Conceptual Understanding: Engagement + Enthusiasm = Empowerment

A
Grades K–6
February 18–20
Tan-Tar-A Resort
Osage Beach, Missouri

B
Grades 7–12
February 21–23

Sponsored by Missouri Department of Elementary and Secondary Education in cooperation with the MU Conference Office
February 2016

On behalf of the Interface Steering Committee, welcome to the 2016 Interface Professional Learning Event. This year’s theme, “Conceptual Understanding: Engagement + Enthusiasm = Empowerment”, emphasizes the important role of instruction and assessment in student learning and understanding and provides opportunities for presenters to share resources and technology with teachers of mathematics, science, engineering, and technology.

The steering committee has selected presentations intended to increase teacher content knowledge and promote best teaching practices. You will have opportunities to hear many points of view on how to improve mathematics and science teaching and increase student achievement. Extended sessions are being offered to provide ample time to explore a topic and gain the necessary expertise needed to implement effective practices in your classroom. Grade-level codes and session descriptions, will serve in planning your personalized path to focused professional learning.

If this is your first time to attend Interface, we invite you to one of the “First Timers” sessions on either Thursday, February 18 or Sunday, February 21, from 9:00 – 9:30 a.m. These sessions will provide information about the Interface format and assist attendees in making the most of their experience.

Join us for the plated keynote presentation meals as we celebrate our keynote speaker, Michael Fenton, who will present “Technology and the Curious Mind” during Interface A and B, with follow-up breakout sessions.

Connect with old friends and make new ones as you exchange ideas with those who bring different perspectives to your work. Most of all have a great professional learning event! If we can assist you in any way, visit the conference registration area at anytime.

Sincerely,
2016 Interface Steering Committee

Dalena Allen
Becky Baker
Alan Bancroft
Joann Barnett
Shaun Bates — DESE Science Director & Co-Chair
Cathy Battles
Melanie Carden-Jessen
Thomas “Chip” Day
Jeremy Ellis — DESE Mathematics Director & Co-Chair
Jolene Gewin
Debbi Haskamp — MU Conference Office
Ruth Knop — MCTM
Teri Longley — DESE Executive Assistant & Co-Chair
Erica Lovercamp — MU Conference Office
Chad Maize — DESE Administrative Assistant
Ann McCoy
Pam Mills
Bart Mitchell
Jim Puckett
Paula Seal
Martha Short
Eddie Smith
Deborah Teague
Marsha Tischler
Mark Walkenhorst
Ann Wallenmeyer — STOM
Debbie Wilson
Components of Interface

Questions about the Event:
If you need additional information about the 2016 Professional Learning Event, contact Teri Longley, Department of Elementary and Secondary Education at 573-751-2660 or Teri.Longley@dese.mo.gov.

Graduate Credit:
Specific information relating to graduate credit can be obtained from university booths in the exhibit area on the first day of each Interface session from 8:00 a.m. to 4:00 p.m. or in specific sessions that are offered.

Sessions
Interface 2016 will offer sessions ranging from 90-minutes to 3-hours covering a variety of up-to-date ideas and information about mathematics, science, technology, and engineering instruction and assessment.

Name badges
Name badges must be worn for admittance to all sessions. Seating space is limited; therefore, a session ticket is also required for admittance into all sessions. If you do not receive tickets for your selected choices of sessions, you may be able to select or trade tickets at the ticket exchange.

Electronic Devices
Please silence all electronic devices during sessions as a courtesy to the presenter and other participants.

Ticket Exchange
The session ticket exchange, available to all attendees, is located near the registration area. You may trade tickets or fill empty slots. Steering committee members will be available to assist you with your exchanges and requests for tickets.

Meals and Meal Tickets
Meal tickets are required for all meals. Name badges must be worn for admittance to all meals.

The following meals are included in your registration fee:

Day 1
• Morning Beverages, no session ticket required (Salon A)
• Plated Luncheon (Salons B & C)
• Buffet Dinner with Vendors (Salons B & C)

Day 2
• Full Breakfast Buffet (Salons B & C)
• Buffet Lunch (Salons B & C)

Day 3
• Full Breakfast Buffet (Salon C)
No Children
Interface sessions provide professional learning designed for educators. The sessions are not intended for children, therefore children are not allowed in the sessions or meals. Attendees will be asked to leave sessions if their children are in attendance.

Vendor Exhibits & Sessions – Salon A
Vendor displays will be open at various times throughout the day in Salon A to provide participants time to meet the vendors and browse their displays.

   Day 1: from 8:00 – 11:30 a.m.; 1:15 – 4:30 p.m.; 5:30 – 7:15 p.m.
   Day 2: from 7:00 – 8:30 a.m.; 11:00 a.m. – 1:00 p.m.; 2:30 – 4:00 p.m.

All attendees are encouraged to attend the Thursday or Sunday evening Dinner Buffet with the Vendors. Visit with vendors about materials and products they have to offer and register for door prizes that will be given away. You must be present to win.

Missouri Department of Conservation
The Missouri Department of Conservation has instructional resources and reference materials that support mathematics and science education. Plan to visit the Showcase in Salon A and attend sessions presented by the Department of Conservation personnel.

Refunds/Cancellations
Our fiscal commitment to the hotel and other various conference vendors is calculated by the number of registered attendees. Refund requests must be submitted in writing and received by 5:00 p.m. February 11, 2016. No refunds will be issued, for any reason, after the conference registration deadline of February 11, 2016.

MU Conference Office Fax: 573-882-1953, Attention: Interface
NOTE: You are welcome to send a substitute.

Hotel Reservations
Hotel reservations must be made or cancelled by contacting Tan-Tar-A at 1-800-826-8272. Room deposits are refunded with 72 hours notice of scheduled arrival date or you will be responsible for the charges.

Missouri Environmental Education Association Certification Program
The program is sponsored by the Missouri Environmental Education Association. This voluntary certification program provides recognition of an individual's knowledge and skills related to environmental education based on six (6) Core Competencies outlined by the North American Association for Environmental Education: Environmental Literacy (Skills, Knowledge, Responsibility), Foundations of EE, Professional Responsibility of Environmental Educators, Planning and Implementing Environmental Education, Fostering Learning and Evaluating Programs. Information on certification will be available at Interface, or from Jan Weaver, weaverjc@missouri.edu.

Inclement Weather
As we all know, Missouri weather is unpredictable. Since Interface is scheduled during the month of February, attendees must be prepared for inclement weather. Many participants are housed outside the main lodge, so be prepared for the weather if you have to wait outside lodging rooms and meeting places.

Our fiscal commitment to the hotel and various conference vendors is calculated by the number of registered attendees. No refunds will be issued for reasons related to inclement weather after the registration deadline of February 11, 2016.
Professional Learning Strand Coding
The primary mission of Interface is to promote best teaching practices in mathematics and science education. In order to increase your own content and pedagogy knowledge with the intent of increasing your students’ math and science achievement, this year’s sessions are coded by focus strand and grade levels so that you can plan the best series of sessions in order to meet your particular professional learning needs. Use the icon references to plan your own personalized, focused, professional learning schedule.

- **M** = Math
- **E** = Engineering
- **S** = Science
- **T** = Technology
- **K–2** = Appropriate for teachers of grades K–2
- **3–6** = Appropriate for teachers of grades 3–6
- **7–8** = Appropriate for teachers of grades 7–8
- **9–12** = Appropriate for teachers of grades 9–12

First Timers Session
If it’s your first time to attend Interface, please join us from 9:00 – 9:30 a.m. on Day One in Salon B to learn how to get the most out of the event.

Special Needs
The Missouri Department of Elementary and Secondary Education does not discriminate on the basis of race, color, national origin, age, sex, disability, or veteran status in its programs, services, or employment practices.

Reasonable attempts will be made to accommodate special needs. Anyone attending Interface requiring auxiliary aids for services must contact the MU Conference Office at (573) 882-4038 by February 11, 2016.

RELAY MISSOURI: 1-800-735-2966

Future Dates and Important Websites
Join us next year!

**Interface A:** February 23 – 25, 2017
**Interface B:** February 26 – 28, 2017

**Conference:**
http://dese.mo.gov/college-career-readiness/curriculum/interface-conference

**Mathematics:**
http://dese.mo.gov/college-career-readiness/curriculum/mathematics

**Missouri Council of Teachers of Mathematics (MCTM)**
www.MoCTM.org/

**Science:**
http://dese.mo.gov/college-career-readiness/curriculum/science

**Science Teachers of Missouri**
www.stom.org
Thursday and Sunday Activities

Technology and the Curious Mind

Technology is everywhere. And it’s not going away. Are you using technology in ways that stifle your students, or in ways that cultivate their curiosity, creativity, collaboration, and communication?

Michael Fenton is a leader in mathematics education with a passion for designing engaging learning experiences. He serves as Lead Instructional Designer for Desmos, a leader in digital mathematics tools and curriculum. Drawing on his experience as a classroom teacher, graduate school instructor, curriculum writer, and professional development consultant, Michael explores how to use technology to spark curiosity, creativity, and collaboration. He graduated from UCLA with a Bachelor of Science in General Mathematics and holds a Master of Arts in Education and a Master of Arts in Mathematics. Michael currently lives in Fresno, CA, with his beautiful wife and four energetic children.

Interface A:
Keynote Address
Thursday, February 18
12:00-1:30 p.m. | Salon B-C

Join us for the Thursday or Sunday noon Keynote Address as we watch and listen to the dynamic and motivating Michael Fenton.

We will recognize award winning mathematics and science teachers on Sunday during the keynote address.

2015 Finalists

Presidential Award for Excellence in Mathematics and Science Teaching

State finalists in mathematics are:

Emily Combs, Clinton Middle School, Clinton R-III School District – Mathematics
Constance Hallemeier, Liberty High School, Wentzville R-IV School District – Mathematics
Katharine Sparks, William Chrisman High School, Independence School District – Mathematics
Kevin Taylor, Rock Bridge High School, Columbia 93 School District – Mathematics
Deanna Wasman, Hickman High School, Columbia 93 School District - Mathematics

State finalists in science are:

Autumn Palmer, Carthage Senior High School, Carthage R-IX School District – Science
Carol Robertson, Fulton Senior High School, Fulton 58 School District – Science
Tonya Sharp, Spring Garden Middle School, St. Joseph School District – Science
Jennifer Szydiowski, Jefferson Middle School, Columbia 93 School District - Science
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Day 1 — Schedule at a Glance

**Interface A Thursday, February 18, 2016**

| Time          | 8:00 - 8:30 | 8:30 - 9:00 | 9:00 - 9:30 | 9:30 - 10:00 | 10:00 - 10:30 | 10:30 - 11:00 | 11:00 - 11:30 | 11:30 - 12:00 | 12:00 - 12:30 | 12:30 - 1:00 | 1:00 - 1:30 | 1:30 - 2:00 | 2:00 - 2:30 | 2:30 - 3:00 | 3:00 - 3:30 | 3:30 - 4:00 | 4:00 - 4:30 | 4:30 - 5:00 | 5:00 - 5:30 | 5:30 - 6:00 | 6:00 - 6:30 |
|---------------|-------------|-------------|-------------|-------------|---------------|---------------|---------------|---------------|---------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| **Registration** | 8:00 a.m. - 6:00 p.m. | | | | | | | | | | | | | | | | | | | | |
| **Vendors Open** | Session 5 S,T,M | | | | | | | | | | | | | | | | | | | | |
| **Vendors Closed** | Session 11a S | | | | | | | | | | | | | | | | | | | | |
| **Vendors Open** | Session 8a S,M | | | | | | | | | | | | | | | | | | | | |
| **Energy Break** | | | | | | | | | | | | | | | | | | | | | |
| **Vendors Open** | Session 4a M | | | | | | | | | | | | | | | | | | | | |
| **Session 3a M** | | | | | | | | | | | | | | | | | | | | | |
| **Session 2a S,M** | | | | | | | | | | | | | | | | | | | | | |
| **Session 10a S,E** | | | | | | | | | | | | | | | | | | | | | |
| **Session 9a S,M** | | | | | | | | | | | | | | | | | | | | | |
| **Session 6a S** | | | | | | | | | | | | | | | | | | | | | |
| **First Timers Session** | | | | | | | | | | | | | | | | | | | | | |
| **Session 11b S** | | | | | | | | | | | | | | | | | | | | | |
| **Session 13 S,T,E,M** | | | | | | | | | | | | | | | | | | | | | |
| **Session 14a S,M** | | | | | | | | | | | | | | | | | | | | | |
| **Session 15 S,M** | | | | | | | | | | | | | | | | | | | | | |
| **Session 16 M** | | | | | | | | | | | | | | | | | | | | | |
| **Session 17 S** | | | | | | | | | | | | | | | | | | | | | |
| **Session 18a M** | | | | | | | | | | | | | | | | | | | | | |
| **Session 19a M** | | | | | | | | | | | | | | | | | | | | | |
| **Session 20a S,T** | | | | | | | | | | | | | | | | | | | | | |
| **Vendor Dinner Buffet** | | | | | | | | | | | | | | | | | | | | | |
| **Vendor Dinner Buffet** | | | | | | | | | | | | | | | | | | | | | |
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| **Vendor Dinner Buffet** | | | | | | | | | | | | | | | | | | | | | |
| **Door Prizes-Must be present to win.** | | | | | | | | | | | | | | | | | | | | | |

**Session Code Key:**
- S=Science;
- T=Technology;
- E=Engineering;
- M=Math

Keynote Speaker and Plated Luncheon Salon B/C
### Day 2 — Schedule at a Glance

**Interface A**

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#### Registration
- 7:30 a.m. - 4:00 p.m.

#### Buffet Lunch
- Vendors Open

#### Energy Break with Vendors
- Sessions 45 and 46: DESE Math and Science Updates S,M
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**Key:**
- S = Science
- T = Technology
- E = Engineering
- M = Math

**Session Code:**
- **Session 20b**
- **Session 23b**
- **Session 47a**
- **Session 47b**
- **Session 50a**
- **Session 50b**
- **Session 52**
- **Session 54**

**Breakfast:**

**Interface A**

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**Day 3 — Schedule at a Glance**

Saturday, February 20, 2016
Thursday Vendor Dinner Buffet

February 18, 2016
5:30–6:30 p.m.
Salon B–C

Meet the vendors, browse displays, and be eligible for some great door prizes. Your Buffet Dinner ticket, with your name printed on the back, will be your ticket to enter for door prizes to be given away. MUST BE PRESENT TO WIN.

1. 9:00 - 9:30; Thursday, February 18
   **First Timers’ Session**
   Dalena Allen, West Plains R-VII School District

   This may be your first or fiftieth year of teaching, but if it’s your first time attending Interface, join us from 9:00-9:30 am in Salon B to learn more about how to get the most out of the event.

   All Grades|M; S

2. 10:00 - 11:30; Thursday, February 18
   **Discover Nature with Math**
   Jay Barber, Missouri Department of Conservation
   Gina Wood, Missouri State University

   Students will appreciate math if they see it work for them. Using the Missouri Department of Conservation’s Discover Nature Schools curriculum, hands-on activities will be shared with participants that integrate math with science in a project-based context. The Missouri Learning Standards-based activities engage students with applied math skills in a fresh and relevant manner.

   3-6|M; S

3. 10:00 - 11:30; Thursday, February 18
   **Breaking All the Rules!**
   Tracie Gones and Juli Stutesman, Branson R-IV Schools

   You can’t subtract a bigger number from a smaller number! Teachers use rules such as these to help students with math procedures, but they have the potential to cause significant problems in future math work. Come learn about 13 common math rules that can become stumbling blocks for students.

   K-2; 3-6|M

4. 10:00 - 11:30; Thursday, February 18
   **Base-ten Blocks to Beginning Algebra: Unifying Computational Algorithms**
   Marvin Harrell and Nancy Smith, Emporia State University

   Attendees will extend conceptually-based computational models/algorithms found in elementary school to beginning algebra by using base-ten blocks and chips and then using algebra tiles to show analogous algebraic algorithms. The purpose of this is to help teachers at all levels make these fundamental connections for their students.

   3-6|M

5. 10:00 - 11:30; Thursday, February 18
   **App Smashing for iPads**
   Andy King, MOREnet

   In this hands-on session we will focus on combining 2-3 apps to complete a project. The apps will be general enough to use with nearly all curriculum standards. We will have a few iPads for you to use but BYOD is encouraged.

   K-2; 3-6 |M; S; T

6. 10:00 - 11:30; Thursday, February 18
   **Science Fairs that Discover Nature**
   Kathi Moore and TJ Peacher, Missouri Department of Conservation

   Currently the only active volcanos in Missouri are at school science fairs. Using the Conservation Department’s Discover Nature Schools Curriculum as a foundation, learn how to encourage students to create simple backyard science fair projects they understand and can explain. Learn how to submit projects for MDC’s 2016 Science Fair.

   3-6|S

7. 10:00 - 11:30; Thursday, February 18
   **Get in Line for Elementary Mathematics**
   Cris Sheffel, University of Missouri

   How are you using number lines in your instruction? We’ll explore the why’s and how’s that make number lines an amazing tool for building conceptual understanding for whole number and fraction operations, grades 1-5.

   K-2; 3-6|M
Concurrent Sessions

8a. 10:00 - 11:30; Thursday, February 18
8b. 12:30 - 2:00; Friday, February 19
Using Interactive Notebooks to Enrich the Teaching of Math and Science
Lynn Turner, Paris R-II Schools
Participants will learn how to use foldables and other resources to supplement math and science instruction. The supplements are aligned to Missouri Learning Standards. Each person should bring their imagination and creativity to determine how they can apply the information presented to their own teaching situation.
K-2; 3-6|M; S

9a. 10:00 - 11:30; Thursday, February 18
9b. 4:00 - 5:30; Thursday, February 18
Avoiding a Sit-and-Get Classroom
Darbie Valenti and Sheila Talmadge, Savannah R-III Schools
Get your students engaged and active in their learning. As a participant, you will learn multiple strategies to avoid a sit-and-get classroom! Create an environment that promotes higher-order thinking and deep discussions in math or science.
K-2; 3-6|M; S

10a. 10:00 - 11:30; Thursday, February 18
10b. 4:00 - 5:30; Thursday, February 18
Engineering a Greener School
Jan Weaver, Missouri Environmental Education Association
Learn how to use age appropriate engineering problem-solving approaches to help your students design ways to make your schoolyard more wildlife friendly (K-6), or to reduce storm-water runoff (7-12). Be prepared to go outside to collect data. Connections to ELA skills included.
K-2; 3-6|S; E

11a. 10:00 - 11:30; Thursday, February 18
11b. 2:00 - 3:30; Thursday, February 18
Bird Buddies: Science Collaboration Across Grade Levels
Ragan Webb and Brenda Heavin, Columbia Public Schools
Learn how we took our buddy time and turned it into valuable science education time. We will teach you how we joined our 1st and 4th grade classrooms and did meaningful science research together. Students asked questions, designed experiments and presented their findings. We will share the students’ finished projects and give you strategies to implement this into your school.
K-2; 3-6|S

12a. 2:00 - 3:30; Thursday, February 18
12b. 4:00 - 5:30; Thursday, February 18
Hummingbirds and Heliocopters
Cynthia Green, Missouri Department of Conservation
Dana Ripper, Missouri River Bird Observatory
Learn what hummingbirds and helicopters have in common as well as other fascinating facts about our smallest bird, in conjunction with the Conservation Department’s curriculum Nature Unleashed for 3rd-5th grades.
3-6|S

13. 2:00 - 3:30; Thursday, February 18
Introduction to Google Sheets
Andy King, MOREnet
Google Sheets are a great way to organize and analyze data. This hands-on session will provide you with some basic skills to begin to implement Google Sheets into your classroom. This session is designed for beginners.
3-6|M; S; E; T

14a. 2:00 - 3:30; Thursday, February 18
14b. 4:00 - 5:30; Thursday, February 18
Snacking Through the Standards
Christine McElhaney, Stockton R-I Schools
Looking for ways to motivate and engage your science classes? Participants will produce a number of hands-on edible science lab activities. Participants will be given inquiry-based and engaging lesson plans for grades K-6 that will include edible labs to complete with students to help reinforce science standards.
K-2; 3-6|M; S

15. 2:00 - 3:30; Thursday, February 18
Turning Students Into Posers + Solvers
Michael Fenton, Keynote Speaker
Boost your students’ problem solving superpowers by having them pose their own problems. Join us for a session filled with visually engaging mathematical prompts. Learn how to develop CCSSM practices through problem posing and problem solving.
All Grades|M; S

3-Hour Sessions

16. 2:00 - 5:00; Thursday, February 18
Fraction Frenzy - Models and More
Terri Doman and Carrie Mayes, Webb City R-VII Schools
Games, models and more. In this session we will focus on addition, subtraction, multiplication and division of fractions using number lines, area models and other methods to excite students.
3-6|M
Concurrent Sessions

17. 2:00 - 5:00; Thursday, February 18

   NASA’s Field Trip to the Moon
   John Weis, NASA Marshall Space Flight Center

   Join us on a virtual, video field trip to the moon! The video is accompanied by a set of inquiry based activities which lead student teams to develop a plan for a possible lunar outpost. Workshop participants will receive a copy of the DVD which includes the educator guides.

3-6|S

18. 4:00 - 5:30; Thursday, February 18
18b. 8:00 - 9:30; Friday, February 19

   Using Cognitively Guided Instruction in Mathematics
   Julie Antill and Linda Null, Southeast Missouri State University

   This session will assist K-5 teachers in understanding how children’s mathematical thinking develops and reflecting on how to help children build upon their own natural problem solving strategies. Participants will learn how students approach various problem types and how they can use this knowledge to probe for deeper understanding.

K-2; 3-6|M

19a. 4:00 - 5:30; Thursday, February 18
19b. 8:00 - 9:30; Friday, February 19

   What is Number Fluency (Really)?
   Adam Harbaugh and Kurt Killion, Missouri State University

   Past and current Missouri mathematics standards emphasize number fluency, but it isn’t clear what fluency actually means or how teachers develop it and what fluency competencies students should have. This session will address a variety of issues and classroom practices related to developing fluency in ways that have lasting impact.

K-2; 3-6|M

20a. 4:00 - 5:30; Thursday, February 18
20b. 8:00 - 9:30; Saturday, February 20

   Just Shoot It!
   Bob Martin, MOREnet

   Video can be a great way to demonstrate scientific principles, show science in motion or capture mastery of a skill. It can also be frustrating and downright impossible to work with. A few well placed apps and some understanding of the process can lead to a great new way for you and your students to work. This session is BYOD.

K-2; 3-6|S; T

21a. 8:00 - 9:30; Friday, February 19
21b. 10:00 - 11:30; Friday, February 19

   Developing and Using Models to Teach Properties of Matter
   Christina Hughes, Hazelwood Schools

   Participants will learn to create and use simple models to uncover student thinking about matter concepts and help students deepen their understanding of abstract matter concepts. These models can be used during instruction or as alternative assessments.

3-6|S

22a. 8:00 - 9:30; Friday, February 19
22b. 10:00 - 11:30; Friday, February 19

   Engaging Students in Science Through Hands-On Activities
   Angela Lurvey and Carrie Perrigue, Ozark R-VI Schools

   Encourage enthusiasm for science by engaging your students with hands-on activities in the elementary classroom. This session will cover a variety of grade levels and topics.

K-2; 3-6|S

23a. 8:00 - 9:30; Friday, February 19
23b. 10:00 - 11:30; Saturday, February 20

   Google Classroom for Math and Science
   Bob Martin, MOREnet

   Google Classroom is a powerful, easy to use tool for managing and organizing your Google environment. Use it to deliver content, store important materials for students to access, share and upload student work, assign grades and more. In this hands-on session we will set up classes and look at examples of how math and science classes can benefit from this powerful Google resource.

K-2; 3-6|M; S; E; T

24a. 8:00 - 9:30; Friday, February 19
24b. 2:30 - 4:00; Friday, February 19

   Making Mathematicians: Teaching Our Youngest Students to Think and Apply
   Shannon Porter, Zalma R-V Schools

   Many primary teachers don’t feel confident teaching math. Hands-on activities, manipulatives, classroom discussions and inquiry can change that. But how? Bring your scissors, glue, and crayons and find out! Participants will leave with ideas for lessons, games and interactive notebook ideas to enhance their math (and some science) instruction.

K-2|M; S
Concurrent Sessions

25a. 8:00 - 9:30; Friday, February 19
Problems Worth Solving
Katherine Schack and Kasey Lann, Wentzville R-IV Schools
Are you struggling with finding an engaging, fun way to have your students solve real-world problems? Come explore various mathematical tasks and situations that develop a deeper understanding of math and the world around us. Participants will leave with a variety of resources ready to use in their own classrooms.
K-2; 3-6|M; T

25b. 12:30 - 2:00; Friday, February 19

26a. 8:00 - 9:30; Friday, February 19
Storytime S.T.E.A.M.
Julie Tubbs and Emily Norton, The Magic House
Join Magic House educators and discover how students can make real-life connections through inquiry, collaboration and project-based learning. This workshop opens the door to hands-on learning using favorite children’s books and integrated Science, Technology, Engineering, Art and Mathematics content.
K-2|M; S; E; T

3-Hour Sessions

27. 8:00 - 11:00; Friday, February 19
STEM! Minimum Supplies & Maximum Engagement!
Erin Gaebe and Melissa Ziegler, School District of Washington
Learn how to start a STEM program with minimal supplies, while making the content engaging to students. Participants will learn what it takes to inspire learners to be leaders and work collaboratively in teams, while taking on a new mindset as an educator, letting go to achieve real solutions. Bring laptops.
3-6|M; S; E; T

28. 8:00 - 11:00; Friday, February 19
Make Your Field Trip a Field Experience with Discover Nature Schools
TJ Peacher and Adam Bransdsgaard, Missouri Department of Conservation
How do you turn your field trip into a field experience by utilizing assessment and new teaching techniques while meeting the Missouri Learning Standards? Learn how with MDC’s Discover Nature Schools curriculum. The program will focus on utilizing science notebooks during field experiences. Bring your own electronics to take the learning to the next level.
K-2; 3-6|M; S

90-Minute Sessions

29. 10:00 - 11:30; Friday, February 19
Love to Teach Math? Become an Elementary Math Specialist
Joann Barnett, Missouri State University
Ann McCoy, University of Central Missouri
Do you want to inspire a love of math in your students? Lead other teachers to enhance their math teaching? This session will provide information about a statewide program leading to certification as an Elementary Math Specialist. Activities from the courses leading to certification will be shared.
K-2; 3-6|M

30. 10:00 - 11:30; Friday, February 19
Reading in all Contents
Melia Franklin and Debbie Jameson, Missouri Department of Elementary and Secondary Education
In this session, the Director and Assistant Director will discuss how one best infuses literacy into math curriculum authentically without sacrificing valuable time and content.
K-2; 3-6|M; S

31a. 10:00 - 11:30; Friday, February 19
Math + Games = Engagement
Amanda Kilgore and Tara Kelley, Raymore-Peculiar R-II Schools
Hands-on and technology driven math stations for deeper learning are your keys to differentiation and personalized learning. BYOD and be prepared for 90 minutes of fast moving game-based fun. Leave this session ready to implement games into your classroom.
3-6|M; T

31b. 10:00 - 11:30; Saturday, February 20

32. 10:00 - 11:30; Friday, February 19
Project Noah
Bob Martin, MOREnet
Finding creative ways to teach biology with mobile devices can be difficult. Natural sciences on a mobile device can be a great way to introduce your students to a larger world in a non-threatening way. Using Project Noah (available for iPad, Android and web-based) teachers can create classrooms, add students and then begin “collecting” creatures they see around them on “missions”.
K-2; 3-6|S; T

CANCELLED

13
Concurrent Sessions

33a. 10:00 - 11:30; Friday, February 19
33b. 12:30 - 2:00; Friday, February 19

Quality Questioning
Amanda Schweissguth, School District of Washington

Quality questions completely empowered my students to talk about math and enabled me to facilitate powerful discussions. Learn how to effectively question your students to advance understanding, probe student thinking, make math meaningful and engage students in critical thinking. Leave with practices/strategies to facilitate great discussions in your classroom!

K-2; 3-6|M

34a. 12:30 - 2:00; Friday, February 19
34b. 2:30 - 4:00; Friday, February 19

You've Got the Power - Sustainable Energy STEM Projects
Linda Baysinger and Lucy Shrout, Fulton 58 Schools

Participants will explore the mechanics of designing a functional wind turbine and solar race to meet specific energy demands. These hands-on activities will give your students the power to explore sustainable energy methods that energize their worlds in the future. Coats for solar racing outside, weather permitting.

3-6|M; S; E; T

35. 12:30 - 2:00; Friday, February 19

Measurement Matters
Myra Collins, NE Regional Professional Development Center

Have you measured bubbles? Have you tried to determine a way to provide shoes for a giant? Measurement is central to mathematics, science, and activities in everyday life. The need for accuracy in linear measurement will be explored through these activities and others in this session.

K-2|M

36. 12:30 - 2:00; Friday, February 19

Intro to Coding in the Classroom
Andy King, MOREnet

In this session we will explore code.org resources and Scratch, a coding language designed for all ages. No coding experience is needed for this fun session. This session is designed for beginners.

K-2; 3-6|M; S; E; T

37a. 12:30 - 2:00; Friday, February 19
37b. 10:00 - 11:30; Saturday, February 20

Colors of the Wind
Cheryl Kinney, Special School District
Tiffany Fane, Hazelwood Schools

Participants will discover how art can be used in Math and Science Classrooms to cover the core curriculum and engage all learners including our special education students. Great activities that engage all learners in discovering the Science and Math found in nature and to reinforce vocabulary. All materials will be provided.

3-6|M; S

38a. 12:30 - 2:00; Friday, February 19
38b. 2:30 - 4:00; Friday, February 19

Light Sound Action! Teaching Waves to K-2 Students
Stacie Moore and Tracey Wright, Grandview C-4 Schools

Light and sound waves are the focus of this integrated unit of study. Learn about different waves through hands-on experiments, as well as, methods of engagement and assessment in this fast paced presentation.

K-2|S

39a. 12:30 - 2:00; Friday, February 19
39b. 2:30 - 4:00; Friday, February 19

Birds and Bugs and Badgers, Oh My! Using Nature Schools in Your Classroom
Stephanie Young and Debbie Shafer, Bloomfield R-XIV Schools

Join us for an activity filled session where you will learn how you can use the Missouri Department of Conservation’s Discover Nature Schools. We will show you how you can qualify for grant money and we will create some exciting hands-on activities from the series, such as homemade owl pellets!

K-2; 3-6|S

3-Hour Sessions

40. 12:30 - 3:30; Friday, February 19

NASA Solar System Resources: Sun, Earth, Moon and Beyond
John Weis, NASA Marshall Space Flight Center

Learn about NASA resources for teaching about the Solar System and the bodies in it. Activities will include scale, eclipses, mathematics, and exploration technologies. Discussion will include adaptation to specific subject areas and modifications for accommodation.

K-2; 3-6|S
### Concurrent Sessions

| 41. | 2:30 - 4:00; Friday, February 19 | **Fold 'em into Math**  
Nancy Bergfeld, Northwest R-I Schools |
| Be prepared to keep those fingers folding! Participants will create origami models while discussing the connections to strands in mathematics. All materials provided. |
| 3-6|M |

| 42. | 2:30 - 4:00; Friday, February 19 | **Engaged in Mathematics**  
Trish Goddard, Retired - Missouri State University |
| The participants will be shown engaging activities for learning and using mathematics for their grade level. |
| K-2; 3-6|M |

| 43a. | 2:30 - 4:00; Friday, February 19 | **8 Mathematical Practices-Uncharted Territory?**  
Sandy Humbyrd and Hannah McCloud, Hollister R-V Schools |
| No matter how much content is covered in math class, students aren’t mathematically proficient without attention to the eight standards for mathematical practices. Join us in exploring classroom activities that connect the practices to the content standards so your students can reason, apply, and truly navigate mathematics. |
| 3-6|M |

| 43b. | 8:00 - 9:30; Saturday, February 20 | **Next Generation Science Standards Don’t Repel Magnets**  
Lloyd Barrow, University of Missouri |
| This workshop will utilize all aspects of Next Generation Science Standards through a series of hands-on investigations. Teachers will build an understanding of the relationships of magnets, magnetic/non-magnetic materials, and other magnets. Also, they will develop a model of why magnets can repel other magnets. |
| K-2; 3-6|S |

| 44. | 2:30 - 4:00; Friday, February 19 | **Capturing Science with Mobile Devices**  
Bob Martin, MOREnet |
| Use those great cameras in combination with cool apps to capture science as it happens. Document weather features, catalog critters, share your progress and many more options for blending mobile devices into your lesson plans. **This session is BYOD and we will also have devices to share if you want to try them out!** |
| K-2; 3-6|S |

| 45. | 4:00 - 5:00; Friday, February 19 | **DESE Updates - Science**  
Shaun Bates, Missouri Department of Elementary and Secondary Education |
| K-2; 3-6|S |

| 46. | 4:00 - 5:00; Friday, February 19 | **DESE Updates - Mathematics**  
Jeremy Ellis, Missouri Department of Elementary and Secondary Education |
| K-2; 3-6|M |

### 90-Minute Sessions

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| K-2; 3-6|S |

| 47b. | 10:00 - 11:30; Saturday, February 20 | **Project Lead The Way, a K-12 STEM Solution**  
Mandy Welch, Missouri University of Science & Technology |
| Historically, science and math have been taught in isolation. The project-based aspects of the Project Lead The Way curriculum give students a chance to apply what they know, identify a problem, find unique solutions and lead their own learning, rather than be passive recipients of information in a question-and-answer, right-or-wrong learning environment. |
| K-2; 3-6|M; S; E; T |

| 48. | 8:00 - 9:30; Saturday, February 20 | **Empowering Children through Outdoor Engagement**  
Steven Juhlin, Missouri Department of Conservation |
| Involve children in outdoor meaningful experiences and they’ll grow to become some of the most empowering people. By integrating the GLE-friendly Nature Unfolds unit (provided to all participants), students engage in real-world environments, evaluate their connections with the world and become empowered to make smart choices. |
| K-2|S |

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| K-2|S |

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| K-2|S |
50a. 8:00 - 9:30; Saturday, February 20
50b. 10:00 - 11:30; Saturday, February 20
STEM: Rocket-a-Mania
Frank Neal, Ferguson-Florrisant R-II Schools

Teachers will be exposed to the 5 E’s Model of Science Inquiry Instruction. Teachers will make a straw, foam, and stomp rocket plus two launchers. Newton’s Laws will be demonstrated. Participants will be able to apply all of these techniques to support their own classroom. Hand-outs provided.
K-2; 3-6|M; S; E; T

51a. 8:00 - 9:30; Saturday, February 20
51b. 10:00 - 11:30; Saturday, February 20
Your Best Math or Science Lesson Can Lead to a Presidential Award and $10,000
Martha Short, Show-Me Professional Development

Learn how to take an outstanding math or science lesson and parlay it into a $10,000 award to use at your discretion, a meeting with the U.S. President and other state and national leadership opportunities.
K-2; 3-6|M; S; E; T

52. 8:00 - 11:00; Saturday, February 20
Vocabulary Counts: Understanding the Language of Mathematics
Myra Collins, NE Regional Professional Development Center

Teaching Children Mathematics, May 2015, states that math skills suffer if students do not understand the vocabulary. Effectively teaching vocabulary is an essential part of today’s instructional time. This workshop will offer participants an opportunity to explore strategies that can strengthen students’ understanding and use of the language of mathematics.
K-2; 3-6|M

53. 8:00 - 11:00; Saturday, February 20
Come, Watson! The Game is afoot! Creating Fun, Effective Math Games
David Ewing, University of Central Missouri

Learn to create games that are truly effective, fun and specifically tailored for your classroom! The 7 Fundamental Requirements for creating (and evaluating) games will be presented as we create games in number systems, algebra, geometry and probability. (Grades 3-12 and adults, too!)
3-6|M

54. 8:00 - 11:00; Saturday, February 20
Modeling in the Science Classroom - A Metacognitive Practice
Linda Lacy, Science Teachers of Missouri (STOM)

Edible Cells, bottle cap molecular models, and balloon solar system models stop short when explaining students’ conceptual understanding. Develop your understanding of modeling to uncover and scaffold student explanations of science concepts.
K-2; 3-6|S

CANCELLED

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Martha Short, Show-Me Professional Development

Learn how to take an outstanding math or science lesson and parlay it into a $10,000 award to use at your discretion, a meeting with the U.S. President and other state and national leadership opportunities.
K-2; 3-6|M; S; E; T

52. 8:00 - 11:00; Saturday, February 20
Vocabulary Counts: Understanding the Language of Mathematics
Myra Collins, NE Regional Professional Development Center

Teaching Children Mathematics, May 2015, states that math skills suffer if students do not understand the vocabulary. Effectively teaching vocabulary is an essential part of today’s instructional time. This workshop will offer participants an opportunity to explore strategies that can strengthen students’ understanding and use of the language of mathematics.
K-2; 3-6|M

53. 8:00 - 11:00; Saturday, February 20
Come, Watson! The Game is afoot! Creating Fun, Effective Math Games
David Ewing, University of Central Missouri

Learn to create games that are truly effective, fun and specifically tailored for your classroom! The 7 Fundamental Requirements for creating (and evaluating) games will be presented as we create games in number systems, algebra, geometry and probability. (Grades 3-12 and adults, too!)
3-6|M

54. 8:00 - 11:00; Saturday, February 20
Modeling in the Science Classroom - A Metacognitive Practice
Linda Lacy, Science Teachers of Missouri (STOM)

Edible Cells, bottle cap molecular models, and balloon solar system models stop short when explaining students’ conceptual understanding. Develop your understanding of modeling to uncover and scaffold student explanations of science concepts.
K-2; 3-6|S

CANCELLED
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<thead>
<tr>
<th>Speaker Name</th>
<th>Session</th>
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## Day 1 — Schedule at a Glance

### Interface B Sunday, February 21, 2016

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**First Timers Session**

**Keynote Speaker and Plated Luncheon Salon B/C**

- **Energy Break**
  - 1:30 - 2:00: Keynote Speaker and Plated Luncheon Salon B/C
  - 5:30 p.m. - 6:30 p.m.: Vendor Dinner Buffet

**Vendor Dinner Buffet**

- **Door Prizes:** Must be present to win.
**Day 2 — Schedule at a Glance**

**Interface B**

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**MATH**

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**OTHER**

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**Session 44 (Part 1 of 2) S,E**

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**Sessions 59 and 60: DESE Science and Math Updates S,M**

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**Session 57a CANCELLED**
# Day 3 — Schedule at a Glance

**Interface B**

**Tuesday, February 23, 2016**

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<th>Session 54b</th>
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**Vendors Closed**

**Session Code Key:**
- **S** = Science
- **T** = Technology
- **M** = Math
- **E** = Engineering

**CANCELLED**
Concurrent Sessions – Interface B

Sunday Vendor Dinner Buffet

February 21, 2016
5:30–6:30 p.m.
Salon B–C

Meet the vendors, browse displays, and be eligible for some great door prizes. Your Buffet Dinner ticket, with your name printed on the back, will be your ticket to enter for door prizes to be given away. MUST BE PRESENT TO WIN.

1. 9:00 - 9:30; Sunday, February 21
First Timers’ Session
Dalena Allen, West Plains R-VII School District

This may be your first or fiftieth year of teaching, but if it’s your first time attending Interface, join us from 9:00-9:30 am in Salon B to learn more about how to get the most out of the event.
All Grades|M; S

90-Minute Sessions

2a. 10:00 - 11:30; Sunday, February 21
2b. 2:30 - 4:00; Monday, February 22
Optimizing Assessments for Standards-Based Grading and Effective Student Feedback
Luis Actis, Kirkwood R-VII Schools

This presentation focuses on the power of specific formatting to effectively assess students and provide meaningful feedback. Special attention is given to minimizing the amount of time spent on grading while not sacrificing feedback. Student reflection after an assessment is also addressed.
6-8|M; T

3a. 10:00 - 11:30; Sunday, February 21
3b. 12:30 - 2:00; Monday, February 22
Implementing Project Based Learning in the Science Classroom
Tony Atkins and Debbie Gatrel, Excelsior Springs School District

Teachers will get an introduction into Project Based Learning and will be given an opportunity to develop project ideas to implement in their own classrooms. Teachers will also take part in activities that focus on giving and receiving good feedback when collaborating in the classroom.
7-8|S; E

4a. 10:00 - 11:30; Sunday, February 21
4b. 2:30 - 4:00; Monday, February 22
Graph It!-Quantitatively AND Qualitatively with the 5E Lesson Model
Leslie Carlisle, University of St Mary

Using the 5E Lesson Model and simple materials, participants will learn how to teach quantitative and qualitative graphing to any age group with minor modifications. Explore the relationship of height to volume in water-filled containers of various shapes. Presentation incorporates student samples of thinking, technological resources and lessons learned.
7-8; 9-12|M; S

5a. 10:00 - 11:30; Sunday, February 21
5b. 8:00 - 9:30; Monday, February 22
Implementing Statistics in the Biology Classroom: A Hands-On Workshop
Pamela Close, Columbia Public Schools

The workshop will provide participants with classroom-ready resources and strategies for incorporating math and statistics into their biology classroom in line with AP and IB Biology Curricular Frameworks and the NGSS. AP level activities may be scaled for use in General Biology. Participants are encouraged to bring a device capable of running Excel or Google Sheets.
9-12|M; S

6a. 10:00 - 11:30; Sunday, February 21
6b. 12:30 - 2:00; Monday, February 22
Middle School STEM Night
Amy Diehl and Jami Smith, Archie R-V Schools

How do we get parents into our building to see what we’re doing AND get them involved? We host a middle school STEM Night. This is a chance for families to do fun, engaging activities involving Science, Technology, Engineering, and Math. Come join us as we discuss how we organize this event and participate in some of the activities!
7-8|M; S; E; T

7. 10:00 - 11:30; Sunday, February 21
Mathematical Modeling: Doing it Right!
David Ewing, University of Central Missouri

Great teaching practices involve presenting content that is meaningful and inspirational. Modeling can do this effectively, often connecting to many branches of the student’s curriculum. By examining the Core Curriculum and approaches such as Dan Meyer’s “Three-Act Tasks”, learn how to create and use “models” that truly help students learn. iPads and graphing calculators are welcome.
7-8; 9-12|M
Concurrent Sessions

8a. 10:00 - 11:30; Sunday, February 21
8b. 8:00 - 9:30; Monday, February 22
Get Your Act Together!
Amy King and Cortney Richardson, Troy R-III Schols

We will share how to set up 3 act lesson designs and math journals to help meet the needs of all levels of learners in your inclusive classroom.
7-8; 9-12|M

9a. 10:00 - 11:30; Sunday, February 21
9b. 2:30 - 4:00; Monday, February 22
Exploring Ecology Through the Lens of Climate Change
Deanna Lankford, University of Missouri

Join us as we present issue-based investigations aligned with the NGSS to explore the development and use of multiple models, including graphs, charts and other representations to explain the cycling of matter and the flow of energy through biotic and abiotic factors within an ecosystem in response to climate change.
7-8; 9-12|S

10. 10:00 - 11:30; Sunday, February 21
Top Augmented Reality Tools
John Riley, MOREnet

Augmented Reality has gone from science fiction pipe dream to practical reality. Check out these impressive AR apps for Android and iOS. Come explore a new way to see and interact with the world.
7-8; 9-12|S; T

11a. 10:00 - 11:30; Sunday, February 21
11b. 8:00 - 9:30; Monday, February 22
Hot Dog Soup and Other Creative Recipes for Teaching Cell Division
Carol Robertson, Fulton 58 School District
Reian Roberts, Smithville R-II School District

Learn a 5E approach to teaching cell division while incorporating creative catch phrases, using analogies and models and getting hands on experience. Discover common misconceptions of students and issues you may find in textbooks. Take home a packet of activities and ideas to help your students be more successful!
9-12|S

12a. 10:00 - 11:30; Sunday, February 21
12b. 8:00 - 9:30; Monday, February 22
The Flipped Geometry Classroom
Mary Jude Schmitz, Nerinx Hall High School, Webster Groves

In this session, I will be presenting how I flipped my Geometry Honors Class. I will talk about what software I used, how I organized the class, and the resources I used to plan my class. I will also talk about the success and things I plan to improve in the next year.
9-12|M

13a. 10:00 - 11:30; Sunday, February 21
13b. 4:00 - 5:30; Sunday, February 21
Math 6-12: Let Practice Standards Lead the Way!
Cris Sheffel, University of Missouri
Jay Roth, Lebanon R-III Schools

What should the Standards for Mathematical Practice look like in your math courses? How do we get students to do those things? Establish a classroom culture that fosters student engagement in the Practice Standards, prioritize for effective implementation and see your content through the lens of the Practice Standards.
7-8; 9-12|M

14. 10:00 - 11:30; Sunday, February 21
Turning Students Into Posers + Solvers
Michael Fenton, Keynote Speaker

Boost your students’ problem solving superpowers by having them pose their own problems. Join us for a session filled with visually engaging mathematical prompts. Learn how to develop CCSSM practices through problem posing and problem solving.
All Grades |M; S

15a. 10:00 - 11:30; Sunday, February 21
15b. 2:00 - 3:30; Sunday, February 21
NASA Resources for Physics
John Weis, NASA Marshall Space Flight Center

There’s more out there than you think! Join us and learn about many of the resources that NASA has available at no cost to educators. Emphasis will be on hands-on resources which promote inquiry. Topics covered will include Force and Motion, Energy, Optics, Gravity and Relativity.
7-8; 9-12|S

16a. 2:00 - 3:30; Sunday, February 21
16b. 12:30 - 2:00; Monday, February 21
Engaged in Mathematics
Trish Goddard, Retired - Missouri State University

The participants will be shown engaging activities for learning and using mathematics for their grade level.
7-8; 9-12|M
Concurrent Sessions

17a. 2:00 - 3:30; Sunday, February 21
17b. 4:00 - 5:30; Sunday, February 21

**Understanding Earthquakes & Next Generation Science Standards**
Lloyd Barrow, *University of Missouri*

This workshop will focus upon all five types of plate movements that causes earthquakes. This includes interplate earthquakes like the New Madrid seismic zone and near hydraulic fracturing sites. Relevant aspects of Next Generation Science Standards will be addressed.
7-8; 9-12*S

18a. 2:00 - 3:30; Sunday, February 21
18b. 4:00 - 5:30; Sunday, February 21

**More-gami!**
Nancy Bergfeld, *Northwest R-I Schools*

Be prepared to keep those fingers folding for 90 minutes! Participants will create an origami model while discussing the connections to strands in mathematics. All materials provided.
7-8; 9-12|M

19a. 2:00 - 3:30; Sunday, February 21
19b. 4:00 - 5:30; Sunday, February 21

**Project Lead The Way, a K-12 STEM Solution**
David Hosick, *Project Lead the Way*
Jim Hogan, *Missouri Department of Elementary and Secondary Education*

Historically, science and math have been taught in isolation. Learn how to use the project-based aspects of the Project Lead The Way curriculum give students a chance to apply what they know, identify a problem, find unique solutions, and lead their own learning, rather than be passive recipients of information in a question-and-answer, right-or-wrong learning environment.
7-8; 9-12|M; S; E; T

20a. 2:00 - 3:30; Sunday, February 21
20b. 10:00 - 11:30; Monday, February 22

**Hands on Equations**
Gara Ipock, *Manes R-V Schools*

Come and learn new methods for manipulatives to promote concrete learning in algebra. Your students will be doing equations with ease.
7-8; 9-12|M

21. 2:00 - 3:30; Sunday, February 21

**Intro to Coding in the Classroom**
Andy King, *MOREnet*

In this session we will explore code.org resources and Scratch, a coding language designed for ages 8-16. No coding experience is needed for this fun session. This session is designed for beginners.
7-8; 9-12|M; S; E; T

22a. 2:00 - 3:30; Sunday, February 21
22b. 10:00 - 11:30; Monday, February 22
22c. 12:30 - 2:00; Monday, February 22

**Move It! Move It! Active Learning Strategies for ALL**
Calee McElwain and Kim Goforth, *Raymore-Peculiar R-II Schools*

Increase student engagement by using active learning strategies. Activities can be applied to a variety of content concepts. Reach your kinesthetic learners by getting them up and moving while introducing new content, processing, reviewing, or assessing content. Come move with us!
7-8; 9-12|M; S

23a. 2:00 - 3:30; Sunday, February 21
23b. 10:00 - 11:30; Monday, February 22

**Flipping for NGSS: Differentiated Lessons to Stretch all Learners**
Tonyaleea (Tonya) Sharp and Carla Johnson, *St. Joseph Schools*

Come explore strategies for differentiation as you implement NGSS. Learn to create video resources and assessment tasks that ensure success for all learners. Teachers are overwhelmed with trying to meet the needs of every learner as they work to implement NGSS. Learning new strategies for differentiated instruction is essential for new teachers as well as veterans.
7-8|S

3-Hour Sessions

24. 2:00 - 5:00; Sunday, February 21

**Introduction To POGIL (Process Oriented Guided Inquiry Learning)**
Kathleen Dwyer, *Maplewood-Richmond Heights Schools*

Learn the benefits of this instructional technique in which students work in small groups on specially designed guided inquiry materials. Participants will experience a POGIL-based learning environment, analyze activities to understand how guided inquiry is structured in a POGIL classroom and consider classroom facilitation issues related to implementation.
9-12*S
Concurrent Sessions

25. 2:00 - 5:00; Sunday, February 21
   Come, Watson! The Game is afoot! Creating Fun, Effective Math Games
   David Ewing, University of Central Missouri
   Learn to create games that are truly effective, fun, and specifically tailored for your classroom! The 7 Fundamental Requirements for creating (and evaluating) games will be presented as we create games in number systems, algebra, geometry and probability. (Grades 3-12 and adults, too!)
   7-8; 9-12|M

26. 2:00 - 5:00; Sunday, February 21
   Modeling in the Science Classroom - A Metacognitive Practice
   Linda Lacy, Science Teachers of Missouri
   Edible cells, Ball-and-stick molecular models and balloon solar system models stop short when explaining students' conceptual understanding. Develop your understanding of modeling to uncover and scaffold student explanations of science concepts.
   7-8|S

27. 2:00 - 5:00; Sunday, February 21
   Engaging EXPLORATIONS in Data, Statistics and Probability
   Stacey Robinett, Republic R-III Schools
   Come experience some engaging explorations that will challenge your students' thinking while...demystifying the mean, discovering what a genius Alfred E. Butts really was, simulating a sampling of the elk population in Yellowstone (non-fiction article connection), turning Lucky 7 on its ear and much more.
   7-8|M

90-Minute Sessions

28a. 4:00 - 5:30; Sunday, February 21
28b. 8:00 - 9:30; Monday, February 22
   Making Math Relevant
   Blu Beckers and Glen Gillogly, Warrensburg R-VI Schools
   As teachers, we know math is relevant, but students don’t always see its worth. Using real-life applications in your instructional units, we can match student interests and increase engagement. For example, our sporting unit uses the Pythagorean Theorem, mean, median, mode, angle relationships and triangles. This session will explain how this works in our classroom and how you can apply it to yours.
   7-8; 9-12|M

29a. 4:00 - 5:30; Sunday, February 21
29b. 10:00 - 11:30; Monday, February 22
   Volumize Student Understanding
   Emily Combs and Chrissy Yingst, Clinton Schools
   Create a solid foundation and build an understanding about volume that doubles and triples in size. Participate in activities that maximize engagement and encourages predictions. Explore assessments modeled after Standards Based Grading to check for understanding and empowers a growth mindset.
   7-8; 9-12|M

30. 4:00 - 5:30; Sunday, February 21
   App Smashing for iPads
   Andy King, MOREnet
   In this hands-on session we will focus on combining 2-3 apps to complete a project. The apps will be general enough to use with nearly all curriculum standards. We will have a few iPads for you to use but BYODEvice is encouraged.
   7-8; 9-12|M; S; T

31a. 4:00 - 5:30; Sunday, February 21
31b. 12:30 - 2:00; Monday, February 22
   MS NGSS History of the Earth: Activities That Make These Standards Fun
   Beth Newton and Jennifer Szydlowski, Columbia Public Schools
   A workshop providing lessons and strategies supporting the MS History of the Earth NGSS. This session will provide lessons and strategies that engage students helping them to master necessary History of the Earth content. Lessons will provide content that integrates technology and focuses on using evidence to construct and share ideas.
   7-8|S; E; T

32a. 4:00 - 5:30; Sunday, February 21
32b. 2:30 - 4:00; Monday, February 22
   Mystery and Mayhem; An Interdisciplinary Activity
   Autumn Palmer, Carthage R-IX Schools
   Want to know how to get multiple classes from multiple disciplines to work together on a schoolwide lesson? Come see how one school has implemented a schoolwide murder mystery for the past 17 years; starting at the crime scene and ending in front of a real judge.
   7-8; 9-12|M; S

CANCELLED
33. 4:00 - 5:30; Sunday, February 21
Fabulous $$$$ Funding Opportunities for Your Math or Science Classroom
Martha Short, Show-Me-Professional Development

Many corporations and professional organizations have money to give away for worthy projects envisioned by deserving teachers. Gain the latest information on these grants, learn winning/writing strategies, take lots of notes and leave with a wealth of ideas to fund your classroom lessons.
7-8; 9-12|M; S; E; T

34a. 8:00 - 9:30; Monday, February 22
34b. 10:00 - 11:30; Monday, February 22
How to Keep Teacher/Student Relationships IN the Equation While Using Technology
Erin Branstetter, Bolivar R-I Schools

Oftentimes, the biggest complaint with technology is that it cuts down on the relationships between teachers and students. I will show you how to use different pieces of technology to build and maintain relationships between teachers and students. This session will include the use of different programs and apps, bring your electronic device!
7-8; 9-12|S

35a. 8:00 - 9:30; Monday, February 22
35b. 10:00 - 11:30; Monday, February 22
Chemistry? Let's Make It Inquiry!
Shelby Bunn and Jennifer Jurgensmeyer, Republic R-III Schools

Chemistry has high potential to integrate inquiry into the curriculum while keeping kids safe. This session will help in demonstrating ways to turn demonstrations or cook-book labs/activities into inquiry activities. For both Biology and Chemistry teachers!
9-12|S

36. 8:00 - 9:30; Monday, February 22
Reading in all Contents
Melia Franklin and Debbie Jameson, Missouri Department of Elementary and Secondary Education

In this session, the Director and Assistant Director will discuss how one best infuses literacy into math curriculum authentically without sacrificing valuable time and content.
7-8; 9-12|M; S

37a. 8:00 - 9:30; Monday, February 22
37b. 10:00 - 11:30; Monday, February 22
The Station Approach: Using Learning Centers to Teach with Limited Resources
Sarah Harashe and Denise Jones, Rockwood R-VI Schools

Will show how to have students work on a computer, do a lab activity and an independent assignment all in one class period using the station approach. By setting up a classroom into several stations, a teacher can increase the likelihood of student success. This strategy enables teachers to continue to do labs and activities by utilizing limited resources.
7-8; 9-12|S

38. 8:00 - 9:30; Monday, February 22
Intro to Google Sheets
Andy King, MOREnet

Google Sheets are a great way to organize and analyze data. This hands-on session will provide you with some basic skills to begin to implement Google Sheets into your classroom. This session is designed for beginners.
7-8; 9-12|M; S; E; T

39. 10:00 - 11:30; Monday, February 22
Intro to Google Classroom
Andy King, MOREnet

Google Classroom is a powerful, easy to use tool for managing and organizing your Google environment. Use it to deliver content, store important materials for students to access, share and upload student work, assign grades and more. In this hands-on session we will set up classes and look at examples of how math and science classes can benefit from this powerful Google resource.
7-8; 9-12|M; S; E; T

40a. 8:00 - 9:30; Monday, February 22
40b. 2:30 - 4:00; Monday, February 22
Ready, Set, Engage: Addressing the Mathematical Practices through Number Talks
Camie Lyons, Republic R-III Schools

What is the missing piece in most math curriculum? Come learn how to engage your students in the Mathematical Practice Standards. Through daily, 10 minute number talks, teachers can engage students in the Mathematical Practice Standards while deepening student’s conceptual understanding. Number Talks increase student’s problem solving flexibility and increase student’s critical thinking skills.
7-8|M
Concurrent Sessions

41a. 8:00 - 9:30; Monday, February 22
41b. 12:30 - 2:00; Monday, February 22

Launching Into Linear Functions
Natalie Moon, Ozark R-VI Schools

Students struggle with the concept of a function. They hear the word in class but never have experiences. Join us in a hands-on, engaging, context based workshop that will launch you back to your classroom with tasks for your students. This workshop will help 6th through 9th grade teachers and beyond.
7-8; 9-12|M; S; T

42a. 8:00 - 9:30; Monday, February 22
42b. 12:30 - 2:00; Monday, February 22

The Joy of Fishing and Learning Too!
Kathi Moore and Kim Cole, Missouri Department of Conservation

Fishing translates into the study of science and math by studying fish anatomy, habitats and life cycles. Discover Nature Fishing (DNF) is a practical application of the Discover Nature School’s Conserving Missouri’s Aquatic Ecosystems curriculum and has unlimited possibilities for fishing teams, science fair projects or after school fishing clubs.
7-8; 9-12|M; S

43a. 8:00 - 9:30; Monday, February 22
43b. 10:00 - 11:30; Monday, February 22

Chromecast in the Classroom: Getting the Most out of Mobile Devices
Richard Rechtien, Warren Co R-III Schools

The Google Chromecast is a tool that allows teachers to display from their mobile device to any screen or projector that has an HDMI input. There are many apps available that can be used in the classroom, as well as the option to show your entire screen. You can turn your projector into a smartboard while staying mobile, show movies, explore, play games and much more.
7-8; 9-12|M; T

6-Hour Session

44. 8:30 - 11:30; Monday, February 22
12:30 - 3:30; Monday, February 22

Project WET (Water Education for Teachers) and NGSS
Erica Cox, Missouri State University
Joe Pitts, James River Basin Partnership

Project WET Activities have been used in classrooms for years, but this workshop will focus on integrating science, ELA, engineering and some math into your classroom through the use of Project WET activities. Optional: Take one activity with you or bring $25 to receive the Project WET guide.
7-8; 9-12|S; E

90-Minute Sessions

45a. 10:00 - 11:30; Monday, February 22
45b. 2:30 - 4:00; Monday, February 22

Orchestrating Productive Struggle and Problem Solving
Cindy Bryant, LearnBop

Our classrooms are full of problem solvers - some experienced and some inexperienced. During this session we’ll discuss the meaning and relevance of productive struggle and explore practices, habits, activities and questions that promote productive struggle and problem solving in mathematics.
7-8; 9-12|M

46a. 10:00 - 11:30; Monday, February 22
46b. 2:30 - 4:00; Monday, February 22

Aquatic Postcards
Jeff Cantrell, Missouri Department of Conservation

Our local water canaries, mussels, and other aquatic life are sending us a clear message. We will investigate the amazing life of our local waters and take a look at water quality with the aid of Missouri Department of Conservation activities. Discover Nature Schools grant info and curriculum will be shared.
7-8|S

47a. 10:00 - 11:30; Monday, February 22
47b. 10:00 - 11:30; Tuesday, February 23

Teaching Mathematics through Investigations
Melissa Fike and Danielle Ryan, Columbia Public Schools

This session will focus on creating and using an investigative approach to teaching and learning mathematics.
7-8|M

48a. 10:00 - 11:30; Monday, February 22
48b. 2:30 - 4:00; Monday, February 22

Secondary Content Literacy Strategies
Jennifer Renegar and Sherri Coates, Republic R-III Schools

Participants will practice highly engaging content literacy strategies that encourage making connections and critical thinking with examples from math and science. All materials will be shared electronically.
7-8; 9-12|M; S
Concurrent Sessions

49. 10:00 - 11:30; Monday, February 22
   Inquiring minds really DO want to know...let's bring the JOY back to mathematics
   Stacey Robinett, Republic R-III Schools
   Come and investigate some truly engaging problems and patterns that earnestly challenge our kids to become...curious explorers, thinkers and doers of mathematics, pattern seekers, masters of multiple approaches, and collaborators. One of our problems will also help us to build a bridge between arithmetic and algebra. Come explore.
   7-8|M

50a. 12:30 - 2:00; Monday, February 22
50b. 10:00 - 11:30; Tuesday, February 23
   The Perks of Being a Flipper
   Crystal Cavelli and Barb Steel, West St Francois Co R-IV Schools
   Learn the advantages and dangers of the flipped classroom...from teachers who’ve been there! We’ll share the ups and downs of implementing the flipped classroom model and the data that we’ve collected.
   7-8; 9-12|M; S; T

51a. 12:30 - 2:00; Monday, February 22
51b. 2:30 - 4:00; Monday, February 22
   What's Math Got to Do with It? Making Meaningful Connections Between Math and Art
   Carol DeFreese, University of Missouri-St. Louis
   Discover links between art and math in this hands-on session. You’ll explore two classroom-ready projects that will allow your students to be creative and to see rich mathematical connections between geometry and proportions. Bring a laptop or tablet for extra fun.
   7-8; 9-12|M; T

52a. 12:30 - 2:00; Monday, February 22
52b. 8:00 - 9:30; Tuesday, February 23
   Science, Math, and Literacy: The Tremendous Trio for Enhancing Student Learning
   Deanna Lankford and Amy Lannin, University of Missouri
   Join us and explore strategies for incorporating reading, writing and communication into your science or mathematics instruction. Literacy strategies are effective tools for clarifying ideas, designing investigations, making claims, presenting and defending arguments and communicating findings. Enhance conceptual understanding by encouraging students to read, write, and communicate.
   7-8; 9-12|M; S

53a. 12:30 - 2:00; Monday, February 22
53b. 2:30 - 4:00; Monday, February 22
   Out of this World Earth Science Activities
   Peggy Paul, Moberly Schools
   This session will include hands-on activities that will engage students in exploring the universe and how scientists classify celestial bodies. This session will include hands on geology activities from chemical and mechanical weathering, a rock cycle game to radioactive decay. Teachers will leave with an activity that will allow students to construct weather maps from a given set of data. There are no materials or resources needed to attend this session.
   7-8|S

54a. 12:30 - 2:00; Monday, February 22
54b. 8:00 - 9:30; Tuesday, February 23
   Google Sheets for the Science Classroom
   John Riley, MOREnet
   Google Sheets is a powerful tool for the science classroom allowing students to manipulate and visualize data. This hands-on session will focus on basic features, formulas and graphing/charting functionality of Google Sheets; part of the Google Drive suite of tools.
   7-8; 9-12|T

55a. 12:30 - 2:00; Monday, February 22
55b. 8:00 - 9:30; Tuesday, February 23
   Mastering Math Journals
   Alexandria Warmack and Jana Stockstill, Bolivar R-I Schools
   We will be looking at setting up math journals in your classroom. You will leave with many templates for foldables and ideas of how to implement the use of journals in your middle school math classroom.
   7-8|M

56. 12:30 - 3:30; Monday, February 22
   Middle School Math Mania
   Maida Russell, Springfield R-XII Schools
   Amanda Schweissguth, School District of Washington
   Keeping middle school students engaged and interested in math can often be challenging. Let us share a variety of activities and strategies that engage students at all levels in our classrooms including: cooperative learning, PBL, problem solving, inquiry based learning, and more. Leave with ideas to implement with ease.
   7-8|M
57a. 2:30 - 4:00; Monday, February 22
Its Not About the Test; Its About the Skills
Melody Green, Three Rivers Community College
Daniel Green, Meadow Heights R-II Schools
Research-based strategies and techniques teachers can use to help students develop critical thinking skills. These include inquiry activities and practices that promote critical thinking to increase student learning, student application of skills and student performance on assessments.
7-8; 9-12|S

57b. 10:00 - 11:30; Tuesday, February 23

62a. 8:00 - 9:30; Tuesday, February 23
62b. 10:00 - 11:30; Tuesday, February 23
Demon in the Freezer: Integrating Science and English
Sarah Cramer and Cassy Nicolay, Lincoln R-II Schools
A look at how a high school English and science teacher collaborate using a non-fiction novel. Will address Missouri Learning Standards, literacy, and the use of Google products to facilitate integration with science and English.
9-12|S

58. 2:30 - 4:00; Monday, February 22
Spin the SAMR Wheel
John Riley, MOREnet
Learn ways to effectively integrate education technology with the many apps available. We will learn how to sort dozens of apps into the steps of Bloom’s Digital Taxonomy and into the SAMR Model so you can get your students to start creating with the new technology.
7-8; 9-12|M; S; T

60-Minute Sessions

59. 4:00 - 5:00; Monday, February 22
DESE Updates - Science
Shaun Bates, Missouri Department of Elementary and Secondary Education
7-8; 9-12|S

60. 4:00 - 5:00; Monday, February 22
DESE Updates - Mathematics
Jeremy Ellis, Missouri Department of Elementary and Secondary Education
7-8; 9-12|M

90-Minute Sessions

61a. 8:00 - 9:30; Tuesday, February 23
61b. 10:00 - 11:30; Tuesday, February 23
Exploring Essential Processes in 7-12 Science
Patrick Brown, Ft. Zumwalt R-II Schools
James Concannon, Westminster College
Teachers will learn how to help students design science experiments (formulating hypothesis, constructing data tables and graphs, writing conclusions) individually, as a group, or as a whole class so that they include greater amounts of essential practices and experiences making claims based on evidence.
7-8; 9-12|S

65a. 8:00 - 9:30; Tuesday, February 23
65b. 10:00 - 11:30; Tuesday, February 23
Empower your Students with Interactive Notebooks
Sharon Moehle and Melinda Whitney, Camdenton R-III Schools
When did we do that? Discover how interactive notebooks become a resource tool empowering students to be organized and independent learners. Presenters will share artifacts of student notebooks and provide take-a-ways including Cornell notes, graphic organizers, foldables and other tools to support the success of students in the math classroom.
7-8; 9-12|M; T
66a. 8:00 - 9:30; Tuesday, February 23
66b. 10:00 - 11:30; Tuesday, February 23

Gettting it W.R.I.T.E. (Writing, Reading, Inquiry, Technology, & Engagement) in Mathematics
Diana Piccolo, Missouri State University
Jan VanGilder, Southwest Center for Educational Excellence

This presentation will show how middle and high school math teachers use strategies and processes of algebra curriculum to move their students into inquiry environments, integrate literacy into mathematics, make curriculum decisions based on assessment data and use computer data systems to track their students’ achievement and improvement.

7-8; 9-12|M

67a. 8:00 - 9:30; Tuesday, February 23
67b. 10:00 - 11:30; Tuesday, February 23

Engaging Daily Demos as Formative Assessment Tools
Shannon Rosenkrans and Quintin Heaton, Hannibal 60 District

We will present a series of daily demo ideas for chemistry and biology classes that can be used to engage students and check for conceptual understanding.

9-12|S

68a. 8:00 - 9:30; Tuesday, February 23
68b. 10:00 - 11:30; Tuesday, February 23

Activites and Projects to Supplement Your Math Class
Robert Rowe, Columbia College

Activities and projects designed to supplement the curriculum in an Algebra 2, College Algebra and/or a Pre-calculus course will be demonstrated and shared. Topics include: linear, quadratic, exponential, regression and trigonometry applications. Participants should bring an empty TI-83 plus, TI-84 plus, or memory stick.

9-12|M

69. 8:30 - 11:30; Tuesday, February 23

Project Learning Tree Secondary Modules
Erica Cox, Missouri State University
Courtney Broser, Republic R-III School District

Do you need activities to teach topics like climate change and other science issues with unbiased materials? Do you need activities to work towards NGSS? Experience activities and receive training. Optional: For $5, take a PLT module with you.

7-8; 9-12|S

70. 10:00 - 11:30; Tuesday, February 23

All Together Now.. With Nearpod and Edueto
John Riley, MOREnet

Create original online exercises. What do you do when you throw a party and everyone shows up with their own device. There you are trying to communicate with a mixture of devices and platforms. Nearpod is a presentation tool that allows you to synchronize your content on all student devices.

7-8; 9-12|T