



Wahpe Woyaka pi (Talking Leaf)

South Dakota Council Teachers of Mathematics Newsletter

Presidential Ponderings

Greetings to All

Once again summer proved to be informative, productive, and relaxing. Spending time with family and friends is always a favorite activity of mine but it would not be complete without having the opportunity to grow professionally while participating in a couple of math projects. In June and July, over 50 math educators and other stakeholders met in Pierre to unpack the newly adopted Mathematics Content Standards for South Dakota. Participants exhibited a passion for their craft that is beyond compare and their professionalism and dedication will no doubt impact mathematics education in South Dakota for years to come. The goal now is to begin “capacity building” (implementation of the new standards) in 2018 with full implementation of the revised mathematics standards in the school year 2019-2020. The new assessment instrument is planned for use in Spring 2020 with grades 3-8, and 11. You can access the proposed timeline online at <https://doe.sd.gov/contentstandards/documents/18-Timeline.pdf>.



In July, Smarter Balanced and Measurement Incorporated held an item review/writing workshop in Chicago. The intent was to help prospective item writers become more aware of the different claims, targets, and item specifications aligned to Common Core State Standards. South Dakota was represented by nine classroom teachers. In grade-level groups we discussed more than 120 items. We were charged with making sure each item was clear, concise, correct and properly aligned before it entered the pool of field test items. This process was time consuming but I left with a greater knowledge of the Smarter Balanced Mathematics Quality Criteria such as claims, targets, item specifications, standards, depth of knowledge, average quintile, and accessibility. Each participant was assigned to write at least 14 items on their own at home after this workshop. If you have not been involved in item writing, item review, data review, or setting cut scores and you would like to “dip” your toes into the water so to speak, contact the South Dakota Department of Education. I know that Smarter Balanced and Measurement Incorporated like to recruit a certain percentage of people for its projects that are new to the process. In Chicago there was a nice mix of beginners and veterans of the item writing/review processes.

Over the summer the Smarter Balanced Digital Library went through a major revision making it more accessible and usable for teachers. If you have not visited the Smarter Balanced Digital Library to find lessons for use in your own classroom, I strongly recommend it (<https://www.sbdigitallibrary.org/>).

Another great professional development opportunity held this summer was the SDCTM Summer Symposium. On July, 24 teachers attended the Symposium whose topic was “Facilitating Productive Classroom Conversations Using Desmos”. Participants experienced Desmos activities through a student lens and learned how to utilize the teacher dashboard and classroom conversation toolkit to facilitate individual and collaborative student thinking. Mark Kreie provided a wealth of information, ideas, and an appropriate amount of time to explore during the day-long symposium held at Dakota Wesleyan University. SDCTM hosts this symposium each summer so be on the lookout for information regarding the 2019 Symposium in our newsletters and email via DOEMATH, ZEBRA, and Ruth Raveling. Is there a specific topic that would entice you to join us at next year’s SDCTM Symposium? Is there a specific presenter you have enjoyed and would like to hear again? Please send your ideas and suggestions to Crystal McMachen (Crystal.McMachen@k12.sd.us) and symposium chairman Jay Berglund (jay.berglund@k12.sd.us).

Speaking of ideas, please consider presenting a session for February’s 27th annual SD STEM Ed conference (formally called the SDCTM/ SDSTA Professional Development Conference; same event but new name) to be held February 7-9, 2019. Think about some of your great classroom ideas and put together a session to share with teachers at your grade level. If you feel a little intimidated, just know that at our conference you can always count on a friendly and supportive audience. A successful conference depends on quality sessions! Speaker proposal forms are available online at <http://bit.ly/SDSTEMEd> or at www.sdctm.org under “Annual Conference” on the left hand side. Proposals are due October 31, 2018 (late proposals will not be considered), and can be submitted electronically.

SUMMER 2018

Wahpe Woyaka pi

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Calendar Notes:

- *Daktronics Math Teacher of the Year App Due December 1, 2018*
- *SD STEM ED Speaker Proposals Due October 31, 2018*
- *Marian Fillbrandt Scholarship Applications Due Decemeber 1, 2018*
- *SD STEM Ed Conference Registration Due January 20, 2019*

continued



Presidential Ponderings, *continued*

This year is an election year for SDCTM! At the 2019 SD STEM Ed Conference in Huron, SD we will be electing officers for two-year terms on the Executive Board. If you are interested in becoming more active in your professional organization, please let Crystal McMachen (Crystal.McMachen@k12.sd.us) know so that your name can be added to the ballot. If you know someone who would be a great candidate and be able to fulfill SDCTM's expectations for its officers, please nominate them after first confirming their willingness to serve. Positions that will appear on the ballot are: President-Elect, Vice-President, Secretary, Treasurer, and NCTM Representative. To view expectations for each of these positions, please visit <http://sdctm.org/officers.htm> and click on the job descriptions on the left-hand side.

During our business meeting at the STEM Ed Conference we will also be voting on a bylaws revision to represent the change in Joint Professional Development Conference leadership. The change is noted with a strike-out in the second sentence and is due to the fact that the registrar is now appointed by the JPDC.

Article I Section II. Vice-President

The Vice-President shall perform the duties of the President in his/her absence. ~~The Vice President shall also act as registrar and conference co-chair on the program committee for the annual spring conference.~~

Best Wishes for a GREAT school year!

Allen Hogie
SDCTM President

SD STEM Ed Conference

Save the Date! The 27th Annual Joint Conference will be Feb. 7-9, 2019. After careful consideration by the SDCTM/SDSTA joint board, the decision has been made to change the joint SDCTM/SDSTA conference title to SD STEM Ed Conference. STEM is more inclusive for subject areas including math and science, but also engineering, CTE, and computer science. Additionally, STEM professional development has become a priority in the budgets of many districts and departments.

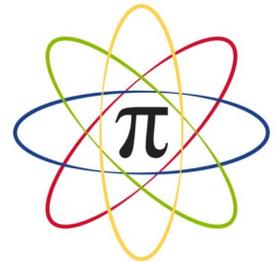
Cindy Kroon
Conference Chair
Cindy.Kroon@k12.sd.us

Advance Registration Option 1: You may print the conference registration form found online or on page 17 of this newsletter and mail it with your payment to Sheila McQuade. Advanced registration must be postmarked by **January 20, 2019**.

Advance Registration Option 2: You may register on-line with a google form found on the SDCTM and SDSTA websites or by using this link: <https://goo.gl/forms/Uz0UzwMnNjwTkdv2>
Online registration closes January 20, 2019 - all online registrations must be paid by **January 22, 2019** or they *will be cancelled*.

On-site registration On-site registrations will continue to be an option but will be charged a \$35 late registration fee. *A limited number of banquet tickets will be available — there is not a guarantee of available banquet tickets with on-site registrations.*

“At the 2019 SD STEM Ed Conference...we will be electing officers for two-year terms on the Executive Board.”



Registration Deadlines:

- * *Advanced, mail-in registrations—
1/20/19*
- * *Advanced, on-line registrations—
1/22/19*
- * *Late, on-site registrations—
incur a \$35 late fee*



Higher Ed Viewpoint

Welcome back to school everyone. The new year is now well under way and hopefully students have settled into their new routine of a school schedule and time management instead of all the free time that summer has to offer them. It is hard to believe that as I am typing this newsletter, we are already 5 weeks into the semester on campus.

To be honest, I do not have that much to report to you yet as our Math Discipline will meet later this semester. After that meeting, I will have a better grasp on information I had mentioned in a previous newsletter about math placement and courses for students that place into developmental math courses. By then we should also have more information on offering graduate math courses for faculty wanting to gain certification to teach dual credit courses in your high schools. Those are both on the agenda for the upcoming meeting so I should have more to report to you in our spring newsletter and possibly at a session of our annual SDCTM conference in Huron.

In the near future, we should hear official numbers on enrollment at our public universities in SD. Given stagnant high school populations, we need to strive to attract more of our students to stay in state for their education and strive to attract students from other states to come here for their college education. Our campuses put a lot of effort into both of these areas as well as retention. We continue to assess and revamp curriculum to make sure it is relevant and up to date with current best practices. However, I know that I am preaching to the choir here. After all, that is what we do in education.

I truly wish you all the very best in your new semester and hope to see you in Huron this spring.

Sincerely,

SDCTM Liaison to Higher Education
Professor and Dept. Chair
The University of South Dakota

McCann Scholarship

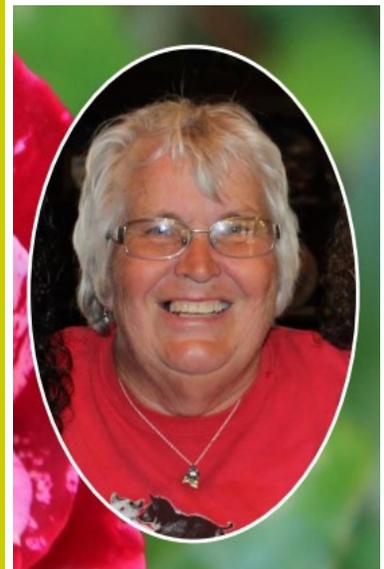
A scholarship in memory of long time SDCTM member and officer Diana McCann has been established for the benefit of college students preparing to become a math teacher. Rising seniors studying math education at any post secondary institution in South Dakota are eligible. The scholarship will be awarded at the annual SDCTM/SDSTA Conference.

Donations to the McCann Scholarship can be sent to:
Security State Bank
1600 Main Street
Tyndal SD 57066.

One hundred percent of all donations will be used to fund the scholarship.



“...more information on offering graduate math courses for faculty wanting to gain certification to teach dual credit courses in your high schools.”





Musings from Crystal

Happy Autumn!

What a great time of year! The air is crisp, the leaves are changing, and the kids are still excited about being in school!

This year, I am going to try to spice up my math classroom with more art projects. My school is going to a 90-minute block schedule and this is the first time I have ever taught in a block situation. As middle school teachers know, keeping a student's attention for an entire class period is rough. So, keeping one for 90 minutes is even worse. I need to switch things up every 20 or 25 minutes to keep the students engaged and learning. I have concluded that I need even more interactive type activities to break up the time and keep students interested in the mathematics.

While searching, I found an activity called Symmetric Faces and figured it

would be a great Halloween themed activity. I teach 8th graders and we work with transformations. Knowing about symmetry helps aid in our conversations about the different types of transformations. Symmetric Faces could be a great

way to introduce students to the concept of symmetry or refresh what they had learned in previous grades. The idea is simple enough and only requires construction paper, scissors, and glue. The original post and activity can be found at <http://www.mathwire.com/seasonal/symface.html>



Until next time...

Crystal McMachen
President-Elect
Crystal.McMachen@k12.sd.us



“...interactive activities to break up the time and keep students interested in the mathematics.”

Curses!
FOIled
again!

$$(x + 3)(x^2 + 2x - 6) = x^3 + 3x^2 - 6x - 18$$



Mark's Thoughts

NCTM Regional Conference in Kansas City

Welcome back! I hope each of you has had a great start to the school year. As your NCTM Representative, I would like to invite you to attend the NCTM Regional Conference and Exposition in Kansas City on November 1-3. The conference features over 200 sessions centered on the following strands:

- Technology and Tools
- Assessment
- Innovations in Integrated Learning
- Professionalism: Collaborating and Growing Together
- Reaching Each and Every Learner: Student Agency, Ownership, and Identity
- Curriculum: Making Connection
- Teaching & Learning: Engaging Students in Meaningful Learning
- Celebrating Differences: Access, Equity, and Empowerment
- Specializing Education: Access, Equity, and Empowerment

Not only is conference a great place to learn and gather new resources and ideas, it also provides an opportunity to connect and share with colleagues from the region. Early bird rates end on October 18. For more information, visit <https://www.nctm.org/kansascity/>. I hope to see you there!

Mark Kreie
NCTM Representative
Mark.Kreie@k12.sd.us



“..it also provides an opportunity to connect and share with colleagues from the region.”

Share the Wealth

South Dakota Teachers are some of the most creative, dedicated professionals. Whenever I have the opportunity to visit with our teachers, I always hear of a project or lesson idea that I could use in my classroom. I invite you to share your wealth of ideas with our membership. Please consider submitting a favorite idea, lesson, activity... for publication in our newsletter.

Send submissions to:

Sheila McQuade, SDCTM Newsletter editor (smcquade2@sfcss.org).





A Word from Nicol

Greetings from the Department of Education! I hope your school year has started off well! I always look forward to this time of year as fall is my favorite season of the year with the coming of cool weather and the routine of back-to-school. Watching my own children work their way through the math curriculum year by year has taught me many things about K-12 mathematics education outside of what I learned in my own classroom, and I have enjoyed re-learning the intricacies of the mathematics each year. This year will not be any different as both my son in Algebra II and my daughter in her senior year of calculus continue to build their understanding of mathematics. (I wonder how much calculus I will remember...) Since my daughter is a senior this year, we are traveling to colleges to make final decisions, and she is planning to study mathematics and physics, which makes this “Math Mama” extremely happy.

The summer of 2018 was a very busy summer for mathematics education in South Dakota! More than 50 educators from across the state came together for 6 full days of collaboration and work to create the Unpacked Mathematics Standards documents that will support our newly adopted South Dakota Mathematics Standards. Those six days of collaboration and creation were filled with exploration, debate, research, and learning to create a set of documents to support K-12 mathematics educators across the state. I was constantly inspired and so grateful for the time that those educators sacrificed from their summer break to share their expertise and engage in a very complex, but rewarding process.

In order for students to have the best chance of success, standards, assessment, curriculum resources, and instruction must be aligned in focus, coherence, and rigor. The Unpacked Mathematics Standards documents are intended to help align instruction to the focus, coherence, and rigor of the South Dakota State Mathematics Standards adopted in the Spring of 2018. The Unpacked Mathematics Standards documents organize grade level and course level standards into clusters and weave them into focused progressions to help teachers and students understand and learn the underlying framework that is the beauty of the discipline of mathematics. The documents for each grade or course clarify what conceptual understandings students should walk away with in a learning experience, which procedural fluencies students should master, and what applications are relevant in the learning of each cluster of standards. The documents support teachers in identifying the connections that exist between the mathematics in each standard cluster, prior student learning, and the future learning that will be built upon the current understandings. The documents also clarify where students should spend the large majority of their learning time (major work of the grade or course) and which mathematics standards are meant to support students in the major work of the grade or course. The set of documents are a treasure trove of information to help teachers understand and teach mathematics deeply. I am so excited for the beginning of October when they will be officially published on the DOE website. When they are officially posted, I will be sure to put announcements out to the SDCTM membership and the DOEMath Listserv. If you are not yet a member of the DOE-Math Listserv, please email me at nicol.reiner@state.sd.us so that I can add you to the group.

At the Department of Education, we are currently in the process of submitting a request for proposals (RFP) for the summative assessments that will be used in South Dakota schools beginning in the Spring of 2020. Our current contract using the Smarter Balanced Assessment System concludes at the end of the 2018-19 school year. As the RFP is still being refined, there are few details to share, but please watch for more information as we work through the process of determining if the Smarter Balanced Assessment System or another assessment system will provide South Dakota with its summative assessments.

As always, please contact me if you have any needs or questions.

Nicol Reiner
nicol.reiner@state.sd.us



“...standards, assessment, Curriculum resources, and instruction must be aligned in focus, coherence, and rigor.”



6 - 8 Highlights

We are thankful to Sarah Gross for her service to our organization as the Middle School Liaison. We appreciate all that she has contributed and for the insights in to working with middle school students that she has shared.

Molly Ring will be the new Middle School Liaison. Molly teaches at Brandon Valley Middle School. Molly will share more personal information in the January edition of the newsletter. Welcome Molly!



*Molly Ring,
SDCTM Middle
School Liaison*



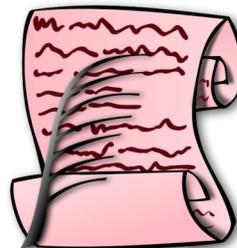
Marian Fillbrandt Scholarship

Marian Fillbrandt graduated from South Dakota State in 1933 with a Mathematics major. She spent many years teaching math and science. She established the Fillbrandt Endowment at South Dakota State to help South Dakota math and science teachers. A committee of faculty, along with Jeff Nelson with the SDSU Foundation, has determined that this endowment can be best utilized by providing \$400 stipends to second through fifth year math and science teachers to attend the SDSTA/SDCTM conference (SD STEM Ed Conference). This will allow new teachers in rural areas to interact with their colleagues with similar professional interests. The application deadline is December 1, 2018. The \$400 stipend is intended to defray the costs of conference registration, accommodations, a substitute teacher for the Friday of the conference if a district will not provide one, and other costs associated with conference attendance. If you are selected for this stipend, you will be required to write a brief report at the end of the conference stating how the stipend benefited you and what you learned at the conference that you plan to use in your classroom. If you are selected, but are unable to attend for some reason, the stipend money will be returned to the endowment fund. The selection committee will take financial need into account during the selection process.

To apply, complete the survey at:

<http://fillbrandt-teacher-stipend.questionpro.com/>

“The \$400 stipend is intended to defray the costs of conference registration, accommodations, a substitute teacher for Friday...and other costs associated with conference attendance.”





2016 Presidential Awards for Excellence in Mathematics and Science Teaching

PAEMST Background:

The PAEMST program was established in 1983 by the White House and is sponsored by the National Science Foundation. The award is the nation's highest honor for math and science (including computer science) teachers. The program identifies outstanding math and science teachers in all 50 states and four US jurisdictions.

Awardees each receive a \$10,000 award, a paid trip for two to Washington, DC to attend a week-long series of networking opportunities and recognition events, and a special citation signed by the President of the United States.

This year's cycle will recognize outstanding **secondary teachers in grades 7 - 12**. The application deadline will be **May 1, 2019**. Nominations will begin to be accepted in late October or early November. You can nominate a deserving teacher by visiting www.paemst.org once the portal opens this fall.

Other than this, why would someone want to complete the application process?

Three CEU's from the South Dakota Department of Education can also be earned toward certificate renewal by completing the application process. To be eligible, a PAEMST candidate must complete all components of the application process and submit a scorable application that can be sent on to the state selection committee. All applicants submitting a scorable application will earn credit, not just the state finalists whose materials will be sent on to a national selection panel.

The PAEMST application consists of three components: Administrative, Narrative, and Video. The components allow the applicant to provide evidence of deep content knowledge and exemplary pedagogical skills that result in improved student learning. After eligibility is confirmed and technical specifications are met, each application will be evaluated using the following five Dimensions of Outstanding Teaching:

- Mastery of mathematics or science content appropriate for the grade level taught.
- Use of instructional methods and strategies that are appropriate for students in the class and that support student learning.
- Effective use of student assessments to evaluate, monitor, and improve student learning.
- Reflective practice and life-long learning to improve teaching and student learning.

Leadership in education outside the classroom.

Do you know an outstanding mathematics or science teacher? Nominate them this fall.

If you have any questions, please contact:

Allen Hogie

SD PAEMST Mathematics Coordinator

Allen.Hogie@k12.sd.us



Rewarding & Inspiring
Great Teaching

Since 1983



201 Daktronics Outstanding Mathematics Teacher Award

Daktronics, in conjunction with the South Dakota Council of Teachers of Mathematics, is pleased to sponsor the Daktronics Outstanding Mathematics Teacher Award in the state of South Dakota. The recipient of this award receives a plaque and a \$1000 cash award to support the award winner's efforts to teach mathematics with equipment or perhaps help to attend a conference or workshop. Middle school and high school teachers, who spend at least 50 percent of their schedule teaching mathematics, are eligible for this award. Application information is available at <http://www.sdctm.org/>

AWARD SUBMISSION REQUIREMENTS

- 1.) A maximum two page, 12 font resume, which includes the following:
 - a) Personal information, including name, telephone numbers, email, addresses, etc.
 - b) Beginning with the most recent, list colleges and universities attended including post-graduate studies. Indicate degrees earned and dates of attendance.
 - c) Beginning with the most recent, list teaching employment history indicating time period, grade level and subject area.
 - d) Beginning with the most recent, list professional association memberships including information regarding offices held and other relevant activities.
 - e) Beginning with the most recent, list staff development leadership activities or other professional activities.
 - f) Beginning with the most recent, list awards and other recognition of your teaching.
- 2.) A maximum two page, 12 font, double spaced, personal essay that includes but is not limited to the following topics: 1.) Describe how you have inspired students in your mathematics class. 2.) Describe innovative teaching techniques involved in your classes 3.) Describe what types of technology are used in your class. 4.) Describe any professional development, as it pertains to mathematics, you have been involved in. 5.) Describe how you have helped students attend classes/workshops/contests/quiz bowls that pertain to mathematics or engineering or how you have helped students incorporate mathematics outside the classroom. (For example, MathCounts, math club, etc.)
- 3.) Provide 4 letters of recommendation one each from an administrator, parent, colleague, and student or former student. Recommendations must be dated and contain contact information for the writer. They are limited to one page, double spaced, one inch margins, and must be in 12 font. It is important that the information be as detailed as possible to adequately evaluate each application/nomination.
- 4.) The completed resume and recommendations need to be included in one file in either a word or PDF file in the order they are outlined above and emailed to Paul Kuhlman at paul.kuhlman@k12.sd.us.

The packet must be received by **December 1, 2018**

- 5.) The recipient for the 201: Daktronics Outstanding Mathematics Teacher Award will be announced at the **2019 SD STEM Ed Conference in Huron SD (hosted by SDCTM and SDSTA)**.
- 6.) **Completed applications will be kept on file for 3 years from the date of original submission.**
After 3 years, applicants must complete and submit a new application to be considered.



“GOEHRING/VGKTZ LEADERSHIP SCHOLARSHIP”

“The Goehring/Veitz Leadership Scholarship” has been established to encourage new teachers of math and science to become professionally involved on the state level. The scholarship, which is good for a free one or two day registration at the Joint Conference of the South Dakota Council of Teachers of Mathematics and the South Dakota Science Teachers Association, is available to any teacher who meets each of the following criteria:

- Is a K-12 teacher of math or science who is in the first year of teaching in SD
- Is a member of SDCTM and/or SDSTA Applicants must pay their own dues to the chosen organization.

The application process is simple. Fill out the form below, have it signed by the building principal, and mail it to Steve Caron along with the regular conference registration form which is available at www.sdctm.org.

APPLICATION “GOEHRING/VGKTZ LEADERSHIP SCHOLARSHIP”

Name: _____

School District: _____

Teaching Assignment: _____

Membership Information:

_____ I am already a member of SDCTM SDSTA (Circle one or both)

_____ I am joining SDCTM and/or SDSTA (Circle one or both)

I am enclosing a check for

_____ \$5.00 for Elementary Math and/or \$5.00 for Elementary Science

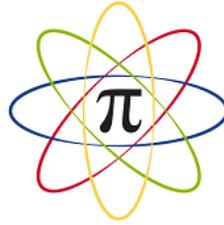
_____ \$20.00 for MS/HS Math and/or \$20.00 for MS/HS Science

(Name) _____ is in his/her first year of teaching in SD at
_____ School District during the _____ school
year and is thus eligible for ‘The Goehring/Veitz Leadership Scholarship.’”

Signed: _____, Building Principal

2019 SD STEM Ed Conference

Hosted by SDCTM and SDSTA



Conference information and program booklets will be available online at www.sdctm.org and www.sdsta.org

ADVANCE REGISTRATION

Huron Event Center, Huron South Dakota
February 7-9, 2019 1-800-876-5858

Download and complete this form. Postmark by January 20, 2019. After this date, please register on-site (+\$35)

Name _____

Permanent Address _____

City _____ State _____ Zip _____

School/District _____ E-mail _____

Home phone _____ School Phone _____

1. SDCTM/SDSTA MEMBERSHIP(s) and DUES

Please check the appropriate categories. You may join one, both, or neither organization.

Begin/renew SDCTM (math) for one year	Begin/renew SDSTA (science) for one year
Elementary \$5	Elementary \$5
Middle School \$20	Middle School \$20
High School \$20	High School \$20
Post-Secondary \$20	Post-Secondary \$20
Student \$5	Student \$5
Retired \$5	Retired \$5
Other \$20	Other \$20

NOTE: First year teachers are eligible for a scholarship providing a free registration. See www.sdctm.org for details.

2. CONFERENCE ADVANCE REGISTRATION (+ \$35 On-site/after Jan. 20)

Please select the appropriate categories. Noon luncheon is included for each day that you register.

NOTE: The Friday night banquet is NOT included. Banquet tickets may be purchased for \$25 each.

I will attend the conference on (check one): Friday Saturday Both days

SDCTM or SDSTA Member	Non-Member	Retired / Student Member
One day \$55	One day \$105	One day \$15
Two days \$80	Two days \$130	Two days \$25

College credit will be available; information/registration will be available at the conference registration table.

3. PAYMENT: By Check Only

Make checks payable to SDCTM/SDSTA JPDC.
SD STEM Ed does NOT accept purchase orders.
To use credit card, you **must** register and pay ONLINE:

Membership(s) total	\$ _____
Registration	\$ _____
Friday Night Banquet (\$25 each)	\$ _____
On-site Late Registration Fee (+\$35)	\$ _____

TOTAL ENCLOSED \$ _____

Requests for refunds must be received by January 20, 2019
The conference does not issue refunds due to weather events.

4. SEND THIS FORM WITH PAYMENT

Sheila McQuade
5423'UMly cplk'*****School phone (605) 336-3644
Sioux Falls, SD 57107 Home phone (605) 373-1803
If you j cxg"not receivef go krl'confirmation"qh'tgi kutcvkpp
after one week, please contact:"uo es wcf g4B ureuQti 0

Advance registration must be postmarked by **January 20, 2019.**
After this date, please register on-site (Additional \$35 fee).

Please check here if you have also submitted a speaker proposal form for the 2019 Conference.

Contact SD STEM Ed with any special needs requests as defined by ADA by emailing cindy.kroon@k12.sd.us by January 20, 2019.

Your contact information may be shared with Conference Exhibitors/Sponsors. Check here to opt out of sharing your contact information.



**SOUTH DAKOTA
STATE UNIVERSITY**

Jerome J. Lohr
College of Engineering

WORKSHOP FOR HIGH SCHOOL GIRLS ONLY – GRADES 9 - 12

ready.SET  **.go!**
[science. engineering. technology.]

November 3, 2018 SCHEDULE

9:00-9:30

Registration

9:30-9:45

Welcome

10:00-11:55

Session One

11:55- 12:55

Lunch

12:55-2:35

Session Two

2:35-3:05

Ice Cream Break!!

3:05-4:45

Session Three

4:45-5:00

Closing Ceremony



STUDENT SESSIONS

	SESSION ONE	SESSION TWO	SESSION THREE
BLUE	Civil Engineering	Computer Science	Ag & Bio Engineering
YELLOW	Computer Science	Ag & Bio Engineering	Civil Engineering
RED	Ag & Bio Engineering	Civil Engineering	Computer Science

LOCATIONS: Civil Engineering - CEH 249
Computer Science - DEH 118
Ag & Bio Engineering - CEH 121

SESSION: Going With the Flow, Engineering Systems for Better Water Management

Water is critical to life and everyone impacts water in one form or another. In this session you will investigate engineering strategies to manage urban stormwater in a way that improves water quality, reduces flooding, and preserves or enhances habitat. The theme of the day will be low impact development (LID) also referred to as green infrastructure. Best management practices that fall under the LID umbrella are bioretention or rain gardens, pervious pavement, green roofs, bioswales, and rainwater harvesting. You will get hands-on exposure with multiple types of LID and develop an urban watershed plan that uses LID to manage stormwater runoff. At the end of the day, you will better understand how we shape water and what we can do to manage water.

SESSION: Civil Engineering

This activity exposes students to the basic concepts of designing a highway, from the horizontal and vertical curvature, cross sections, and earthwork to mixing the asphalt used to pave it. Starting with a topographical map obtained via the United States Geological Survey (USGS) and current roadway map coverages from the South Dakota Department of Transportation (SD DOT), students will progress through a series of instructions which direct and explain their efforts using engineering design software. The end goal will be to realign a major highway, resulting in a proposed alternative route which bypasses small towns due to a hypothetical significant growth in traffic. In the SDSU's asphalt laboratory students will become familiar with asphalt mixes and their testing and evaluation methods. Also, they will be given an opportunity to design, mix and compact their own asphalt mix in the laboratory.

SESSION: Computer Science

Computer Science touches us all in our day to day activities, from the vehicle that brought you to camp and your smart phone which you will text your parents about today's exciting events. During this event we will use a programmable robotics platform (SDSUBot) to learn the basics of coding software and programming the platform to perform useful tasks. We will start by installing software in order to communicate with the robot and then code several simple tasks. These tasks will include "making the robot sing", "helping the robot to communicate", and "moving the robot using simple commands." These interactive projects will provide the great lesson of "if at first you do not succeed, try, try, again!"

Register on-line: www.sdstate.edu/jerome-j-lohr-engineering/ready-set-go

\$25.00 per student; FREE for parents & teachers;

Lunch, refreshments & T-SHIRT provided

2018 SPEAKER



Speaker: STEM Student and Professional Panel

This panel, comprised of SDSU students and industry professionals, will explore opportunities, expectations, rewards, and skills associated with a STEMs education and career. Panel members will discuss their academic and professional experiences in pursuing and managing a STEMs career as well as how to make the most of the college experience. A large part of the panel will be dedicated to interactive discussion with the audience to explore some of the common questions that students ask: topics such as choosing the best school, making the transition to college and a career.

PARENT/TEACHER SESSIONS

SESSION ONE: Preparing Your Student for College and STEM Career Opportunities

Dr. Rich Reid, Associate Dean of Engineering, will present information to the parents and teachers on how students entering high school can better prepare themselves to compete for scholarships and demanding academic majors. Leah Brink, Human Resources Director at Daktronics, Inc will discuss STEM career opportunities, and a short presentation by the SDSU Admissions office on the college visit and application process.

SESSION TWO: Forensics - Will They Get Away with Murder?

Forensic science is the study of objects that relate to a crime. Crimes occur multiple times per day across the world, and there are multiple steps before a suspect is determined to be “guilty”. Where do statisticians fit into the process? In this activity, we will evaluate handwriting, fingerprint, and dust particle evidence found at a crime scene. We will also have the opportunity to apply statistics to the interpretation of forensic evidence to determine whether or not a suspect was present at a crime scene. We will base this statistical inference on data we will measure and collect during this activity. Fun for everyone!

SESSION THREE: Engineering Tour

With over 30 hands-on laboratories in our different majors, take a walking tour to visit a few select labs from various disciplines within the SDSU College of Engineering followed by a walking tour to view the student sessions.

Register on-line: www.sdstate.edu/jerome-j-lohr-engineering/ready-set-go

\$25.00 per student; FREE for parents & teachers; Lunch, refreshments & T-SHIRT provided



SDCTM Membership



There are two easy ways to join:

1. Download and complete this form. **You MUST save to your computer before filling out the form.** Email SDCTM Treasurer Jay Berglund jay.berglund@k12.sd.us and attach the completed saved form. Pay with the PayPal button on the SDCTM website (\$1 service charge will be added.)
 ----OR----
2. Print a copy of this form, fill out, and enclose check payable to SDCTM.
 Mail to SDCTM Treasurer: Jay Berglund 204 S. Exene ST Gettysburg, SD 57442

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School Name _____

Subject(s) or Grade(s) taught _____

Home address _____

City _____ State _____ Zip _____

School address _____

City _____ State _____ Zip _____

Preference (select one) Home School

Home Phone _____ School Phone _____

E-mail _____ Fax _____

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SDCTM Newsletter
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