FRIDAY 8:30 AM

8:30-9:20 AM  Session: 5
Friday  
Prairie B  
Grade Level: 6th-8th  
Math

Presenter:  Crystal McMachen  
Rapid City Area Schools: Southwest Middle School  
Crystal.McMachen@k12.sd.us

Productive Student Talk
Getting middle school students to talk is easy. Getting middle school students to talk about math can sometimes be a struggle. Come and learn about some easy to implement ways of getting students to have productive math talk.

8:30-9:20 AM  Session: 6
Friday  
Prairie C  
Grade Level: 9th-12th  
Science

Presenter:  Julie Olson & Tricia Neugebauer  
Mitchell Senior High  
Julie.Olson@k12.sd.us

Human to Human Interface Systems
Have fun exploring the nervous system with the Backyard Brains Human to Human Interface system. Engage in controlling a partner’s arm muscles using the electrical impulses from your own muscles.

FRIDAY 8:30 AM

8:30-9:20 AM  Session: 7
Friday  
Dakota A  
Grade Level: K-5  
Math

Presenter:  Danae Paxton, Tammy Schrempp, & Carla Sandquist of Timber Lake Elementary  
Danae.Paxton@k12.sd.us

Family Math and Literacy Night
Timber Lake Elementary Math and Literacy Family Night reached goals of packing the hallways, classrooms and gymnasium with students and their families. We would love to share how our teachers strive to make learning fun while building partnerships with families and empowering the connections needed to help students grow.  Repeat as Session 55

8:30-9:20 AM  Session: 8
Friday  
Dakota B  
Grade Level: 9th-12th  
Math

Presenter:  Kimberly Jones  
Dakota State University

Drawing with Equations
Manipulating the parent graphs of functions to draw. Bring your computer, tablet or mobile device to the session to participate.

Visit with Sharon & Julie at Sessions 91 & 107
### FRIDAY 8:30 AM

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<th>Time</th>
<th>Session</th>
<th>Grade Level</th>
<th>Location</th>
<th>Presenter Information</th>
<th>Description</th>
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| 8:30-9:20 AM  | 9       | 6th-12th Science | Dakota C  | Gregory Trieste Houghton Mifflin Harcourt                  | Teaching Science: The Next Generation, to get the foundational information and big picture overview of the new science standards. During this workshop, participants will collaboratively engage in hands-on, inquiry-based activity, explore instructional shifts required by the NGSS, discuss characteristics of an NGSS-aligned activity, and reflect on next steps for their schools and/or classrooms:  
• Plan effective lab experiments  
• Differentiate science instruction  
• Implement strategies and creative science challenges  
• Participate in discrepant events and leave with a ready-to-implement action plan. |
| 8:30-9:20 AM  | 10      | K-12 Math & Science | Dakota D  | Carla Diede Harrisburg South Middle School                | BreakoutEDU  
Break the mold of traditional learning by breaking into BreakoutEDU. Students use problem solving skills and teamwork to solve puzzles that can be tailored to any content or age group. Experience a Breakout yourself and then gain ideas on how to implement it in your own classroom. |
| 8:30-9:20 AM  | 11      | K-5 Math        | Dakota E  | Kim Webber Rapid City Area Schools                        | Making the Most of SBAC Resources  
The Smarter Balanced Assessment Consortium is more than the yearly summative assessment! Participants will have the opportunity to learn about a variety of assessment resources that can add to a comprehensive system of classroom, building and district-level assessment, including the Digital Library, Interim Assessments, Performance Assessments and Item Specifications. |
| 8:30-9:20 AM  | 12      | 9th-12th Science | Dakota F  | Steven Rokusek South Dakota Public Broadcasting            | Dissection Video Series and Related Resources  
During this session participants will review science dissections, including the dissection of a cow eye, a sheep heart, an earthworm, a clam and more. The dissections will be reviewed using a video series called Dissection 101. The series includes quizzes, PowerPoint presentations and lesson plans. Grades: 6-12. |
**FRIDAY**  

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**Presenter:** Dr. Judy Vondruska  
South Dakota State University  
Judy.Vondruska@sdstate.edu  
www.sdstate.edu/physics

**Lessons from PER**  
The field of physics education research (PER) is rich with information applicable to all science teachers. This includes effective ways to conduct demonstrations, utilization of heterogeneous grouping, effective engagement methods, etc. This session will share the findings from several fields of PER and allow participants to share their experiences.

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<td>Dakota H</td>
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**Presenter:** Deann Kertzman  
Center for the Advancement of Mathematics and Science Education at BHSU  
Deann.Kertzman@bhsu.edu

**Basic Fact Mastery through Algebraic Reasoning**  
When primary strategies for basic fact learning focus on memorization, children miss opportunities to develop understandings of fundamental principles of mathematics. In this session, relational strategies and sequences for teaching number combinations will be explored in light of three phases of fact acquisition. Several complementary resources will be offered.

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**FRIDAY**  

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**FEATURED SPEAKER**  
Tricia Shelton  
NSTA  
www.nsta.org

**Selecting Phenomena to Motivate Student Sense-making**  
The right phenomena are a key ingredient in successful three-dimensional teaching and learning. Emphasis will be placed on what makes some phenomena better than others and how to use them successfully in the classroom.

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<td>Grade Level: K-12</td>
<td>Math &amp; Science</td>
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**FEATURED SPEAKER**  
Lenny VerMaas  
Educational Service Unit #6  
LennyVerMaas@gmail.com  
http://lvermaas.wikispaces.com/

**No One Is Born With A Math/Science Brain, Everybody's Brain Can Grow To Learn Math & Science**  
Learning is about growth, practice, patience, and persistence. Students with a growth mindset see mistakes as learning opportunities and believe that their brain is like a muscle and gets stronger and more efficient when exercised. Come and learn how to build a growth mindset in your students.  
Repeated as Session 68
### FRIDAY 9:30 AM

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**FEATURED SPEAKER**
Bill Kring
Bill Kring the Math King
BillKring@gmail.com

**A Potpourri of Problem Solving - Part 1**
Problem solving can bring in mathematical thinking in myriad ways. This session will contain many different opportunities to apply this process. From sharing brownies fresh out of the oven to counting legs on the bus to measuring the mass of potatoes in a sack to reading the mind of the student, problems presented will give ideas to share as soon as Monday after the conference.

### FRIDAY 9:30 AM

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**Presenter:** Kimberly Clark
Technology and Innovation in Education
KClark@tie.net

**Want to Make Computer Science a Thing in your District?**
Let’s support and expand computer science learning opportunities for every student. Discover a cohesive K-12 CS curriculum pathway that provides flexible implementation and engages all students. Experience CS concepts with hands-on/interactive lessons from Code.org. Think BIG as we share computer science possibilities and professional learning with Code.org and beyond.
**Repeated as Session 80**

### FRIDAY 9:30 AM

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**Presenter:** Kristen Gonsoir
Groton Area School District
Kristen.Gonsoir@k12.sd.us

**Communication Styles and Learning**
We all know how to talk, but do we know how to communicate? Effective communication is extremely important, whether educators are communicating with students, parents, co-workers, or supervisors. Effective communication transcends all disciplines of education, including math and science. In this session, participants will learn which communication style they utilize most often and how they can more effectively communicate with others of a different communication style.

### FRIDAY 9:30 AM

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**Presenter:** Tim Olsen & Marsha Kucker & Cindy Heidelberger Larson of Ground Works-Midwest and SD Agriculture in the Classroom
gwgrowshope@gmail.com
www.groundworks-midwest.com

**Science Alive - "Real World" Science Applications**
The staff of the nonprofit, Ground Works-Midwest, will present a philosophical and practical overview of utilizing school teaching gardens and the SD Agriculture in the Classroom program to inspire science learners. Examples of STE(A)M infused, project based, experiential, interdisciplinary curriculum that fulfills SD science education standards will be demonstrated.
Desmos Activity Builder: Customized Activities
So you know about teacher.desmos.com and you love the activities found there... but you want to customize the activities a bit to better fit your students. Come learn how to modify existing Desmos activities and how to create your own activities using Activity Builder. Intended for grades 5-12 math OR science teachers. Some Desmos experience is helpful but not required; bring an iPad or laptop.

From Intuition to Abstraction
The relation and interaction between intuition and abstraction in the process of learning mathematics is used successfully by students and researchers to reach higher levels of understanding. This dynamic of interaction between intuition and abstraction is based on previous knowledge and skills. In this talk I will provide some examples, and their discussions, of specific topics in which this interaction happens naturally, and tends to increase the motivations when learning difficult topics.

Empowered Problem Solvers! Thank You Robert Kaplinsky!
This session will focus on implementing real world problem-based lessons developed by Robert Kaplinsky, that are freely available at https://robertkaplinsky.com/lessons/. Participants will interact with higher depth of knowledge level math problems and examine how to ensure students are problem solvers not just math robots.

APPS Session
The Advanced Principles in Physical Science (APPS), sponsored by a NCLB/Title II grant, provided online training and F2F workshops. This is an opportunity for participants to get together and share experience, get help with issues in Chemistry and Physics, and build new things to use (e.g. psuedoscopes). All are welcomed.
FRIDAY 9:30 AM

9:30-10:20 AM  Session: 25  
Friday  
Grade Level: K-12th  
Math

Presenter:  Nicol Reiner  
South Dakota Department of Education  
Nicol.Reiner@state.sd.us

Being Smart in Math Class
What does being “smart” in math class mean?  
Thinking that being fast and correct are the only ways to be successful in math turns many students away from math. Let’s expand our definition of “smart” in math and talk about how to communicate all of the ways to be successful.

FRIDAY 10:30 AM

10:30-11:20 AM  Session: 26  
Friday  
Grade Level: 4th-12th  
Math & Science

FEATURED SPEAKER  
Lenny VerMaas  
Educational Service Unit #6  
LennyVerMaas@gmail.com  
http://lvermaas.wikispaces.com/

Homework Strategies For The Mathematics & Science Classroom That Engage Students
Are you stuck in that routine of providing instruction, giving an assignment, correcting the assignment, and then going to the next lesson? Are you looking for a different way to do homework? Strategies like Zip Around, Wager Game, White Out, Pick Five and many more will be shared to engage students and keep them interested in learning.

Next Year’s Conference is  
February 7-8-9, 2019

FRIDAY 10:30 AM

10:30-11:20 AM  Session: 27  
Friday  
Grade Level: K-5  
Math

FEATURED SPEAKER  
Bill Kring  
Bill Kring the Math King  
BillKring@gmail.com

Decode the Language of Mathematics and Demystify Addition and Subtraction
Speaking the right language of mathematics can help all students develop powerful understandings and connections. Problem solving can use this language to help foster mathematical knowledge and proficiency. Addition and subtraction are so much more than following procedures. Done properly, they build on conceptual understanding that allows students to create models that are mathematically correct as well as make sense to them. These methods extend from work with whole numbers to that with decimals, fractions, and algebraic quantities. The correct use of mathematic terms begins in kindergarten and develops as the child grows older.

10:30-11:20 AM  Session: 28  
Friday  
Grade Level: 5th-12th  
Math & Science

Presenter:  Jarrod Huntimer  
Brookings High School  
Jarrod.Huntimer@k12.sd.us

Desmos Card Sorts: An Awesome Digital Tool for Any Classroom
Card sorts are an interactive way for students to learn and generate great discussions. Use text, images, and graphs to facilitate learning, promote student interaction, and check for understanding, fundamental concept knowledge, and vocabulary. Session provides hands-on learning and examples of how to make and use card sorts.
FRIDAY  10:30 AM

10:30-11:20 AM  Session: 29  
Friday  
Grade Level: 6th-8th  
Science  

Presenter:  Cassie Soeffing  
Institute for Global Environmental Strategies  
Cassie_Soeffing@strategies.org  
www.strategies.org

GLOBE Observer Mosquito Habitat Mapper App
In many parts of the world, mosquitoes are more than just a summertime nuisance. They spread diseases that kill nearly 2.7 million people a year. Bring your smart device and learn how to use this NASA app to help those working to understand and reduce mosquito-borne diseases.

10:30-11:20 AM  Session: 30  
Friday  
Grade Level: 9th-12th  
Science  

Presenter:  Becky Bundy  
Black Hills State University - Sanford Underground Research Facility  
Becky.Bundy@bhsu.edu  
www.sanfordlab.org/feature/k-12-stem-education

It’s Electric! - A New Sanford Underground Research Facility Curriculum Unit
A physical science unit focusing on subatomic particles, electrostatics and electromagnetism will be explored through participatory activities. This unit focuses on the Deep Underground Neutrino Experiment (DUNE), whose detectors will be located deep underground at the Sanford Lab in Lead. Learn how to bring this international project into your classroom!

FRIDAY  10:30 AM

10:30-11:20 AM  Session: 31  
Friday  
Grade Level: K-12  
Science  

Presenter:  Tiffany Kroeger  
Montrose School District  
Tiffany.Kroeger@k12.sd.us  
https://sites.google.com/site/montrose_science/education

How to prepare and run a successful Family Science Night
Have you ever wanted to expand the amazing things you do in your classroom to your community? Do you want to see students and their parents getting excited about math and science? Hosting a Family Science Night is a great way to get the community together over the common goal of enhancing science and mathematics! Come find out how easy it is to pull off a successful night at your school!

10:30 AM-2:20 PM  Session: 31.NSU  
Friday  
Symposium  
NSU Rising Scholars Meeting

Visit 2018 Conference Exhibitors! Complete your “Vendor Bingo” to win prizes!

Poster Session hosted by SDSTA Member Darwin Daugaard (Dell Rapids HS)
Wilder Weather: Connecting Weather and Climate to Lessons from Laura Ingalls Wilder
Explore weather & climate through the lens of Laura Ingalls Wilder’s *The Long Winter*. We will discuss how climate influences weather patterns, the process of documenting historical and modern communities. **Repeat of Session 4**

**FEATURED SPEAKER**
Barbara Mayes Boustead
NOAA
Barbara.Mayes@noaa.gov

**Session: 32**
Friday
Grade Level: Science

**FRIDAY 1:30 PM**

1:30-2:20 PM
Session: 33
Friday
Prairie B
Grade Level: K-5
Math

**Presenter:** Kimberly Jones
Dakota State University

**Drawing with Equations**
Engage your students in technology while manipulating parent graphs of functions. Time will be spent working with the online DESMOS calculator and following along to create a drawing using equations. Participants will spend time using DESMOS to create their own drawings by manipulating the variables on parent functions. All participants should bring at least one of the following devices to participate: computer or mobile device such as a tablet.

**Session: 34**
Friday
Prairie C
Grade Level: 6th-8th
Science

**Presenter:** Steven Rokusek
South Dakota Public Broadcasting
Steven.Rokusek@state.sd.us
www.sdpb.org/learn/

**Science & Art Activities that will Educate and Entertain**
During this session participants will learn about new education resources which present a very logical approach to drawing. The resources covered in this session will help educators teach artistic expression and the basic understanding of the structural world. Hands-on science activities will also be shared. Grades 2-12.
**FRIDAY 1:30 PM**

1:30-2:20 PM  
Friday  
Dakota A  
Grade Level: 9th-12th  
Science  

**Presenter:** Matt Miller  
South Dakota State University  
Matt.Miller@sdsstate.edu  
www.sdsstate.edu/continuing-distance-education/chemistry-chemical-education-ms  

*Alternative Chemistry Labs for the middle and high school classroom*

As part of the MS program in chemistry, participants create laboratory activities based on the research experience they have as part of the MS program. Some of these activities will be discussed along with how they meet the SD Science standards. Activities will be tested during the session.

**FRIDAY 1:30 PM**

1:30-2:20 PM  
Friday  
Dakota B  
Grade Level: 6th-12th  
Science  

**Presenter:** Cassie Soeffing  
Institute for Global Environmental Strategies  
Cassie_Soeffing@strategies.org  
www.strategies.org  

*NASAs Educator Toolkit: Framing Phenomena-Based Student Investigations*

This toolkit features NASA resources for grades K-12 that can support and frame student investigations with NASA data and content. Included is a QuickStart Guide, Key Features, and an Online Interactive Guide.

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**FRIDAY 1:30 PM**

1:30-2:20 PM  
Friday  
Dakota C  
Grade Level: K-5  
Science  

**Presenter:** Lynne Jones  
Washington Pavilion  
LJones@washingtonpavilion.org  
www.washingtonpavilion.org  

*Stations to Success*

Learn how to successfully integrate hands-on experiences into your classroom through the use of science and engineering stations. Explore some of the Washington Pavilion’s most popular stations, and receive tips on creating stations and activities that are budget friendly.

**FRIDAY 1:30 PM**

1:30-2:20 PM  
Friday  
Dakota D  
Grade Level: 9th-12th  
Science  

**Presenter:** Benjamin Benson  
Sanford Research: Sanford PROMISE  
SanfordOutreach@sanfordhealth.org  
www.sanfordresearch.org/education  

*Meat or Cell Function: Teaching about Protein*

Expand student’s thinking about protein from ”chicken” (meat) to ”Actin” and other cell proteins. Learn how to use 21st Century technology to build understanding using chemical properties to separate and evaluate proteins extracted from locally available sources with vertical gel electrophoresis.
Gamify the Math Classroom
Looking for ways to engage students in the math classroom? Gamification might be a tool you can use to do this. In this session, you'll learn about ways to add game-based elements such as points, challenges, leaderboards, and badges to your math class.

Making Video Instruction Work
Thinking about flipping your instruction? Interested in using videos in your instruction while still holding learners accountable? Learn how to use EdPuzzle on any device to keep learners engaged during video instruction and hold them accountable. Learn about the data EdPuzzle can provide to help guide your instruction.

Fun & Games in Algebra
Do your algebra students LOVE worksheets? Then this session is NOT for you. Come experience my favorite low-cost, high-impact learning activities for algebra and pre-algebra. Your students will thank you.

CCC for Teachers
Cross Cutting Communities for Rural STEM Education is a Title II/NCLB sponsored project to develop Professional Learning Communities (PLCs) across SD. Come and lean how you can participate in PLCs to exchange ideas and pedagogies to better serve your students - and walk away with some make-and-takes too.
**FRIDAY 2:30 PM**

2:30-4:20 PM  
Session: 43 [Two Hours]  
Friday  
Prairie A  
Science

**FEATURED SPEAKER**
Tricia Shelton  
NSTA  
www.nsta.org

How do I Know if this lesson is really 3-Dimensional?  
Participants will experience a classroom lesson and analyze its potential to support three-dimensional teaching and learning by building on students’ prior knowledge, providing opportunity to express their ideas, and helping students see how the lesson fits coherently into the overall unit of instruction.

2:30-3:20 PM  
Session: 44  
Friday  
Prairie B  
Grade Level: 5th-12th  
Math

**FEATURED SPEAKER**
Lenny VerMaas  
Educational Service Unit #6  
LennyVerMaas@gmail.com  
http://lvermaas.wikispaces.com/

Who Is Doing The Talking In Your Classroom?  
Using Questioning To Develop Student Understanding.  
Teachers ask a lot of questions. Do your questions encourage student thinking and deepen understanding? Do your students ask questions? We will look at several strategies to make your questioning more effective and to help your students learn.

2:30-3:20 PM  
Session: 45  
Friday  
Prairie C  
Grade Level: K-5  
Math

**FEATURED SPEAKER**
Bill Kring  
Bill Kring the Math King  
BillKring@gmail.com

Take a Balloon Ride to Understanding Integer Arithmetic  
The gas balloon is a model that connects principles of science to an understanding of the arithmetic of integers. Gas bags are connected to positive integers, sand bags are connected to negative integers, addition is connected to putting bags on the balloon, and subtraction is connected to taking bags off of the balloon. Multiplication and division are naturally developed and the procedure is extended to the explanation of absolute value, combining like terms, and solving equations.  
Repeated as Session 69

2:30-3:20 PM  
Session: 46  
Friday  
Dakota A  
Grade Level: K-12  
Math & Science

**Presenter:** Lindsey Brewer, NBCT & Lori Keleher, NBCT  
Huron School District  
Lindsey.Brewer@k12.sd.us  
www.TransformYourClassroom.net

Transform your Classroom Routine!  
Are you tired of the same old activities? Join us to learn 3 ways to transform ordinary assignments into engaging activities. Receive examples, instructions, and templates to create your own versions of Human Connect Four, Pass ‘n Play, and Spot Right. Get your students moving both physically and academically!!!
FRIDAY  2:30 PM

2:30-3:20 PM  Session: 47
Friday  Dakota B
Grade Level: K-5  Science

Presenter:  Gregory Trieste
Houghton Mifflin Harcourt
Gregory.Trieste@hmhco.com
www.hmhco.com

Success in the Changing Elementary Science Classroom
During this workshop, participants will collaboratively engage in a hands-on, inquiry-based activity, explore the instructional shifts necessary for effective science practices in our changing classrooms, discuss the characteristics of a STEM-aligned activity, and reflect on next steps for their schools and/or classrooms.

FRIDAY  2:30 PM

2:30-3:20 PM  Session: 48
Friday  Dakota C
Grade Level: K-12th  Math

Presenter:  Nicol Reiner
South Dakota Department of Education
Nicol.Reiner@state.sd.us

Brain Research and Learning Mathematics
What does brain research tell us about learning math effectively? Why are mistakes and struggle so important? What ideas and strategies in the classroom will help us engage students with mathematics? Come to explore these questions and to learn helpful strategies to create a math learning culture in your classroom.

Fostering Passionate, Curious Learners
Supporting Teachers and Educators
At Houghton Mifflin Harcourt™, we aim to support your school community with the programs, services, technology, and intervention solutions you need to succeed.
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FRIDAY  2:30 PM

2:30-3:20 PM  Session: 49  Friday
Grade Level: 9th-12th  Dakota D
Math & Science

Presenter:  Gail Jacobsma
Arlington High School
Gail.Jacobsmak12.sd.us

Paperless with Class OneNote
My classroom has become virtually paperless with Class OneNote in my high school math classes. Class OneNote is related to OneNote but has additional features for classroom use. I would love to share with you my journey and show you many cool things you can do with this product.

FRIDAY  2:30 PM

2:30-3:20 PM  Session: 50  Friday
Grade Level: K-12  Dakota E
Math & Science

Presenter:  Mark Iverson & SDSTA/SDCTM Officers and Board Members
sdsta.org and sdctm.org

Professional Development Speed Dating
Join us for the Professional Development Speed Dating Session! We’ve got 50 minutes to get you as much info as possible. Choose a topic below you are interested in and stop by their table. At the switch you can visit another table or take your new idea and head off to another session. Come and go as you please. Sit where you like and get the information that pertains to you! Presented by the officers and friends of SDSTA and SDCTM.

FRIDAY  2:30 PM

2:30-3:20 PM  Session: 51  Friday
Grade Level: 6th-8th  Dakota F
Science

Presenter:  Angie Plaine
Harrisburg South Middle School
Angie.Plaine@k12.sd.us

iPads in the Classroom
This session will share creative ideas for using iPads in the science classroom. From student projects, to fun lesson ideas and presentation options. Come ready to see student examples and get all kinds of apps and activities your students will be excited to try.

FRIDAY  2:30 PM

2:30-3:20 PM  Session: 52  Friday
Grade Level: 9th-12th  Dakota G
Science

Presenter:  Tiffany Sanderson
South Dakota Soybean Research and Promotions Council
tsanderson@vivayic.com;
rehnningfeld@vivayic.com
www.sdsoybeanscience.org

Soybean Science – Teaching Genetics & Energy Flow with Soybeans
Discover the free educational resources on www.sdsoybeanscience.org. We will walk through lessons covering topics on genetics & biotechnology and energy flow concepts from photosynthesis and cellular respiration to using renewable fuels for human energy needs. Be ready to jump into some hands-on activities and discuss how these resources may supplement your existing curriculum.

FRIDAY  2:30 PM

2:30-3:20 PM  Session: 53  Friday
Grade Level: 6th-12th  Dakota H
Science

Presenter:  Julie Olson
Mitchell Senior High
Julie.Olson@k12.sd.us

Edible Polymers (aka Spherification)
Learn how to experiment with different edible components to make fake caviar or noodles while learning about polymers. Spherification is a cooking technique.
FRIDAY 3:30 PM

3:30-4:20 PM  Session: 54  Prairie B
Friday  Grade Level: 9th-12th  Math & Science

Presenter: Lisa Cardillo & Katie Keppen
Harrisburg High School
Lisa.Cardillo@k12.sd.us

5 Years of Customized Learning - Where are we now?
5 Years into our journey into customized learning at Harrisburg High School we invite you to come talk with a high school math and science teacher about our journey! What we have learned, what our days look like, what we have changed and where we are going next. Both teachers started at the freshmen level and now customize up to an AP level.

3:30-4:20 PM  Session: 55  Prairie C
Friday  Grade Level: K-5  Math

Presenter: Danae Paxton, Tammy Schrempp, & Carla Sandquist of Timber Lake Elementary
Danae.Paxton@k12.sd.us

Family Math and Literacy Night
Timber Lake Elementary Math and Literacy Family Night reached goals of packing the hallways, classrooms and gymnasium with students and their families. We would love to share how our teachers strive to make learning fun while building partnerships with families and empowering the connections needed to help students grow. Repeat of Session 7

After the Math & Science Business Meetings this afternoon, there is a social Networking hour before tonight's Banquet.

FRIDAY 3:30 PM

3:30-4:20 PM  Session: 56  Dakota A
Friday  Grade Level: K-12  Math & Science

Presenter: Lindsey Brewer, NBCT & Lori Keleher, NBCT of Huron School District
Lindsey.Brewer@k12.sd.us
www.TransformYourClassroom.net

What books should you be reading?
Join us for a roundtable discussion about what educational books you are currently reading and what inspiring books you should be reading. Come check out 4 books that are trending right now. Prizes (books and gift certificates) will be given away!

3:30-4:20 PM  Session: 57  Dakota B
Friday  Grade Level: K-5+  Science

Presenter: Carl Fellbaum
Washington Pavilion
cfellbaum@washingtonpavilion.org
www.washingtonpavilion.org/

Hands-On Success: Using Ziplocs & Diapers To Investigate Plastic Polymers & Career Options
Research shows that hands-on projects improve student success, but what does that look like in a classroom or afterschool setting? Join the Washington Pavilion for two polymer projects that use diapers and plastic bags to help students connect kitchen science and a viable career option. Scalable up to high school. Repeated as Session 71

3:30-4:20 PM  Session: 58  Dakota C
Friday  Grade Level: 9th-12th  Math

Presenter: Sharon Vestal & Christine Larson
South Dakota State University
Sharon.Vestal@sdstate.edu

NETS for Surface Area and Volume
How many tiles in a mosaic? How many pyramids does it take to make a cube? What do Clementines have to do with surface area? Come explore these and many other SA and Volume concepts. This session can be used to fulfill the requirements for the Implementing Productive Mathematical Discourse follow-up.
FRIDAY 3:30 PM

3:30-4:20 PM  Session: 59
Friday  Dakota D
Grade Level: 5th-12th  Math

**Presenter:** Mark Kreie
Brookings High School
Mark.Kreie@k12.sd.us
https://markkreie.blogspot.com/

The “New” Smarter Balanced Embedded Calculators
Students taking the online South Dakota Smarter Balanced math assessment will have access to embedded Desmos calculators. In this hands-on session, participants will increase their level of comfort using the calculators. This session is intended for grades 5-12 teachers & Desmos users of all abilities. Bring an iPad or laptop.  **Repeated as Session 100**

FRIDAY 3:30 PM

3:30-4:20 PM  Session: 60
Friday  Dakota E
Grade Level: 9-12  Science

**Presenter:** Tracy Moody
Sanborn Central
Tracy.Moody@k12.sd.us

Photosynthesis/Cellular Respiration (Ideas for better understanding)
Many traditional high school students struggle with terms and cycles of Photosynthesis and Cellular Respiration. This session will give a handful of ideas to help students dig a little deeper and understand these complex processes.

FRIDAY 3:30 PM

3:30-4:20 PM  Session: 61
Friday  Dakota F
Grade Level: K-12  Science

**Presenter:** Jamie Tucker & Marcie Welsh
Brookings High School
Jamie.Tucker@k12.sd.us

Incorporating CCC and SEP into activities and labs
Would you like to learn how to change your current lab or activity to incorporate the cross cutting concepts and science and engineering practices? Join us for a look at biology and chemistry activities that you can easily incorporate CCC and SEP into.

3:30-4:20 PM  Session: 62
Friday  Dakota G
Grade Level: 9th-12th  Science

**Hosts:** Larry Browning & James Stearns
SD American Association of Physics Teachers
Larry.Browning@sdsu.edu
http://sdaapt.sdstate.edu/

SD AAPT Annual Meeting
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 welcomed to attend and bring their physics and physical science questions.

Talk with Matt & Hadley at the booth
Or
Gregory at Sessions 9, 47 or 99.
FRIDAY 3:30 PM

3:30-4:20 PM
Friday
Grade Level: 9th-12th

Mass Customized Learning in Mathematics
Our presentation will be an overview of the style of Mass Customized Learning that our school uses in Mathematics class for High School.

Presenter: Pandi Pittman & Nadia Deal
Dupree High School

FRIDAY 4:30 PM

4:30-5:30 PM
Friday

SDSTA Annual Business Meeting
officers@sdsta.org
www.sdsta.org

All members are invited to attend. 2018 is an election year, come vote for new officers.

FRIDAY 5:30 PM

5:30 PM
Networking Event
Sponsored by:
SD EPSCoR and Fisher Scientific

SD EPSCoR
fisher scientific
part of Thermo Fisher Scientific

~BANQUET~

6:30 PM

Meal
Awards & Keynote Address:

Always Question…
Always Wonder…
Dr. Robert Pyatt
SATURDAY  7:00 AM

7:00-8:30 AM  Session: 66
Saturday  Salon
Grade Level: K-12  Math & Science

Breakfast for SD PAEMST State Level Finalists and Past Awardees
www.paemst.org

Hosted by: SD PAEMST Coordinators:
Allen Hogie (Math)
Allen.Hogie@k12.sd.us
Ramona Lundberg (Science)
Ramona.Lundberg@k12.sd.us

SATURDAY  8:30 AM

8:30-9:20 AM  Session: 67
Saturday  Prairie A
Grade Level: K-12  Math & Science

FEATURED SPEAKER
Tricia Shelton
NSTA
www.nsta.org

Exploring the Science and Engineering Practices
Come explore science and engineering practices (such as constructing explanations and developing models) that are central to the vision of education described in the Framework and NGSS.

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SATURDAY  8:30 AM

8:30-9:20 AM  Session: 68
Saturday  Prairie B
Grade Level: K-12  Math & Science

FEATURED SPEAKER
Lenny VerMaas
Educational Service Unit #6
LennyVerMaas@gmail.com
http://lvermaas.wikispaces.com/

No One Is Born With A Math/Science Brain, Everybody’s Brain Can Grow To Learn Math & Science
Learning is about growth, practice, patience, and persistence. Students with a growth mindset see mistakes as learning opportunities and believe that their brain is like a muscle and gets stronger and more efficient when exercised. Come and learn how to build a growth mindset in your students.
Repeat of Session 16

Visit with Michele at Sessions  76.5  &  105
SATURDAY  8:30 AM

8:30-9:20 AM   Session: 69
Saturday        Prairie C
Grade Level: K-5  Math

FEATURED SPEAKER
Bill Kring
Bill Kring the Math King
BillKring@gmail.com

Take a Balloon Ride to Understanding Integer Arithmetic
The gas balloon is a model that connects principles of science to an understanding of the arithmetic of integers. Gas bags are connected to positive integers, sand bags are connected to negative integers, addition is connected to putting bags on the balloon, and subtraction is connected to taking bags off of the balloon. Multiplication and division are naturally developed and the procedure is extended to the explanation of absolute value, combining like terms, and solving equations.

Repeat of Session 45

8:30-9:20 AM   Session: 70
Saturday        Dakota A
Grade Level: 9th-12th  Science

Presenter: Lisa Cardillo of Harrisburg High School & Liz McMillan of Sanford Research
SanfordOutreach@sanfordhealth.org
www.pged.org;
www.sanfordresearch.org/education

Genetics: more complex than one subject...
From precision medicine & gene editing to the American Eugenics Movement - understanding DNA, genes, chromosomes, inheritance, etc. is foundational to medicine & life science. Ignite curiosity and connect to social sciences with classroom lessons and activities in genetics. Information about the summer 2018 PROMISE-pgEd workshop at this session and the Sanford PROMISE exhibit booth.

SATURDAY  8:30 AM

8:30-9:20 AM   Session: 71
Saturday        Dakota B
Grade Level: K-5+  Science

Presenter: Carl Fellbaum
Washington Pavilion
cfellbaum@washingtonpavilion.org
www.washingtonpavilion.org/

Hands-On Success: Using Ziplocs & Diapers To Investigate Plastic Polymers & Career Options
Research shows that hands-on projects improve student success, but what does that look like in a classroom or afterschool setting? Join the Washington Pavilion for two polymer projects that use diapers and plastic bags to help students connect kitchen science and a viable career option. Scalable up to high school.

Repeat of Session 57

8:30-9:20 AM   Session: 72
Saturday        Dakota C
Grade Level: 6th-12th  Science

Presenter: Katie Anderson of Dakota State University SD Discovery Center/SD EPSCoR & Rhea Waldman of SD Discovery Center/SD EPSCoR
Katie.Anderson@dsu.edu
sdepscor.org/edportal/

Made by Teachers for Teachers - Education Portal – Connecting Research to the Classroom
Get your students excited about STEM and connect them to SD scientists using a new FREE resource! The education portal is a powerful tool that offers curriculum modules aligned with the new science standards, that include engaging, hands-on activities and connections to actual SD scientists and their current research. 

Repeated as Session 102
SATURDAY  8:30 AM

8:30-9:20 AM  Session: 73
Saturday          Dakota D
Grade Level: 6th-8th  Math

Presenter: Christine Larson & Sharon Vestal
South Dakota State University
Christine.Larson@sdstate.edu

Proportions, Percents, and Fractions OH MY
Teachers will investigate real life examples of proportions, percents and fractions. This session can be used to fulfill the requirements for the Implementing Productive Mathematical Discourse follow-up.

8:30-9:20 AM  Session: 74
Saturday          Dakota E
Grade Level: 9th-12th  Science

Presenter: Alison Bowers, Hanson School District & Darwin Daugaard, Dell Rapids High School
Research Experience for Teachers - SD Space Grant Consortium/NASA

Research Experience for Teachers
A panel discussion on our experiences during this summer’s RET program funded by NASA and the SD Space Grant Consortium.

SATURDAY  8:30 AM

8:30-9:20 AM  Session: 75
Saturday          Dakota F
Grade Level: 9th-12th  Science

Presenter: Carrie Cox
Chamberlain High School
Carrie.Cox@k12.sd.us

Incorporating OSEU Standards
Objectives of the Session are: 1) to educate fellow educators on the OSEU Standards, 2) relate SD Science Standards to the OSEU Standards, and 3) discuss resources available to incorporate those standards in the science classroom. Time will be given to work on a lesson plan of your own at the end of the session.

8:30-9:20 AM  Session: 76
Saturday          Dakota G
Grade Level: 9th-12th  Science

Presenter: Madhav Nepal, Larry Browning, & Matthew Miller
South Dakota State University
Madhav.Nepal@sdstate.edu

iLEARN for Science and Ag Ed Teachers
Immersive Learning Experiences And Rural Networking (I-LEARN) is a USDA funded workshop for science/AgEd teachers. Teachers apply best practices for teaching NGSS Crosscutting Concepts within the context of climate variability and collaborate with scientists in the field. Stop by if you want to be a part of next summer’s workshop.
SATURDAY  8:30 AM

8:30-9:20 AM  Session 76.5  Saturday  Dakota H
Presenter: Michele Cozza, STEMcoach  mcozza@acceleratelearning.com

Demystifying the NGSS - Earthquake Proof Towers and Engineering Design
While investigating the phenomenon of Waves we will use three models to design and build earthquake proof towers that can withstand the devastating horizontal S waves. Through this hands-on investigation, using models, simulations, and tower engineering we will demystify the 3D NGSS Standards for Waves, the practices of engineering design, and how best to teach them through STEM.

http://stemscopes.com/

9:30-10:20 AM  Session: 77  Saturday  Prairie A
Grade Level: 6th-8th  Science

Presenter: Dr. Janet Briggs  Black Hills State University  Janet.Briggs@bhsu.edu

Teaching Weather and Climate through Project ATMOSPHERE
Learn about resources and activities for teaching about the weather, climate, and climate change from a participant in Project ATMOSPHERE, a 2-week training through the National Weather Service and National Oceanic and Atmospheric Administration. Great online resources and interactive investigations will be shared!

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

SATURDAY  9:30 AM

9:30-10:20 AM  Session: 78  Saturday  Prairie B
Grade Level: 5th-10th  Math

FEATURED SPEAKER
Lenny VerMaas  Educational Service Unit #6  LennyVerMaas@gmail.com  http://lvermaas.wikispaces.com/

Inch Boy, Yao Ming, and Other Fun Statistics Activities
Activities will introduce and build statistical concepts to develop understanding, flexibility, and adaptability in students' statistical skills. Students need to have a wide variety of experiences with statistics to make sense of the vast amount of data that is created on a daily basis. Experience activities and find resources to help your students enjoy learning statistics.

9:30-10:20 AM  Session: 79  Saturday  Prairie C
Grade Level: K-5  Math

FEATURED SPEAKER
Bill Kring  Bill Kring the Math King  BillKring@gmail.com

Decode the Language of Mathematics and Demystify Multiplication and Division
Speaking the right language of mathematics can help all students develop powerful understandings and connections. The correct use of mathematical terms begins in kindergarten and develops as the child grows older. Problem solving can use this language to help foster mathematical knowledge and proficiency. Multiplication and division are so much more than following procedures. Done properly, they build on conceptual understanding that allows students to create methods that are mathematically correct as well as make sense to them. These methods extend from work with whole numbers to that with decimals, fractions, and algebraic quantities.
SATURDAY 9:30 AM

9:30-11:20 AM  Session: 80 [Two Hours]
Saturday  Dakota A
Grade Level: K-12  Computer Science

Presenter:  Kimberly Clark
Technology and Innovation in Education
kclark@tie.net

Want to Make Computer Science a Thing in your District?
Let’s support and expand computer science learning opportunities for every student. Discover a cohesive K-12 CS curriculum pathway that provides flexible implementation and engages all students. Experience CS concepts with hands-on/ interactive lessons from Code.org. Think BIG as we share computer science possibilities and professional learning with Code.org and beyond.
Repeat of Session 19

9:30-11:20 AM  Session: 81 [Two Hours]
Saturday  Dakota B
Grade Level: K-5  Science

Presenter:  Spencer Cody
Edmunds Central School District
Spencer.Cody@k12.sd.us
https://www.echs.k12.sd.us/

Specialty Crops in the Classroom: Educating South Dakota’s Youth through Mobile Classroom Growing Systems
Edmunds Central is developing mobile classroom growing systems geared toward education and consumption of specialty crops not presently consumed by PreK-6 students in South Dakota. Participating classrooms will receive a mobile light grow cart with associated supplies along with support and curriculum throughout the upcoming school years.

SATURDAY 9:30 AM

9:30-10:20 AM  Session: 82  Dakota C
Saturday  Grade Level: K-6  Math & Science

Presenters:  Allen Hogie, SD PAEMST
Mathematics Coordinator
Ramona Lundberg, SD PAEMST
Science Coordinator
Allen.Hogie@k12.sd.us
www.paemst.org

Showcase Your Teaching Practice and Win Money
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 2018 cycle recognizes teachers who teach in grades K-6.

9:30-10:20 AM  Session: 83  Dakota D
Saturday  Grade Level: 6th-8th  Math

Presenter:  Christine Larson & Sharon Vestal
South Dakota State University
Christine.Larson@sdstate.edu

Powers of 10
Teachers will explore exponents, including Powers of Ten and fractional exponents. This session can be used to fulfill the requirements for the Implementing Productive Mathematical Discourse follow-up.
SATURDAY  9:30 AM

9:30-10:20 AM  Session: 84  
Saturday  Dakota E  
Grade Level: 6th-12th  Science  

Presenter:  Dr. Judy Vondruska & Julie Olson  
Vector Education  
Judy.Vondruska@gmail.com  

Biomechanics  
Whether a biology, physics, or physical science teacher, biomechanics can be used to teach a multitude of concepts. This session will focus on the engineering design of long bones and the concepts of mechanical advantage and torque associated with arm and back muscles. Activities can be adapted for MS/HS.

9:30-10:20 AM  Session: 85  
Saturday  Dakota F  
Grade Level: 6th-8th  Math  

Presenter:  Mark Kreie  
Brookings High School  
Mark.Kreie@k12.sd.us  
https://markkreie.blogspot.com/  

The Desmos Teacher Site: Where Math Meets Amazing  
In this session, participants will take an active role in exploring teacher.desmos.com. Participants will learn about navigating around the teacher dashboard, receive best practice tips about the presentation toolkit, and find activities they can use in their classroom next week. Intended for grades 5-12 teachers; bring an iPad or laptop.

SATURDAY  9:30 AM

9:30-10:20 AM  Session: 86  
Saturday  Dakota G  
Grade Level: 6th-8th  Science  

Presenter:  Matt Miller, Madhav Nepal, Larry Browning, Troy White and Laura Edwards  
South Dakota State University  
Matt.Miller@sdstate.edu  
www.sdstate.edu/biology-and-microbiology/usda-ilearn  

Resources from i-LEARN 2017  
We organized a USDA funded PD workshop for science teachers in May of 2017. Here we share teaching modules useful in teaching climate variability in both science and AgEd classrooms. The modules are based on locally available resources, economically feasible and useful for teaching in rural settings.

9:30-10:20 AM  Session: 87  
Saturday  Dakota H  
Grade Level: K-12  Science  

Presenter:  Peggy Norris  
Sanford Underground Research Facility & Black Hills State University  
pnorris@sanfordlab.org  
www.sanfordlab.org/educators  

The Sanford Underground Research Facility - K-12 Connections  
The E&O team at the Sanford Underground Research Facility strives to connect science and engineering happening underground to standards-aligned, STEM programming at all grade levels. As Sanford Lab evolves, so does our material. Come explore the latest exciting developments for the science lab and the corresponding educational opportunities.
SATURDAY  10:30 AM

10:30-11:20 AM  Session: 88
Saturday  Prairie A
Grade Level:  Science

FEATURED SPEAKER
Barbara Mayes Boustead
NOAA
Barbara.Mayes@noaa.gov

Wilder Weather: Connecting Weather and Climate to Lessons from Laura Ingalls Wilder
Little House Books - Learn the facts behind the historical fiction! What were the big weather and climate events in the Little House books? Were her descriptions truth or storytelling?

SATURDAY  10:30 AM

10:30-11:20 AM  Session: 90
Saturday  Prairie C
Grade Level: K-5  Math

FEATURED SPEAKER
Bill Kring
Bill Kring the Math King
BillKring@gmail.com

A Potpourri of Problem Solving - Part 2
Problem solving can bring in mathematical thinking in myriad ways. This session will contain many different opportunities to apply this process. From placing digits in an arrangement to weighing with four stone fragments to number sequence in exotic places to determining the gender of residents in a condominium complex, problems will give ideas to share as soon as Monday after the conference.

Check out the Classroom Treasures
After 3 PM, the Treasures become trash!

10:30-11:20 AM  Session: 91
Saturday  Dakota C
Grade Level: 7th-12th  Math

Presenter: Sharon Rendon
CPM Educational Program

Desmos Marbleslides
Marbleslides is one of the most popular Desmos activities. Select the challenge of your choice – linear, quadratic, or beyond – and get sliding! Come and learn more about the activity that engages and challenges students of all ability levels and will have students asking for more. No Desmos experience required; bring an iPad or laptop.

How Did You Do That? Number Tricks And Algebra
Use the mystery behind why a number trick works to help students develop skills in algebra and problem solving. In addition to being motivating, number tricks help students learn to manipulate symbolic expressions as well as formulate and reformulate generalized solution patterns. Come and learn how to be a mathematical magician.
SATURDAY  10:30 AM

10:30-11:20 AM  Session: 92
Saturday
Dakota D
Grade Level: 9th-12th
Math

Presenter: Sharon Vestal & Christine Larson
South Dakota State University
Sharon.Vestal@sdstate.edu

Exploring Geometry with Exploragons
Teachers will explore a number of geometry concepts such as similarity, parallel lines, trigonometry, and various theorems using Exploragons. This session can be used to fulfill the requirements for the Implementing Productive Mathematical Discourse follow-up.

10:30-11:20 AM  Session: 93
Saturday
Dakota E
Grade Level: 9th-12th
Science

Presenter: Larry Browning & Ben DeNeui
South Dakota State University - Physics Department
Larry.Browning@sdstate.edu

Dialogues Review
Dialogues -- short scripted conversations between two or three characters -- are a pedagogy used to introduce new concepts, develop understanding, and review material. The Dialogue pedagogy will be introduced and modeled. Resources (http://moosemosspress.com/) will be available for review. Tips and experiences about writing your own will also be discussed.

SATURDAY  10:30 AM

10:30-11:20 AM  Session: 94
Saturday
Dakota F
Grade Level: 5th-12th
Math

Presenter: Mark Kreie
Brookings High School
Mark.Kreie@k12.sd.us
https://markkreie.blogspot.com/

Rich & Engaging Mathematical Tasks
Tired of using the same lessons year after year? Looking for activities that engage and challenge all students? Activities such as 3-ACT Tasks, Estimation 180, and Open Middle problems are for you! Come learn about where to find and how to use these free resources. Intended for grades 5-12.

10:30-11:20 AM  Session: 95
Saturday
Dakota G
Grade Level: 6th-12th
Science

Presenter: Rick Hudson
Bon Homme School District 4-2
Rick.Hudson@k12.sd.us

Summer of Love (of STEM)
My summer experience as a research assistant with the SD-RET program at SDSM&T; learn about sustainability and how to construct a microbial fuel cell on the cheap. The program was funded by the NSF, and 10 educators had the opportunity to participate. Lesson Plans Included.
SATURDAY  10:30 AM

10:30-11:20 AM  Session: 96
Saturday  Dakota H
Grade Level: K-12  Math & Science

Presenter:  Michelle Bartels
Hamlin School District
Michelle.Bartels@k12.sd.us
https://sites.google.com/site/bartelsscience/

Breakout!
Work collaboratively to solve a series of critical thinking puzzles using clues, hints, and strategy to open a locked box. Join me to see how breaking in to a Breakout box motivates students to learn.

SATURDAY  11:30 AM

Last Chance to Visit Exhibitors!

SATURDAY  12:00 NOON

~LUNCH~
Hosted by:
Al Hogie, SDCTM President
Liz McMillan, SDSTA Past-President
Mark Iverson, SDSTA President

Door Prizes donated by:
Conference Exhibitors

SATURDAY  1:00 PM

1:00-1:50 PM  Session: 97
Saturday  Dakota A
Grade Level: Adaptable K-12  Science

Presenter:  Ed Welsh
Badlands National Park
Edward_Welsh@nps.gov

Badlands National Park and the Geologic Story of South Dakota
Explore how to use the fossil record to synthesize information on past ecosystems from the perspective at Badlands National Park. Participate in a hands-on erosion activity that you can utilize in the classroom. Help students make conclusions on the processes that shaped the natural and geologic history of South Dakota.

1:00-1:50 PM  Session: 98
Saturday  Dakota B
Grade Level: 9th-12th  Science

Presenter:  Larry Browning & Matt Miller
South Dakota State University - Physics and Chemistry & BioChemistry Departments
Larry.Browning@sdstate.edu

Demonstrations to Spark Their Interest
From students to insurance adjusters we have managed to attract interest in our demonstrations and interactive activities. Using common materials, we like to add the "WOW" and "I wonder" factor to our classes without the Fire Department. See if we can do that again in 2018.

Everyone has something that they do well. Please think about sharing your knowledge with other South Dakota teachers at next year’s Conference.
February 7-8-9, 2019
SATURDAY  1:00 PM
1:00-1:50 PM  Session: 99  
Saturday  Dakota C  
Grade Level: K-5  Math  

Presenter:  Gregory Trieste  
Houghton Mifflin Harcourt  
Gregory.Trieste@hmhco.com  
www.hmhco.com  

Math Expression 2018  
Math Expressions 2018 is a research-proven curriculum that encourages students to explore math in a hands-on, digital and discussion based environment. Content is focused on essential core concepts connecting coherence between grade level topics providing gains in deep conceptual understanding, fluency with procedures and the ability to apply understanding to solve problems.

1:00-1:50 PM  Session: 100  
Saturday  Dakota D  
Grade Level: 5th-12th  Math  

Presenter:  Mark Kreie  
Brookings High School  
Mark.Kreie@k12.sd.us  
https://markkreie.blogspot.com/

The “New” Smarter Balanced Embedded Calculators  
Students taking the online South Dakota Smarter Balanced math assessment will have access to embedded Desmos calculators. In this hands-on session, participants will increase their level of comfort using the calculators. This session is intended for grades 5-12 teachers & Desmos users of all abilities. Bring an iPad or laptop.  

SATURDAY  1:00 PM
1:00-1:50 PM  Session: 101  
Saturday  Dakota E  
Grade Level: 6th-8th  Math  

Presenter:  Shana Ward & Brittany Hausmann  
Rapid City Area Schools  

THINK-PAIR-SHARE SUCCESS!  
Using a very intentional strategy, students learn to share ideas and how to talk to one another about their thinking.

1:00-1:50 PM  Session: 102  
Saturday  Dakota F  
Grade Level: 6th-12th  Science  

Presenter:  Katie Anderson, Dakota State University SD Discovery Center/SD EPSCoR  
& Rhea Waldman, SD Discovery Center/SD EPSCoR  
Katie.Anderson@dsu.edu  
sdepscor.org/edportal/  

Made by Teachers for Teachers - Education Portal – Connecting Research to the Classroom  
Get your students excited about STEM and connect them to SD scientists using a new FREE resource! The education portal is a powerful tool that offers curriculum modules aligned with the new science standards, that include engaging, hands-on activities and connections to actual SD scientists and their current research.  

Repeat of Session 72

SD-Discovery.org
SATURDAY  1:00 PM

1:00-1:50 PM  Session: 103  Dakota G  Science

**Presenter:** Dr. Marie Steckelberg of Steckelberg Consulting & Michelle Bartles of Hamlin Middle School
marie@steckelbergconsulting.com
www.SteckelbergConsulting.com

_It’s Phenomenal_  
Phenomena – what and where are they? Why are they a key component for the teaching of science? Join us for a phenomenal exploration to finding answers to these questions!

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1:00-1:50 PM  Session: 104  Dakota H  Math

**Presenter:** Dr. Donald Teets & Dr. Donna Kliche  
South Dakota School of Mines

_Computational Astronomy for Teachers and Their Students_  
This presentation will describe a two-day workshop for math and science teachers, to be offered Spring, 2018 at SDSMT. The workshop will offer curriculum ideas in the area of space science. Workshop participants will receive one graduate credit, with tuition paid from a NASA grant.

---

1:00-1:50 PM  Session: 105  Salon 1  

**Presenter:** Michele Cozza, STEMcoach  
mcozza@acceleratelearning.com

_Using Argumentation Discussing Phenomena - Increasing Student Voice STEM_  
Reduce teacher talk and increase purposeful student talk as we model consensus building through argumentation around intriguing science phenomenon that matter. ELA skills and the 21st Century Skills of communication and collaboration are a must in the STEM classroom!

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SATURDAY  2:00 PM

2:00-2:50 PM  Session: 106  Prairie A  Math & Science

**Presenter:** Marcie Welsh & Jamie Tucker  
Brookings High School  
Marcie.Welsh@k12.sd.us

_Classroom Review and Formative Assessment_  
Learn about and experience several ways to do in-class review and formative assessment with your students. Activities and strategies range from digital to pencil-and-paper and from whole class, timed competitions to individual and self-paced.

---

2:00-2:50 PM  Session: 107  Prairie B  Math

**Presenter:** Sharon Rendon & Julie Jackson  
CPM Educational Program  
sharonrendon@cpm.org  
www.cpm.org

_Using Manipulatives and Investigations to Teach Geometry Highlighting the Math Practices_  
Participants will use hinged mirrors to look at polygons and similar triangles, rubber bands to explore dilations, patty paper to look at characteristics of shapes-mostly quadrilaterals, paper plates to fold and find shapes and angles and linear relationships, and other manipulatives, as well as interesting problems to develop and apply geometry concepts and review vocabulary. Topics include similarity, triangle heights, transformations, central angles, polygons, area, and more.
SATURDAY  2:00 PM

2:00-2:50 PM       Session: 108
Saturday          Prairie C
Grade Level: 9th-12th  Math & Science

Presenter:  Sheila McQuade
            O’Gorman High School
            smcquade2@sfcss.org

Using the Flipped Classroom to teach Geometry
I have had some great success using the flipped classroom model but have also encountered some pitfalls along the way. In this session I will share what the flipped classroom looks like for my classes and as well as some tips to help you get started "flipping" your classes.

2:00-2:50 PM       Session: 109
Saturday          Dakota A
Grade Level: K-12   Science

Presenter:  Anne Lewis
            South Dakota Discovery Center
            AnneLewis@sd-discovery.org
            www.sd-discovery.org

A Primer on Teaching (and Understanding) Climate Change
Students, their families and community members often look to teachers, particularly science teachers, to help them understand climate change. In this session we will delve into the science as to why the IPCC says CO₂ is the major driver of climate change, what are trustworthy websites, and what to do about denialists.

What do you call an educated tube?
A graduated cylinder.

Hope to see you here next year!

SATURDAY  2:00 PM

2:00-2:50 PM       Session: 110
Saturday          Dakota B
Grade Level: 6th-8th  Math

Presenter:  Susan Gilkerson
            Rutland
            Susan.Gilkerson@k12.sd.us

Google Classroom for Ipads
Learn how I have implemented Google Classroom to create an almost paperless math room.

2:00-2:50 PM       Session: 111
Saturday          Dakota C
Grade Level: K-8   Science

Presenter:  Benjamin Benson
            Sanford Research: Sanford PROMISE
            SanfordOutreach@sanfordhealth.org
            www.sanfordresearch.org/education

Modeling Structure and Function
Looking for ways to provide students with experiences in modeling? Students learn more about themselves and the way they work through building and interacting with models of body structure and function using art supplies and candy. Free supply kit to first 18 attendees at this make and take session.

2:00-2:50 PM       Session: 112
Saturday          Dakota D
Grade Level: 6th-12th  Science

Presenter:  Julie Olson
            Mitchell Senior High
            Julie.Olson@k12.sd.us

Drones
Drones - Learn about what we've been doing since receiving a grant from the South Dakota Space Grant Consortium.

Why should you never serve beer at a Math Party?
Because you can't drink and derive.
SATURDAY  2:00 PM

2:00-2:50 PM  Session: 113
Saturday  Dakota E
Grade Level: K-5  Math

Presenter:  Diane Wimp
Rapid City Area Schools
Diane.Wimp@k12.sd.us

Making the Most of the Last Ten Minutes of Math
This session will cover the debrief portion of the math lesson. You will learn how to pick work to share, how to let your students do the talking, and how to make sure students are delving into Standards 3, 7, and 8 of the Standards for Mathematical Practice.

2:00-2:50 PM  Session: 114
Saturday  Dakota F
Grade Level: 9-12 & Postsecondary Math

Presenter:  Dr. Margaret Adams
South Georgia State College
DrMargaretAdams@gmail.com

Patterns of Misconceptions about Functions among High School Students and Traditional Freshman Enrolled in College Algebra
What grades 8-12 students learned about functions differs from what they recall in college algebra. Presented are written, open-ended prompts revealing conceptions of function definitions, domains, and properties of one-to-one, piecewise and rational functions. Misconceptions have implications for mathematical applications in particular majors and with more advanced study of mathematics.

2:00-2:50 PM  Session: 115
Saturday  Dakota G
Grade Level: 9th-12th  Science

Presenter:  Bree Oatman
Lead Deadwood School District
Bree.Oatman@k12.sd.us

Sparking Understanding of Electron Configuration
Participate in several interactive games and modeling activities that help students conceptualize electron configuration.

SATURDAY  3:00 PM

3:00-3:30 PM  Session: 117
Saturday  Prairie A

Science Wrap-up and Reflect
Join SDSTA leadership and offer your feedback from the conference and recommendations for future events. Turn in your survey for a chance to win conference registration to the 2019 Conference on Math/Science Education

3:00-3:30 PM  Session: 118
Saturday  Prairie B

Math Wrap-up and Reflect
Join SDCTM leadership and offer your feedback from the conference and recommendations for future events. Turn in your survey for a chance to win conference registration to the 2019 Conference on Math/Science Education

SATURDAY  4:00 PM

4:00-6:00 PM  Session: 119
Saturday  Prairie A

Board Meeting
SDSTA & SDCTM Officers and Conference Leadership meet to discuss current conference outcomes and strategize for upcoming event(s).
Representatives will be exhibiting on Friday from 8:00 AM until 5:00 PM and most will be available till noon on Saturday. These include:

Black Hills Raptor Center  
Black Hills Raptor Center  
John Halverson

CPM Educational Program  
CPM Educational Program  
John Halverson

Ground Works Midwest, Sioux Falls  
Ground Works Midwest, Sioux Falls  
Julie Jackson

Houghton Mifflin Harcourt  
Houghton Mifflin Harcourt  
Sharon Rendon

Nano-Link: Center for Nanotechnology Education  
Nano-Link: Center for Nanotechnology Education  
John Halverson

National Science Teachers Association  
National Science Teachers Association  
Julie Jackson

Sanford Research: Sanford PROMISE  
Sanford Research: Sanford PROMISE  
Sharon Rendon

Sanford Research  
Sanford Research  
John Halverson

South Dakota Discovery Center  
South Dakota Discovery Center  
Julie Jackson

South Dakota School of Mines  
South Dakota School of Mines  
John Halverson

South Dakota State University  
South Dakota State University  
John Halverson

STEMscopes - Accelerate Learning  
STEMscopes - Accelerate Learning  
John Halverson

Technology and Innovation in Education  
Technology and Innovation in Education  
John Halverson

*Thanks to all Vendors and Exhibitors for their donations of door prizes
*Name Tag Lanyards are compliments of Sanford PROMISE

South Dakota Science Teachers Association Business Meeting  
South Dakota Science Teachers Association Business Meeting  
South Dakota Science Teachers Association Business Meeting  
will be held in Dakota G  
will be held in Dakota G  
will be held in Dakota G  
at 4:30 pm on Friday, February 9, 2018  
at 4:30 pm on Friday, February 9, 2018  
at 4:30 pm on Friday, February 9, 2018

SD Council of Teachers of Mathematics Business Meeting  
SD Council of Teachers of Mathematics Business Meeting  
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will be held in Dakota C  
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at 4:30 pm on Friday, 9, 2018  
at 4:30 pm on Friday, 9, 2018  
at 4:30 pm on Friday, 9, 2018

Graduate Credit

Conference credit will be offered through Dakota Wesleyan University. You may register for one hour of credit at the 599 level. You will be required to attend 15 hours of the conference in order to earn graduate credit from Dakota Wesleyan University, along with other requirements as listed in the syllabus. You will be able to register online at: https://store.dwu.edu/NonDegreeCredit. Select course EDU 599 SDCTM/SDSTA A syllabus listing course requirements, along with the hours log, will be available on the conference Wiki page or at the registration table at the conference. For more information, contact Dr. Ashley Digmann at (605) 995-2891 or asdigman@dwu.edu.

Next year’s conference will be **February 7, 8, & 9, 2019**
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dpeursem@usd.edu
2018 Mathematics and Science 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:

Content Area:  Math  Science  Both
Grade Band:  Elementary  Middle School  High School

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.

___________________________________________________
Name

___________________________________________________
Address

___________________________________________________
City, State, Zip Code

- 35 -
Please fill out your evaluation of the conference. We want next year’s to be even better.

Do you use Twitter.com? Use #SDMathSci to see other tweets or to make your own.

Did you miss a handout? The presenter may have posted it on our Conference Wiki:
https://2018-sdctm-sdta-pdc.wikispaces.com/
The 2018 Conference Committee would like to offer a Special Thanks to …

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

for helping provide refreshments throughout the conference.

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.

A SPECIAL THANKS GOES TO THE FOR HELPING US WITH PROJECTORS!
(This year’s TIE Conference is April 15-17, 2018 in Sioux Falls.)

Next year’s Math & Science Conference will be February 7, 8, & 9, 2019.

The 2018 Spring Conference is a joint venture of the South Dakota Science Teachers Association (SDSTA) and the South Dakota Council of Teachers of Mathematics (SDCTM).

{Also known as South Dakota Mathematics & Science Joint Professional Development Conference or SD JPDC}

Note: There is a common registration form for the conferences. One form is used to register for all activities, including SDSTA and SDCTM memberships.

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<thead>
<tr>
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<th>SDSTA or SDCTM members</th>
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<th>Students</th>
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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.

Because of a limited printing budget, the program was available in advance at the SDCTM website [www.sdctm.org] or SDSTA web site [www.sdsta.org]. Printed programs were not mailed, but were distributed on site with the registration materials.