

A nighttime photograph of the Detroit skyline, Michigan, viewed from across a body of water. The city lights are reflected on the water's surface. The sky is a deep blue, and the buildings are illuminated with various colors, including red, white, and yellow. The foreground shows a dark railing and the silhouette of a person's head and shoulders.

**The Detroit Area Council of Teachers of Mathematics &
The Metropolitan Detroit Science Teachers Association
Present the 2016 Math-Science Fall Conference**

**Saturday, November 5, 2016
Cousino High School
30333 Hoover Road
Warren, MI 48093
(Cover photo: Don Lamontagne)**

Cousino High School
30333 Hoover Road
Warren, MI 48093

Exhibitor Parking



Attendee Parking

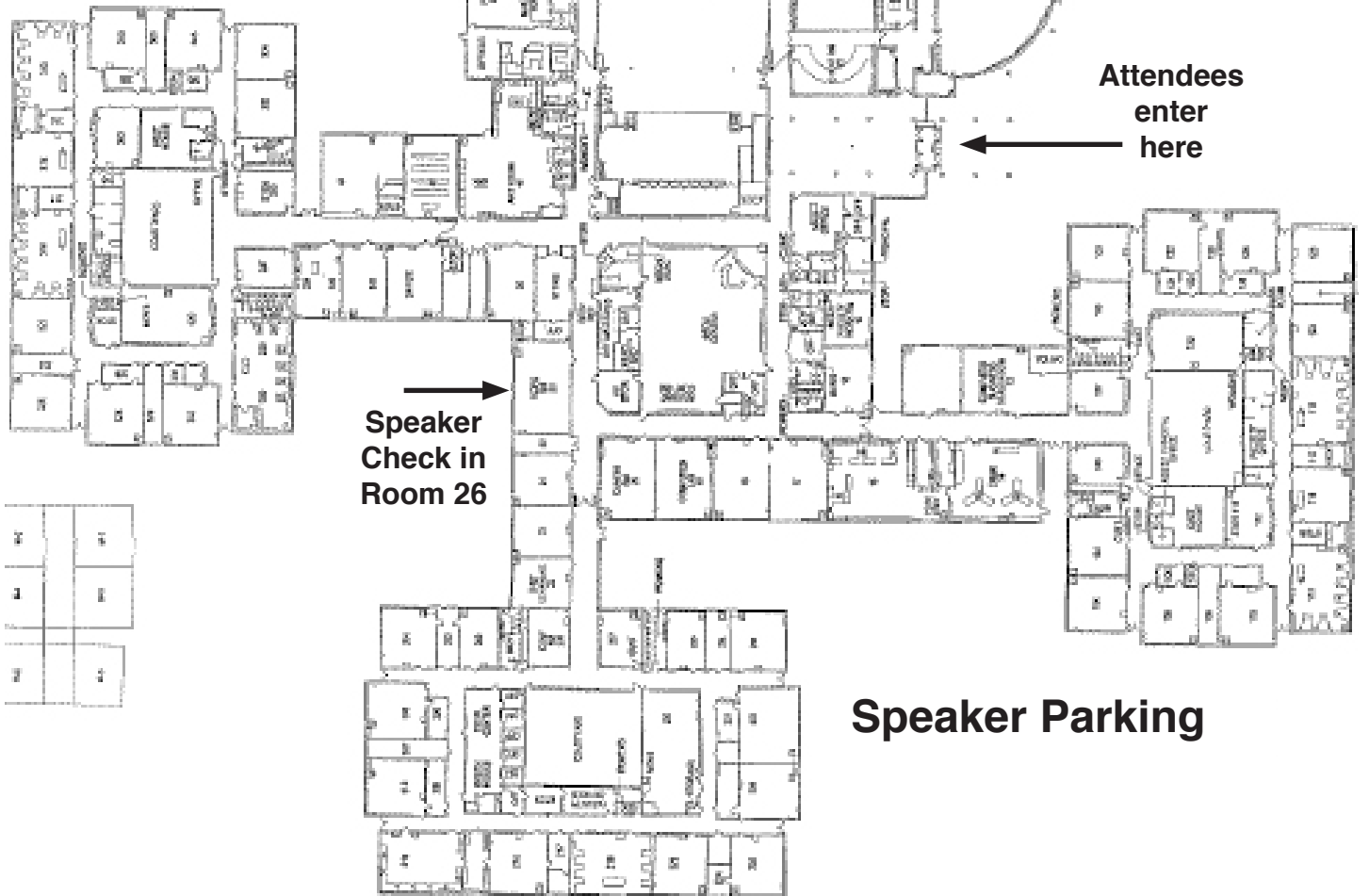
Attendees
enter
here



Speaker
Check in
Room 26



Speaker Parking



24	25
26	27
28	29

7:30-8:00 a.m. SCECHs Sign-In (Cafeteria)

Guidelines

Teacher Information on State Continuing Education Clock Hours (SCECHs)

Guidelines from our SCECHs sponsor, the Macomb Intermediate School District and SCECH Coordinator, Deborah Forton:

Please follow these directions.

1. You **MUST** contact the MOECS (Michigan Online Educators Certification System) at the MDE prior to the conference to get your Personal Identification Code (PIC). SCECHs will not be awarded without your PIC. The PIC (Personal Identifier Code) is a requirement on the Individual Application. Participants can get their PIC from the Michigan Online Educator Certification System (MOECS). Directions to access the code can be found on the Website <http://www.misd.net/scech/index.html>.
2. Pick up the SCECH registration and Passport forms by 8:00 a.m. **THE FORMS WILL ONLY BE AVAILABLE UNTIL 8:00 a.m.**
3. Participants must **sign in BEFORE** first session begins at 8:00 a.m. and **sign out AFTER** the last session ends at 3:30 p.m.
4. Teachers receive 5 SCECH hours. **Attending the vendor area/lunch DO NOT COUNT.** The hours must be instructional session time. No partial hours will be awarded.
5. Make sure you enter **1) the name of presentation, 2) presenter signature and 3) the code for each presentation you attend** on the Passport form.
6. Complete and return the SCECH registration form on site, at the end of the conference, and pay \$10 cash, check, or charge. **The form will not be accepted after the SCECHs table closes at the end of the conference.**
7. The email address is also a requirement for participants to earn SCECHs. Be sure it is written clearly and completely.
8. Participants have 30 days to complete the evaluation after SCECHs are uploaded into MOECS. (Participants notified by email.) If they delay, they may forfeit their SCECHs. You will be notified by e-mail and required to complete the online evaluation.

Failure of a participant to attend the entire 5 hours of instructional offerings, complete the Passport form, sign-in and out, and complete an online offering evaluation, will result in no SCECHs being awarded for that offering.

Visit www.dactmwildapricot.org or www.mdstawildapricot.org for updates prior to the conference.

7:30-8:00 a.m. SCECHs Sign-In (Cafeteria)



I Teach -- What's Your Superpower?



Pose for photos at our "I Teach, What's YOUR Superpower?" Photo Booth and then post to social media using the conference hashtag: #2016matsci. Like the Detroit Skyline with the Superhero "D"? We'll have some t-shirts for sale -- gray with black writing.



Cover Story

Amateur photographer Don Lamontagne snapped this evening Detroit skyline from the Windsor side of the Detroit River.

Thank you,
Silver Sponsor
★ETA Hand2Mind★
We appreciate your support
and supplying the red bags

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Prizes Ruffled Throughout the Day: Claim in Cafeteria

We've reorganized our raffle. Prizes will be raffled out throughout the day. Join our Remind group to be notified of the winners. Who knows, it could be you! **Prizes not claimed by 3:00 p.m. will be re-raffed.** Must be present to win. Winners can show their name tags to claim their prizes in the cafeteria. To sign up, follow the instructions below,

Sign up for the 2016 DACTM-MDSTA Annual Conference Raffle!

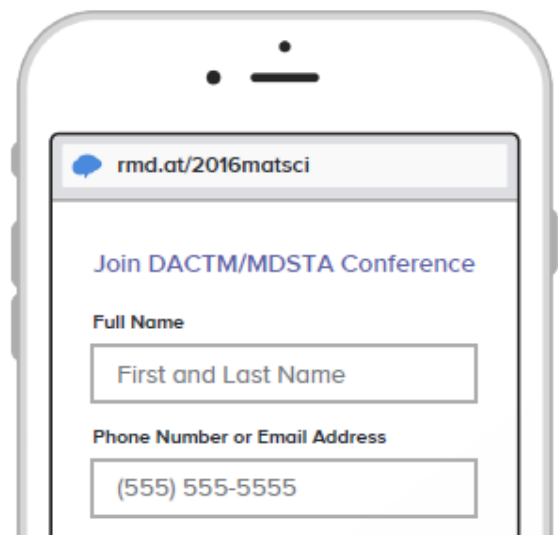
Pick a way to receive messages for DACTM/MDSTA Conference:

- A** If you have a smartphone, get push notifications.

On your iPhone or Android phone, open your web browser and go to the following link:

rmd.at/2016matsci

Follow the instructions to sign up for Remind. You'll be prompted to download the mobile app.

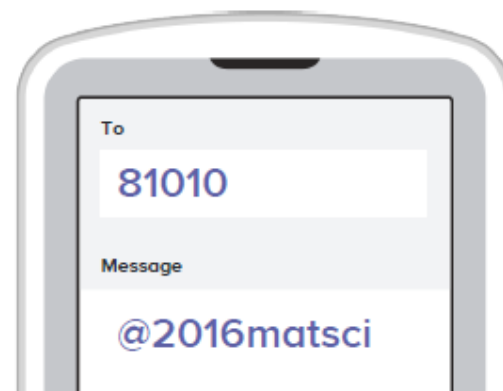


- B** If you don't have a smartphone, get text notifications.

Text the message @2016matsci to the number 81010.

If you're having trouble with 81010, try texting @2016matsci to (586) 690-6948.

** Standard text message rates apply.*





Welcome to the DACTM-MDSTA 2016 Fall Conference

The Metropolitan Detroit Science Teachers Association and the Detroit Area Council of Teachers of Mathematics welcome you to the 2016 Fall Conference. We are excited to spend a second year in Warren, MI – **Cousino High School!** Many thanks to Warren Consolidated Schools Superintendent, Dr. Robert Livernois, and Warren Consolidated Schools Chief Academic Officer, Mr. John Bernia, Cousino High School Principal, Mr. Bradley Perkins, and the CHS staff for making this possible!

This is the **LARGEST** math/science professional development event in the State of Michigan. Not only do we offer sessions and workshops on a variety of topics to both current and pre-service K-12 educators, but we also have a large variety of exhibitors who are happy to speak with you personally about how they can help the classroom teacher work to improve student achievement.

Please don't forget to engage in conversations with your peers attending this event. Whether you are sitting beside someone at a session, sharing a lunch table or visiting the same vendor, it is these face-to-face interactions that make live, in-person events such as this unique. Professional networking and idea sharing is what helps educators improve both their teaching practices and depth of content knowledge.



Special Announcements

- ◆ **Exhibits** in gym: 8:00a.m.-4:00p.m.
- ◆ **Drawing for prizes** in cafeteria throughout the day. See page 5 for more information & directions
- ◆ **Lunch:** 11:00a.m.-1:00p.m.
- ◆ **Please see pages 3 and 8 for SCECH directions.**
- ◆ Session meetings last one hour.
- ◆ Workshops last one hour and 20 minutes. **There are no 2:30 workshops.**
- ◆ There is no charge for workshops but attendance may be limited.
- ◆ Remember to get your updated matrix at the Registration Table(s) for cancelled/added sessions/workshops and room changes.
- ◆ Check coats/packages **free** in Room 83.
- ◆ **Graphing calculators are provided in sessions where necessary.**

SCECHs Overview

Michigan Department of Education
Office of Professional Preparation Services
Overview of the State Continuing Education
Clock Hour (SCECH) Program
Formerly known as the State Board Continuing
Education Unit (SB-CEUs) Program

What are SCECHs?

State Board-Continuing Education Units (SB-CEUs) were State Board approved in-service, workshop, training, or conference credits that were used for the renewal of selected certificates issued by the Michigan Department of Education (MDE). SB-CEUs were calculated by dividing the total number of contact or instructional hours by the number 10. Thus, an eight (8) hour session would be eligible to receive eight tenths (0.8) of an SB-CEU.

On May 18, 2012, the Michigan Legislature changed the Administrative Rules which changed SB-CEUs to State Continuing Education Hours and those hours are to be clock hours. The MDE combined the terms to name the renewal credits **State Continuing Education Clock Hours (SCECHs)**. SCECHs are State-approved in-service, workshop, training, or conference credits that are used for the renewal of selected certificates issued by the MDE. SCECHs are the total number of instructional hours in a program.

Conferences, Workshops, Etc.

Attendance at traditional workshops, seminars, trainings, and conferences is verified by 100% attendance. **Failure of a participant to attend the entire offering, complete the Passport form, sign-in and out, and complete an online offering evaluation, will result in no SCECHs being awarded for that offering.**

See pages 3 or 8 for complete directions.

Key to Icons and Acronyms



includes computers
or computer lab



graphing calculator(s)
used and provided



make and take



connection to reading



connection to writing



may be of special interest
to new/pre-service teachers



music content



includes CCSS/NGSS



environmental connection



highlights special
education/at-risk/ELL
or underachievers

Ma/Sc--Presentation addresses both math and science

CCSS--Common Core State Standards

NGSS--Next Generation Science Standards



Thanks to Texas Instruments for supplying graphing calculators for all the conferences' presentations for the last 10+ years and also for the grand prizes in our raffles.

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8:00-9:00 Sessions

MESTA's Free & Inexpensive Earth Materials/Rock Shop Judy Ruddock, MESTA Bill Ruddock, MESTA Parker Pennington IV, MESTA	PreK-12	Gym
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	Grades	Room
Ma/Sc	PreK-12	MC
Universal Talk Moves to Engage Students In Math and Science Content		
Learn how talk moves help make student learning and reasoning public. Discover how teachers can release control through facilitated discussions of mathematical and science content.		
Megan Schrauben, Michigan Department of Education Jill Griffin, Michigan Department of Education Ruth Anne Hodges, Michigan Department of Education		

8:00-9:00 Sessions

	Grades	Room		Grades	Room
Science	PreK-12	44		Math	PreK-8
Science Safety: Timely and Engaging Explore science safety lessons that will create a year-long safety habit of the mind. Handouts and links provided. Rachel Badanowski, Wayne State University			Math -- A Workshop 2.0 Approach Want math that engages ALL learners? With an eye on the standards for mathematical practice, learn how to incorporate rich math tasks into your curriculum. Walk away with strategies and resources to help you create an environment that supports different learning needs and encourages math talk among students. Puja Mullins, Lincoln Consolidated Schools Andrea Pisani, Washtenaw ISD		
Ma/Sc	PreK-12	125		Ma/Sc	K-5
Making a School Vegetable Garden Have you ever wanted to encourage your students to eat healthier meals? A good way to teach healthy habits is to model them and build a garden. Learn how to build a low cost raised garden for your school. Receive step-by-step instructions on assembly. Students will be amazed at how easy it is to grow healthy food! Susan Croskey, Center Line Public Schools William Trachsel, Center Line Public Schools			NGSS -- Taught Outdoors  Teach the Science NGSS Disciplinary Core Ideas outdoors at a farm, in the rain, or at a butterfly garden. Involve students in hands-on learning by connecting NGSS Science Practices and Crosscutting Concepts using the best environmental activities. Receive NGSS Core Ideas and Modeling Techniques aligned by grade level with math activities that can be accomplished outdoors. Implement NGSS outdoors in a garden-- fun. Jody Harrington, E. L. Johnson Nature Center		
Ma/Sc	PreK-12	122		Math	K-2
Building an MSS-Aligned Assessment System Michigan's newly adopted science standards will require a completely new system of assessments, from the classroom level to the state level (M-STEP). Explore some of the key component of assessing student learning with the new standards. Richard Bacolor, Wayne County RESA			Fluency Instruction Learn instructional strategies that can be implemented daily in your classroom to improve addition and subtraction fact fluency in K-2 students. Discuss engaging and motivating ideas to build upon conceptual understanding of math facts. Repeats at 9:30. Amy Seckel, Detroit Academy of Arts and Sciences Richard Berry, Detroit Academy of Arts and Sciences		
Science	PreK-5	126		Science	1-4
PLB/STEAM: The Constant Stimulus Discover how STEAM-based learning can bring a classroom to life. With Project Based Learning and Technology at the forefront of instruction and student learning, learn new ways to capture student interest, attain full engagement, and maximize student learning. Learn about STEAM-based learning, helpful apps, and the effects of PBL/STEAM. Repeats at 9:30. Widad Luqman, Dearborn Public Schools Allison Mayer, Dearborn Public Schools			Creepy Crawlies in the Classroom Learn safe and fun ways to use macro-invertebrates to study life cycles, characteristics and adaptations, and habitats, in your classroom. Get friendly with a crayfish, prepare a portable habitat for a pet cricket, and be ready to teach about mealworm life cycles when you return to your classroom. Jennifer Edwards, Detroit Public Schools Kathy Sergeant, Detroit Public Schools		
Math	PreK-9	105		Ma/Sc	3-5
Supporting Students Mathematical Vocabulary Explore and focus on student difficulties in making sense of mathematical language. Gain an understanding of the vocabulary usage from K-8 and develop strategies you may use to support students' mathematical language development. Experience daily activities, games, and instructional strategies to incorporate immediately when you return to the classroom. Missy Butki, Lake Orion Community Schools			A Place for Maker Space A Maker Space can meet many needs in a general education classroom! Learn how to set up, stock, and use a classroom maker space to motivate your upper elementary students to make connections in reading, writing, math, science, art, engineering, and technology. Retta London, Farmington Public Schools, Retired		

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8:00-9:00 Sessions

Ma/Sc 4-12 220
Everyone Can Code
 Discover Everyone Can Code, a new approach to coding that gives everyone the power to learn, write, and teach code. Hear about Swift Playgrounds, a new app and teacher guide for iPad that makes getting started with coding fun and interactive. Explore App Development with Swift. Apple Inc.



Math 5-12 102
Fun and Motivating Math Warmups, Gimmicks, Games, and Puzzlers
 Even the most reluctant math learners will be motivated by these high-interest little activities. Use them as lesson warm-ups, sponge activities, or just for fun. Don't tell your students, but all are backed by solid math! (Dr. Maylone has offered versions of this session before, but always provides something new for attendees.) Nelson Maylone, Eastern Michigan University



Science 6-12 210
Making Sense of the NGSS Digital Communications
 Engage in hands-on activities that take real world examples and help students understand and apply the digital communication principles that the NGSS document presents. Find out exactly what the digital communication principles are. Take away fun and easy classroom activities for students of all levels. Don Pata, Grosse Pointe Public Schools

Science 7-12 24
Engineering Research Experiences for Teachers at Oakland University
 Secondary teachers and faculty from a 2016 summer NSF-sponsored engineering Research Experiences for Teachers program at OU will share their six weeks spent working alongside OU faculty on engineering projects while also creating their own classroom teaching modules. See if you'd like to participate in a future program! Mark Olson, Oakland University James DeHaan, De La Salle Collegiate High School

Science 7-8 46
Up Up and Away
 Design, build, and test a hot-air balloon. Lesley Markus, Utica Community Schools Leslie Long, Utica Community Schools



Ma/Sc 7-8 120
Apps to Use in Science and Math
 Learn a few apps that tap into student's intrinsic motivation to learn in the classroom. On-line lessons (Nearpod), assessment options (KAHOOT), graphing (Create a Graph) and communication with students (Remind) covered. Deb Hope, Plymouth Canton Christian Academy

Ma/Sc 10-12 20
pH Pedagogy: Misconceptions and Measurement
 When teaching pH, it is very important to integrate conceptual knowledge with the pH algorithm. Explore misconceptions about pH and problems associated with teaching pH as algorithmic knowledge. For example, the pH of a 1E-8 Molar HCl solution is 6.98 not 8.00. The pH scale does not begin at 0 nor end at 14. In fact, it is not even correct to define pH as $-\log[H^+]$. Work some problems and discuss answers. Learn the proper technique for measuring pH. Perform pH demos including the use of acid base indicators extracted from flowers. Handouts provided. Lary Kolopajlo, Eastern Michigan University

8:00-9:20 Workshops

Science 1-5 10
STEM of Natural Hazards for K-5
 Explore earth's hazardous surface with hands-on activities connecting science and engineering. Imitate the rock cycle. Move a fault to observe the effect on structures. Engineer a sensor to measure changes on a volcano. Tsunami-proof your home. Explore the features of an impact crater. Simulate the decline of fish populations from overfishing. Jennifer da Rosa, United States Naval Academy Beth Waitkus, United States Naval Academy

Ma/Sc 6-12 11
Best Kept Secrets of the TI-84 Family
 Every family has its secrets but learn about some little known features of the TI-84 family of calculators. Explore menu items, shortcuts and pre-loaded apps that you may have never used. Walk away saying "I didn't know we could do that!" **Repeats at 9:30.** Deb Nutt, Teachers Teaching with Technology



Math 6-11 12
Number Talks -- Secondary Level
 Number talks are 5-15 minute classroom conversations around purposefully crafted computation problems that are solved mentally. Explore the basics of number talks to help you strengthen accuracy, efficiency, and flexibility with mental math and computation strategies. Kristine Hineman, Macomb Intermediate School District

Thank you,
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 We appreciate your support

8:00-9:20 Workshops

Ma/Sc	Grades PreK-12	Room 14
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So You Wanna Be a Rock Star? Adding Music to the Math Classroom

Music is one of the most powerful tools a teacher can use in the classroom. Explore mathematical concepts and write "piggyback" songs to support those concepts. This workshop is appropriate for all grade levels. Past participants have taught at K-12 grade levels! **Repeats at 9:30.**
Tracy Willis, Farmington Public Schools

Ma/Sc	Grades 7-12	Room 219
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Splitting Hares: Hands on with the 'Lynx' between the Math and Science Practices

Get your students hooked and thinking deeper with play-based learning! Conduct a (low-tech) predator-prey simulation adapted from Flinn Scientific to mathematically model population dynamics, engage in the science practices of the NGSS, and make learning visible!
Gary Abud, Grosse Pointe Public Schools
Chris Skowronski, Grosse Pointe Public Schools

Math	Grades 5-8	Room 19
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Division of Fractions -- An Alternative to Invert and Multiply

Providing quality tasks for students is a key component to building best practice. Engage with such a task as well as discussing features and benefits of high cognitive demand tasks as well as exploring ways to engage students in the Mathematical Practices. **Repeats at 9:30.**
Jason Gauthier, National Council of Supervisors of Mathematics

Science	Grades 8-12	Room 23
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Porosity and Permeability by Hans and Franz (an Argument Driven Inquiry Lesson)

Learn how to use argument driven inquiry (www.argumentdriveninquiry.com) to drive three dimensional learning (Next Generation Science Standards compliant) with a lesson in porosity and permeability.
Valerie Leveille, Plymouth-Canton Community Schools
William Johnston, Plymouth-Canton Community Schools
Charles Hameline, Plymouth-Canton Community Schools

9:30-10:30 Sessions

MESTA's Free & Inexpensive Earth Materials/Rock Shop	Grades PreK-12	Room Gym
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Judy Ruddock, MESTA
Bill Ruddock, MESTA
Parker Pennington IV, MESTA

Ma/Sc	Grades PreK-12	Room 12
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Grade Quicker Using Plickers

Learn how to use Plickers, a paper-based clicker response system, to quickly collect and analyze student responses. Plickers only requires a teacher to have a cellphone or tablet, and a data signal. Bring a smart phone or iPad to this session.
Sarah Murphy, Detroit Public Schools

Ma/Sc	Grades PreK-12	Room 122
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Collaborating through Twitter and Building Your Professional Learning Network

As educators we have a love hate relationship with social media. However, it can truly be an amazing tool when looking to have collaborative discussions with colleagues from across the globe. Participate in this interactive session with your electronic device where you will learn how to use, interact with, and collaborate through, utilizing *Twitter* to develop your own Professional Learning Network. **Repeats at 11:00.**
Elizabeth Kutchev, Waterford School District

Science	Grades PreK-8	Room 23
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Family Engineering: It's Easier than You Think!

Learn how to translate the Engineering Design Standards from the new Michigan Science Standards into fun, hands-on family activities easy to set up and complete! Great for a Family Engineering Night or as an opener to a lesson. Handouts provided.
Erica Ballard, MDSTA
Millicent Austin

Science	Grades PreK-5	Room 126
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PLB/STEAM: The Constant Stimulus

Discover how STEAM-based learning can bring a classroom to life. With Project Based Learning and Technology at the forefront of instruction and student learning, learn new ways to capture student interest, attain full engagement, and maximize student learning. Learn about STEAM-based learning, helpful apps, and the effects of PBL/STEAM. **Repeat of 8:00.**
Widad Luqman, Dearborn Public Schools
Allison Mayer, Dearborn Public Schools

Math	Grades K-2	Room 133
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Fluency Instruction

Learn instructional strategies that can be implemented daily in your classroom to improve addition and subtraction fact fluency in K-2 students. Discuss engaging and motivating ideas to build upon conceptual understanding of math facts. **Repeat of 8:00.**
Amy Seckel, Detroit Academy of Arts and Sciences
Richard Berry, Detroit Academy of Arts and Sciences

9:30-10:30 Sessions

Ma/Sc	Grades	Room	Ma/Sc	Grades	Room
Ma/Sc	1-7	220	Ma/Sc	6-8	MC
					
Coding and Programming in the Classroom From simple block-based programming to designing and coding apps, there's a vast spectrum that makes up this new literacy. Learn, hands-on, how the basics of programming become more complex, from moving virtual objects to controlling physical robots. Experience the higher level thinking and core curriculum applications that come with exposing students to the world of coding from the early years through middle school. Apple Inc.			Leveraging the New Science Standards To Engage Students in Math Class With the adoption of Michigan's new science standards, educators have more supports to authentically engage students in the connections between science and mathematics content. Explore opportunities to make math class more engaging and equitable for students by using the supports provided in the new science standards. Ruth Anne Hodges, Michigan Department of Education Megan Schrauben, Michigan Department of Education Jill Griffin, Michigan Department of Education		
Science	3-5	113	Science	6-8	119
Food Chains/Web Help students understand that all plants and animals are part of a food/web. Discover how changes in an environment can produce a change in the food chain/web. Lashon Clay, Detroit Public Schools Anna Thomas, Detroit Public Schools			Got Gravity? A Middle School Investigation of Forces and Interactions Have some fun as you learn how students can explore the relationship of gravity and falling objects. In this student-led design investigation, misconceptions are addressed and STEM connections are made by adults and students alike! Jennifer Wickersham, Center Line Public Schools Amber Baaso, Center Line Public Schools		
Science	6-12	125	Science	8-12	120
					
AREN: Doing Team-Based Field Investigations With a GLOBE Earth Science Partner Explore the Building Understanding in Earth Science and Engineering Practices through the GLOBE Program and NASA's AREN – AEROKATS (kites) and ROVERS (remote control boats) Education Network. David Bydlowski, Wayne RESA Andy Henry, Wayne RESA			Using Technology to Create Student-Centered Classrooms Current research shows that teaching with social media and technology creates a student-centered classroom. Learn how to integrate digital learning tools to engage students in the learning process and enhance their communication skills. Gain hands-on experience using the desktop computers provided or bring your own electronic devices. Tooba Mansoor, Dearborn Public Schools		
Science	6-12	105	Science	8-12	46
					
Science Fair Success ... Involving Your Students In the 60th Annual Science and Engineering Fair of Metro Detroit (SEFMD) Want to deeply engage your students in all aspects of STEM? How about giving your students an edge when it comes to 21st Century Skills? Get your students involved in the SEFMD! Discover science fair basics, provide resources, and discuss the benefits of student and teacher participation. David Egan, Huda School Teneshia Moore, Detroit Public Schools			Astronomy Engineering Challenge: Build a Better Spectroscope The spectroscope is a foundational tool of astronomers. Experiment with various easy-to-make spectroscopes, then challenge your students to build them, tweak the design, and report what's best. Ardis Herrold, Grosse Pointe Public Schools		
Ma/Sc	6-9	132			
Pi in the Sky What is PI? How big is a Radian? How can I measure the distance to the stars without going there? Learn how to explore pi with free hands-on materials from NASA EPO. Mary Garrett, Retired					



9:30-10:30 Sessions

	Grades	Room
Science	10-12	210

Black Holes, Hypervelocity Stars, and the Classic Gravitational Force Three-Body Problem: Tackling Real Physics Problems in High School

We can do real physics without forever discussing how that darn ball rolls down an inclined plane! Recent discoveries of hypervelocity stars provide an opportunity for students to work a gravitational force three-body problem that brings to life the mystery of black holes and binary stars (something physicists actually work on). Vance Nannini, Divine Child High School

	Grades	Room
Math	11-12	104


Start Calculus with Calculus

Engage your students in the wonder and beauty of calculus by starting your class with an understanding of both derivatives and definite integrals. You will use approximation methods to build this foundation. View a variety of problem sets you can use to review essential algebraic skills as you introduce the foundational concepts of calculus.

Derek Imboden, Bloomfield Hills Schools

9:30-10:50 Workshops


	Grades	Room
Ma/Sc	PreK-12	14

So You Wanna Be a Rock Star? Adding Music to the Math Classroom 

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Tracy Willis, Farmington Public Schools

	Grades	Room
Ma/Sc	PreK-12	44

Rube Goldberg Devices: A Metacognitive Engineering Activity 

Build Rube Goldberg devices and discover how these can be relevant to science and mathematics. All materials, handouts, and links provided. **Repeats at 11:00.**

Rachel Badanowski, Wayne State University


	Grades	Room
Ma/Sc	PreK-12	20

How to Keep Your Super Powers: Avoiding Teacher Burnout

If you're a teacher, then you're a super hero; but where's your Robin? What's your kryptonite? Begin to examine teacher burnout, learn to distinguish burnout from normal work fatigue, and begin to prepare yourselves for preventing burnout and its dangerous side effects.

Aria Moody, Oak Park Public Schools

	Grades	Room
Science	PreK-8	213

Engineering Design for Elementary Teachers 

Participate in this hands-on session, to help elementary/middle school teachers become familiar with the newly adopted MSS (Based on the NGSS), specifically with the Science & Engineering Practices and standards for Engineering design. Examples will focus on how to adapt curriculum, design classroom activities, and provide strategies for assessment.

Sandra Yarema, Wayne State University


	Grades	Room
Math	1-9	110

A SKYPE Presentation -- Thinking in the Margins: Applying a Literacy Strategy to Support Metacognition in Mathematics

The goal of literacy is comprehension and communication. The same can be said for mathematics. In this presentation examine how margin notes, a strategy used in language arts, was applied to mathematics to support metacognition. Share concrete classroom examples with time for questions.

David Costello, English Language School Board Of Prince Edward Island


	Grades	Room
Math	5-8	19

Division of Fractions -- An Alternative to Invert and Multiply 

Providing quality tasks for students is a key component to building best practice. Engage with such a task as well as discussing features and benefits of high cognitive demand tasks as well as exploring ways to engage students in the Mathematical Practices. **Repeat of 8:00.**

Jason Gauthier, National Council of Supervisors of Mathematics

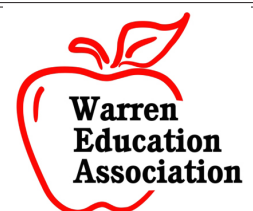
	Grades	Room
Ma/Sc	6-12	11

Best Kept Secrets of the TI-84 Family 

Every family has its secrets but learn about some little known features of the TI-84 family of calculators. Explore menu items, shortcuts and pre-loaded apps that you may have never used. Walk away saying "I didn't know we could do that!" **Repeat of 8:00.**

Deb Nutt, Teachers Teaching with Technology

Thank you, WEA, for satisfying our thirst with your generous donation of water.



9:30-10:50 Workshops

	Grades	Room
Math	6-12	24
DIMI: Daily Informed Math Instruction		
The purpose of this module will be to (1) explore when data is collected to inform daily instruction, (2) define the type of data needed, and (3) explore ways to gather data, provide productive feedback, and have students own their data.		
Afreaka Miller, Oak Park Public Schools		
Math	6-12	204
EVERYDATA™: Understanding the Misinformation In the Little Data You Consume Every Day		
Does an iPhone make you smarter? What data error led to the Space Shuttle Challenger disaster? Why is most of the information you see in the media misleading or wrong? Our highly engaging overview of basic statistical analysis techniques includes dozens of real-world examples that can be used in your classroom. Repeats at 1:00.		
Mike Gluck John H. Johnson		
Ma/Sc	6-8	10
STEM of Natural Hazards for 6-8		
Explore earth's hazardous surface with hands-on activities connecting science, math, and engineering. Move a fault and measure the effect on structures. Analyze seismograms to locate an earthquake's source. Engineer and calibrate a sensor to measure changes on a volcano. Tsunami-proof your home. Measure and analyze the features of an impact crater. Simulate, graph, and analyze the decline of fish populations from overfishing.		
Jennifer da Rosa, United States Naval Academy Besth Waitkus, United States Naval Academy		
Ma/Sc	7-12	102
Can You Flip It? Yes, You Can!		
Discover how easy it is to flip your class. Where you already flip or are interested in doing it, see practical and time saving techniques and discuss what works and what does not. Bring your device and flip on the spot! Repeats at 11:00.		
Steve Durant, Wyandotte Public Schools		
Science	7-12	219
Make and Take Workshop		
Use provided materials and tools to assemble apparatuses for demonstrations or student labs. These apparatuses are constructed from common materials and simple tools so they are easy to obtain and make. You will have as much fun making these as you will playing with them!		
James Gell, Plymouth-Canton Community Schools Steve Dickie, Divine Child High School		



11:00-12:00 Sessions

MESTA's Free & Inexpensive Earth Materials/Rock Shop		
Judy Ruddock, MESTA Bill Ruddock, MESTA Parker Pennington IV, MESTA		
	Grades	Room
Ma/Sc	PreK-12	122
Collaborating through Twitter and Building Your Professional Learning Network		
As educators we have a love hate relationship with social media. However, it can truly be an amazing tool when looking to have collaborative discussions with colleagues from across the globe. Participate in this interactive session with your electronic device where you will learn how to use, interact with, and collaborate through, utilizing <i>Twitter</i> to develop your own Professional Learning Network. Repeat of 9:30.		
Elizabeth Kutchev, Waterford School District		
	Grades	Room
Ma/Sc	PreK-12	105
Developing a STEM Personality		
Do you Kahoot? Play with Plickers? A fanatic for Padlet? If you haven't heard of these new free technology offerings, you are missing out. See what all the nationwide buzz is about. Learn how to include these in the classroom to improve student engagement and streamline formative assessment.		
Patti Picard, Detroit Public Schools		
Science	PreK12	119
Lesson Planning with New Science Standards		
Are you struggling with the New Michigan Science Standards? Want help turning your existing lessons and resources into powerful lessons that help students become better scientific thinkers? Discover how to create a 5E lesson that utilizes existing teacher resources while incorporating new teaching philosophies.		
Julia Maceri, Utica Community Schools Cheryl Czarnik, Utica Community Schools Michelle Kirkland, Utica Community Schools		
Math	PreK-12	
Making MSTEP Data Meaningful		
Classroom instructional decisions should not and cannot be made with MSTEP data. However, MSTEP can be made useful when used in conjunction with other data points. Learn one way to make meaning of the MSTEP data that is currently available and intentionally connect to school improvement planning.		
Jill Griffin, Michigan Department of Education Megan Schrauben, Michigan Department of Education		



11:00-12:00 Sessions

	Grades	Room		Grades	Room
Math	PreK-12	220	Ma/Sc	5-9	132
Cyber Awareness and Education Do the terms phishing, spear phishing, dumpster diving, shoulder surfing, whaling, and vishing mean anything to you? Do YOU know how to recognize computer scams? Is your computer acting as a technical zombie? Both educators and students can use these no expense, simple measures for protection from hackers, scammers and cyber criminals! Repeats at 1:00. Iris Green, Wayne County Community College District Dr. Terrence Dillard			Scaling the Universe with Mathematics How big is big? How small is small? Students often have difficulty comprehending orders of magnitude. "Scale the Universe" as we investigate the powers of 10 as well as using logarithms with free hands-on materials from NASA EPO. Mary Garrett, Retired		
Math	K-5	110	Science	6-12	125
Math Exchanges Catch the buzz around "Math Exchanges" by Kassia Wedekind and how small group instruction can easily fit into the workshop structure to grow young mathematicians and math talk in your classroom. Aimee Schwartz, Holly Area Schools			Earth Science Explorations Using Airborne and Ground-Based Sensors You and your students can design and use low cost sensors to collect, process, and share data about our earth's atmosphere, biosphere, hydrosphere and cryosphere. David Bydlowski, Wayne RESA Andy Henry, Wayne RESA		
Math	K-3	213	Math	6-12	19
Empowering Young Problem Solvers to Design and Solve Their Own Problems Take the role of a curious K-3 learner who loves the challenge of new problems. Explore ways teachers empower children to identify school or real world problems they want to solve, and then design and solve. Problems can be math, social, reading, art, or science. Dr. Linda Ludy, Detroit Country Day School			NCSM's Great Tasks for Mathematics Grades 6-12 Providing quality tasks for students is a key component to building best practices. Engage in such a task as well as discussing features and benefits of high cognitive demand tasks and exploring ways to engage students in the Mathematical Practices. Jason Gauthier, National Council of Supervisors of Mathematics.		
Science	2-12	10	Science	7-12	219
The Public Health Crisis of Antibiotic Resistance: What Every Student Should Know Antibiotic resistance is one of the most serious health threats we face today. We risk entering a post-antibiotic era where even simple infections can be deadly. Discover the free curriculum available to teach elementary, middle school, and high school students about viruses and bacteria and the use and misuse of antibiotics that is contributing to this worldwide crisis. Elaine Bailey, Michigan Antibiotic Resistance Reduction Coalition			Zen and the Art of Class Culture Maintenance Great lesson plan? Super awesome demo? Fantastic lab set up? So why aren't kids as excited as you are? Maybe with some tweaks they will be. Discover how enhancing your class culture might make you even more effective. Bryan Battaglia, Utica Community Schools		
Ma/Sc	4-8	113	Science	7-12	46
Flint? What about Our Great Lakes? We all have heard about Flint's water crisis, but what about Michigan's fresh water supply? Have you and your students thought about how much impact we have on our Great Lakes daily? Discover this simple hands-on lab that will amaze students regarding our impact with our natural water supply. Kathleen Heikkinen, Van Dyke Public Schools Cathie Wensorski, Taylor Public Schools			Challenge Your Students to Make Motors View a demonstration of fundamental concepts of magnetic and electromagnetic fields and their interaction and learn how to apply this to building eight different classroom motors. The first 25 participants will receive a teaching unit including materials, step-by-step instructions, explanations of each motor's operation and hands-on experience building them. The construction of these motors can be extended into a STEM Challenge or an Engineering Project by inviting students to create "improved" motors using materials that will spin faster or slower or that can be applied to a specific job. Such projects can be related to real-world applications ranging from transportation methods to robotics and even to national defense. Michael Suckley, Macomb Community College		

11:00-12:00 Sessions

	Grades	Room
Science	9-12	20
Cool, Green Schools Solve Environmental Problems		
Discover what U.S. colleges and universities are doing to solve environmental problems. Find out how you and your students can determine which schools are doing this the best, and learn how Michigan colleges and universities compare with others In this arena.		
Emily Thompson, Washtenaw Community College		

	Grades	Room
Math	10-12	204
"Becoming a Statistician: It Begins in High School"		
Listen to this career talk from a highly experienced cancer biostatistician who has presented it to many high school student audiences. Hear about four real-life examples of the use of biostatistics in cancer research, and about recommended high school preparation for pursuing a degree in (Bio)statistics.		
Lance Heilbrun, Karmanos Cancer Institute		

11:00-12:20 Workshops

	Grades	Room
Ma/Sc	PreK-12	12
Autism in Your Classroom		
Currently one in 68 persons have ASD (Autism). Students with Autism are present in all classrooms -- general and special education. Learn about Autism, what it looks like, its history, etiology, and interventions. "Helpful Hints" and suggested classroom practices included.		
Marge Stoi, Field Supervisor, OU/MISD, Retired		



	Grades	Room
Ma/Sc	PreK-12	44
Rube Goldberg Devices: A Metacognitive Engineering Activity		
Build Rube Goldberg devices and discover how these can be relevant to science and mathematics. All materials, handouts, and links provided. Repeat of 9:30.		
Rachel Badanowski, Wayne State University		



	Grades	Room
Ma/Sc	PreK-12	14
Mathematical Metacognition: Using Visible Thinking and Cultures of Thinking		
How many times have you wished that your students could explain their thinking? Or moaned about their "deer-in-headlights" expressions when you ask them to show their work? Discover visible thinking routines and our pedagogical language in the classroom, while focusing on math and science. This session is based on the research of Ritchart, Church, and Morrison. Although the routines are appropriate for any grade level, work with these routines in grades 3-5, will be shared.		
Tracy Willis Farmington Public Schools		

	Grades	Room
Science	K-4	23
K-4 Science with the GLOBE Program		
Students LOVE exploring science! Educators LOVE resources that grab their kids' interest with fun, enriching activities! Learn about Elementary GLOBE, a program designed to introduce K-4 students to the study of Earth System Science, key concepts in water, soils, seasons, clouds, and more. Complete instructional units are FREE online!		
June Teisan, OAA's Office of Education in Washington, D.C., Retired		

	Grades	Room
Math	6-12	126
How Project-Based Learning Enhances Comprehension for Algebraic Procedures		
Explore the benefits of project-based learning for algebraic processes with The Coordinate Geometry Project (CGP). Participate as students in completing CGP and feel free to ask questions during the workshop to clarify relevance for problem solving and validating students' continued growth with algebra as the gateway to higher mathematics. Repeats at 1:00.		
Jerry Rankin, GPA Challenge LLC		

	Grades	Room
Math	6-12	104
FOIL Is Dead! Use Generic Rectangles To Consolidate Algebra 1 & 2 Skills		
Using a generic rectangle to multiply polynomials is just the beginning. Explore how to tie together many algebraic skills including factoring and polynomial division. Students at all levels of ability will quickly comprehend and perform difficult algebra problems using these methods.		
Derek Imboden, Bloomfield Hills Schools		



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11:00-12:20 Workshops

Ma/Sc Grades Room
 6-12 24
TI-Codes: Programming on the TI-84
 Teaching TI-Basic programming on the TI-84 family of calculators can supplement any math or science class. Investigate programs for calculating formulas, playing games, and animating drawings. Programming experience is not necessary for this session.
 Marian Prince, Andrews University



Math 6-9 11
Rich Tasks for Middle School Math
 Use and walk away with lessons ready for your classroom. Discover how the TI-84 family of calculators can help you teach difficult concepts while making it easier for your students to understand, remember, and better connect mathematical concepts. Even if you do not have a classroom set of calculators, see how you can use these lessons to benefit your students. You may even learn some new features of the calculator.
Repeats at 1:00.
 Deb Nutt, Teachers Teaching with Technology



Ma/Sc 7-12 102
Can You Flip It? Yes, You Can!
 Discover how easy it is to flip your class. Where you already flip or are interested in doing it, see practical and time saving techniques and discuss what works and what does not. Bring your device and flip on the spot!
Repeat of 9:30.
 Steve Durant, Wyandotte Public Schools

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Math Grades Room
 7-12 123
Meaningful Assessment
 Students are different learners and different testers. Learn how to identify the most valid method for assessing a different learner's content mastery and develop an individualized approach while ensuring equivalent and valid mastery assessment across your student body. Explore simple to complex ways of modifying assessments to address the varied needs of a diverse student body.
 Sharon Douglas-Chong, Troy School District

Math 10-12 133
Notes from the 2016 AP Calculus Read
 Hear notes from the 2016 AP Calculus read from an experienced reader and consultant. We will discuss nuances in the grading as well as tips for teaching the concepts tested so students can show what they know in ways that will achieve passing scores. The session will allow time for questions, too.
 Ruth Miller, Greenhills School

Math 10-12 210
Logs to the Rescue!
 Help students master standards about logarithms by teaching this topic from a functional perspective. Tie the log function to its inverse -- after all, logs ARE exponents -- and make log properties and logarithmic solving techniques more accessible through a graphical approach. Explore real-world applications from science and elsewhere. Appropriate for Algebra II and Pre-Calculus.
 Christine Kincaid Dewey, Warren Consolidated Schools

1:00-2:00 Sessions

MESTA's Free & Inexpensive Earth Materials/Rock Shop PreK-12 Gym
 Judy Ruddock, MESTA
 Bill Ruddock, MESTA
 Parker Pennington IV, MESTA

Ma/Sc Grades Room
 PreK-12 105
Kahoot, Plickers, Padlet: Are You Making the Most Of Your Tech?
 Do you Kahoot? Play with Plickers? A fanatic for Padlet? If you haven't heard of these new free technology offerings, you are missing out. See what all the nationwide buzz is about. Learn how to include these in the classroom to improve student engagement and streamline formative assessment. **Repeats at 2:30.**
 Patti Picard, Detroit City School District


Math Grades Room
 PreK-12 220
Cyber Awareness and Education
 Do the terms phishing, spear phishing, dumpster diving, shoulder surfing, whaling, and vishing mean anything to you? Do YOU know how to recognize computer scams? Is your computer acting as a technical zombie? Both educators and students can use these no expense, simple measures for protection from hackers, scammers and cyber criminals! **Repeat of 11:00.**
 Iris Green, Wayne County Community College District
 Dr. Terrence Dillard



1:00-2:00 Sessions

Ma/Sc Grades Room
PreK-12 120

TPT: Navigating Teachers Pay Teachers

If you're a new user of  www.teacherspayteachers.com website, this session is specially for you. Whether you're a customer or a future seller, attend this introduction. New customer topics: (1) What is TPT? (2) Dos and Don'ts. For new sellers: (3) Getting started as a seller in the marketplace; (4) Product creation tips; (5) Marketing with social media; (6) Blogging
Tracy Willis, Farmington Public schools

Ma/Sc PreK-12 122

A Competency-Based Assessment for Teachers and Students

You may have been introduced to badges when playing your favorite online game. Learn how a badging system can validate your professional prowess as well as motivate your students. All badging resources are free to use.
Repeats at 2:30.

Kier Ingraham, Ypsilanti Community Schools
Kristin Rickman, Ypsilanti Community Schools

Science PreK-3 132

Tasty Mathematical Models of Active Galaxies

How do you help little children see the relationship between mathematics and science? Learn how to help children see the basics of representing science with mathematics while eating their experiments. Free hands-on materials from NASA EPO for classroom teachers, media specialists, and resource coordinators.
Mary Garrett, Retired

Science 3-8 110

What Does Argumentation Look Like in the 3-8 Classroom?

Wondering how to cultivate a culture of productive talk? Experience analyzing and interpreting data, constructing explanations, and engaging in argumentation from evidence as tools to deepen student learning within a FOSS lesson. Find out about transitioning to FOSS Next Generation.

Deborah Vannatter, Delta Education

Ma/Sc 3-5 123

Supporting ESL Students in Math (Grades 3-5)

Academic English typically takes 4-8 years to master. Math is NOT a universal language, and ELLs in our classrooms often struggle with Common Core mathematics standards, as they are required to have a deeper understanding of mathematical terms and concepts and explain their thinking. Identify the unique needs of English language learners in math classrooms. Discover strategies for supporting language demands while maintaining the rigor of math content instruction.



Kendra Seitz, Rochester Community Schools

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Science Grades Room
4-5 113

I Dig Fossils

Discover all sorts of activities geared toward improving student understanding of fossils and what they can tell us about the past. Make your own fossil!
Chris Blackstock, Van Dyke Public Schools



Science 5-8 125

GLOBE in the Middle School Classroom

Learn how to organize and implement various GLOBE protocols for middle school students. GLOBE's activities address scientific topics relating to the atmosphere, biosphere, hydrosphere, and pedosphere (soil), and vary in complexity, allowing them to fit into virtually any grade level curriculum.

Jeffrey Bouwman, Gibraltar School District
David Bydlowski, Wayne RESA
Andy Henry, Wayne RESA

Ma/Sc 6-12 102

Projects in the Math Classroom

Explore hands-on projects in algebra, algebra II, personal finance, pre-calculus, and geometry. Learn how to engage all students at all levels. Explore some Web apps and leave with a project that can be used on Monday. Science teachers are welcome! **Repeats at 2:30.**

Steve Durant, Wyandotte Public Schools

Ma/Sc 6-12 219

Challenge Labs: Word Problems without the Words

Challenge labs are cooperative, high-stakes challenges that require students to work collaboratively, take measurements, and make calculations. When a solution is agreed upon, you may test your solution ... but you only have one try. Complete challenge labs and leave with a new way to implement them into your curriculum.

James DeHaan, De La Salle Collegiate


Science 6-8 23

Inspiration to Implementation: New Educational Resources from The Henry Ford

The Henry Ford's Innovation Curriculum Series invites educators and students to delve into the process of innovation. Clips from the Emmy Award Winning show *Innovation Nation*, digitized artifacts, and hands-on activities help this unique and dynamic "Mini-Course" tell the stories of innovation from the past, present, and future.

Ben Seymour, The Henry Ford

1:00-2:00 Sessions




Ma/Sc	Grades	Room		Math	Grades	Room
	6-8	MC			7-8	210
Science/Math Integration for a Sustainable Planet Combine your math and science lessons with these engaging, hands-on activities that build computational and measurement skills while teaching about ecosystems and our ecological footprints. Receive a CD of lessons matched to State Standards. Rachel Badanowski, Wayne State University				Ratios, Proportions and Lemony Snicket -- Oh My! Help students master and apply the essential understandings of ratio and proportional reasoning using literature. Spend time exploring these essential understandings and leave with engaging classroom-ready materials based on a popular <i>Lemony Snicket</i> book. Christine Kincaid Dewey, Warren Consolidated Schools Emily Hall, Rochester College		
	7-12	20			8-12	104
Becoming a Presidential Award Winner! Are you an exceptional mathematics or science teacher? Find out about the Presidential Awards for Excellence in Mathematics and Science Teaching, which is the highest recognition a K-12 teacher can receive for outstanding science or mathematics teaching in the United States. Recipients of the award receive the following: a certificate signed by the President of the United States, a paid trip for two to Washington, D.C., to attend a series of recognition events and professional development opportunities, and a \$10,000 award from the National Science Foundation. In addition to recognizing outstanding teaching in mathematics or science, the program provides teachers with an opportunity to build lasting partnerships with colleagues across the nation. The applications for teachers in Grades 7-12 are now open. Teachers in grades K-6 may apply during the 2018 cycle. Join the state coordinator and past awardees for helpful hints on how to apply! Betty Crowder, Oakland University/PAEMST Brian Peterson, Rochester Community Schools				Innovation in Formative Assessment (Really Cool Quiz Ideas) Explore many different quiz methods that allow quiz day to be assessment, but also teaching and learning. Focus should be on getting students to work together, sharing information, teaching to, and learning from, one another. Discover a variety of quiz formats used for successfully teaching and assessing high school mathematics. Repeats at 2:30. Derek Imboden, Bloomfield Hills Schools		
					8-12	46
				Mathing the Moon Learn to build and use simple tools to measure the size, position and distance to the Moon. Use ratios and scale drawings with protractors to solve for answers, then evaluate the results. Ardis Herrold, Grosse Pointe Public Schools		

1:00-2:20 Workshops

Ma/Sc	Grades	Room		Science	Grades	Room
	PreK-12	10			K-8	14
Tap Away Your Stress Learn how to manage the stress in your life with Emotional Freedom Techniques (EFT). EFT works like acupuncture without the needles and consists of you tapping on various meridian points to put your body and mind in a state of flow. You will love how calm and relaxed you feel afterwards and you will not only have this tool for life but you will be able to share it with your friends and family. Brenda Strausz, Southfield Mental Health Associates				You Be the Chemist Essential Elements Workshop The chemical education foundation (Chemed.org) created the You Be The Chemist® Essential Elements program to provide nationwide K-8 educators with a free professional development program that helps improve science education. Discover how this Essential Elements workshop is designed to assist educators in teaching chemistry through hands-on activities and real-world applications. Receive a CEF giveaway container that includes a flash drive with 50+ Activity Guide lessons and other resources, along with a hand lens, ruler, and more! Participate in a 5E constructivist learning cycle to begin thinking about how you could use these lessons in the classroom! Learn about utilizing chemed.org resources and registering your students for the FREE You Be the Chemist competition that takes place in the spring. Theresa Comilla, Grosse Pointe Public Schools		

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1:00-2:20 Workshops

	Grades	Room		Grades	Room
Ma/Sc	1-12	12		Math	6-12
Graphic Organizers and Foldables Discover using graphic organizers as an instructional strategy. Organizers increase students' engagement and improve the student understanding and retention. Need an alternative assessment or a technology lesson? Graphic organizers can be adapted for any lesson, grade level, or content area. Make and take samples and lesson ideas back to the classroom. Joanna Secco, Wyandotte Public Schools Anna Skinner, Michigan Technical Academy				How Project-Based Learning Enhances Comprehension for Algebraic Procedures Explore the benefits of project-based learning for algebraic processes with The Coordinate Geometry Project (CGP). Participate as students in completing CGP and feel free to ask questions during the workshop to clarify relevance for problem solving and validating students' continued growth with algebra as the gateway to higher mathematics. Repeat of 11:00. Jerry Rankin, GPA Challenge LLC	
Math	1-4	44		Math	6-9
Kid's Math Talk: Building and Assessing Number Sense Explore the background and productive beliefs surrounding assessment and the foundations of building a strong number sense. Discover a variety of activities and manipulatives that encourage strong number sense. Make and take some manipulatives for your classrooms. This session is limited to the first 25 participants. Desiree Harrison, Kid's Math Talk, LLC				Rich Tasks for Middle School Math Use and walk away with lessons ready for your classroom. Discover how the TI-84 family of calculators can help you teach difficult concepts while making it easier for your students to understand, remember, and better connect mathematical concepts. Even if you do not have a classroom set of calculators, see how you can use these lessons to benefit your students. You may even learn some new features of the calculator. Repeat of 11:00. Deb Nutt, Teachers Teaching with Technology	
Math	3-8	119		Science	8-12
Math Intervention in the Classroom Participate in this small group instruction and center-based games to teach and reinforce numbers and operations, and problem solving skills. Alicia Haidar, Romulus Community Schools Deana Ryznar, Romulus Community Schools				CEJ>CER In support of an evidence-based claim, justifications provide a greater understanding (vs. typical "reasoning") of the significance of the evidence by requiring students to provide an application to important scientific principles. Engage in an activity that will allow you to practice developing strong justifications for evidence-based claims. Nicole Murawski, Royal Oak Public Schools Kristen Elsner, Royal Oak Public Schools	
Ma/Sc	6-12	24			
Introducing the TI-Innovator: STEM Interface for TI-84+CE and TI-Nspire Integrating STEM into your math or science class can be more authentic with the new TI-Innovator. Look at this STEM box that is the same interface used by design engineers. It can be used with either the TI-84+CE or the TI-Nspire. Marian Prince, Andrews University					
Math	6-12	204			
EVERYDATA™: Understanding the Misinformation In the Little Data You Consume Every Day Does an iPhone make you smarter? What data error led to the Space Shuttle Challenger disaster? Why is most of the information you see in the media misleading or wrong? Our highly engaging overview of basic statistical analysis techniques includes dozens of real-world examples that can be used in your classroom. Repeat of 9:30. Mike Gluck John H. Johnson					



2:30-3:30 Sessions

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MESTA's Free & Inexpensive Earth Materials/Rock Shop **PreK-12** **Gym**
Judy Ruddock, MESTA
Bill Ruddock, MESTA
Parker Pennington IV, MESTA

	Grades	Room
Ma/Sc	PreK-12	122

A Competency-Based Assessment for Teachers and Students
You may have been introduced to badges when playing your favorite online game. Learn how a badging system can validate your professional prowess as well as motivate your students. All badging resources are free to use. **Repeat of 1:00.**
Kier Ingraham, Ypsilanti Community Schools
Kristin Rickman, Ypsilanti Community Schools

Ma/Sc	PreK-12	105
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Kahoot, Plickers, Padlet: Are You Making the Most of Your Tech?
Do you Kahoot? Play with Plickers? A fanatic for Padlet? If you haven't heard of these new free technology offerings, you are missing out. See what all the nationwide buzz is about. Learn how to include these in the classroom to improve student engagement and streamline formative assessment. **Repeat of 1:00.**
Patti Picard, Detroit City School District

Math	PreK-12	46
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Meet the Pro-Bots1
Explore how to engage your students and foster higher order thinking using Pro-Bots. They are computer-controlled "mini-cars" which your students can direct. See them in action and discuss fun ways of incorporating Pro-Bots into your lessons. Plan ways to unlock your students' creative minds.
Sarah Patterson, Westside Christian Academy

Math	PreK-12	125
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Implementing the 5 Practices for Orchestrating Mathematical Discussions in a Classroom
Discover how the 5 practices for orchestrating productive mathematical discussions by the NCTM can be implemented and how they engage student learning. View a lesson presented to algebra students on complex and imaginary numbers that followed the 5 practices approach and utilized high level tasks.
Kyle Linford


	Grades	Room
Ma/Sc	K-12	19

Game-Based Learning: Can You Break Out With Breakout EDU?
Participate in a Breakout EDU game and discuss ways to create fun and engaging learning opportunities for students. After the Breakout EDU game, discuss possibilities, share ideas, resources, and how to become part of this growing community.
Dakotah Cooper, Lake Orion Community Schools
Michael Medvinsky, University Liggett Grosse Pointe


Science	K-8	MC
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Elementary Inquiry Extravaganza
Join the fun as Oakland University pre-service teachers provide you with a wealth of inquiry and engineering activities that will engage your students and their inquisitive minds. This hands-on session targets elementary science and engineering but many activities could be adjusted for younger or older students.
Tim Larrabee, Oakland University
Betty Crowder, Oakland University

Science	K-8	219
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Beat the Heat: An Introduction to Animal Tracking 
While humans have adapted in many ways, we are not very well suited to living in extreme heat. African animals have adapted to heat and lack of water. This is a real cool activity about Animal Tracking to make and take. Tacks are a great way to identify animals by prints that they leave behind. This includes footprints, trails, beds, scat, and more. All of these are clues that tell us something, about the animals around us.
Connie Eisenhart, Guardian Angels Catholic School
Cassandra Cayce, MDSTA

Ma/Sc	K-5	110
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STEM not S.T.E.M. 
Struggling to fit science and engineering into your school day? Integrate! Explore how FOSS modules engage students in engineering practices to develop solutions to problems using math and science. Discover how FOSS Next Generation utilizes active investigation based on the NGSS and integrates Common Core Math, ELA.
Deborah Vannatter, Delta Education

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2:30-3:30 Sessions

	Grades	Room		Grades	Room
Science	K-4	14	Ma/Sc	4-10	10
Nurturing Young Scientists in the GLOBE Program You are never too young to do science! Learn which GLOBE protocols are doable in the earlier grades and the benefits of partnering with the older students. Hear about one teacher who implemented GLOBE protocols in kindergarten. Learn how you can meet your reading, writing and math standards while doing science. Ellen Perkins, Monroe Public Schools Janet Struble, MISSION EARTH (org)			Global Sustainability Facing the Future is a new K-12 curriculum supplement from Washington State that has captured much attention. In general the program includes an interdisciplinary approach primarily to environmental science but with strong math and social studies implications. Before coming to this session, review their web site at: www.facingthefuture.org . Discover four activities from their extensive set of resources with one session from elementary, middle and high school materials as well as sharing other Global Sustainability educational links and grants. Mike Mansour, Hawk Woods Nature Center		
Math	1-5	44	Ma/Sc	4-10	120
Add POWER to Your Math Workshop! What happens at the end of your math workshop? Classrooms around the country have students who are engaged in their math rotations and working well together. Then the workshop abruptly ends with no discussion or effective wrap up of the important work that just occurred. Explore strategies on ending your math workshop with POWER: Productive struggles, Objectives, Words, Exit slips, Rigor. Desiree Harrison, Kid's Math Talk, LLC			STEM Skills Meet Blended Online Learning EverFi provides FREE online, interactive programs that engage students through experimentation, simulation, and gamification. Participants will receive login credentials, standards-alignment documents, lesson plans and ongoing technical and curriculum support at no cost. Samantha du Preez, EverFi Karen Sterzik, EverFi		
Math	3-9	 24	Science	5-12	113
Supporting Diverse Learners In Mathematics Students use language to develop and communicate understanding while teachers assess and direct learning. Differentiated instruction is essential to increase students' engagement with, and access to, mathematics and language. Explore a robust resource of differentiated supports particularly helpful for ELLs, students with ASD, language deficits, or communication needs. Suzanne Toohey, Oakland Schools Dayna Britton, South Lyon Community Schools			TOTALITY -- The Great American Eclipse 2017! Learn about the total solar eclipse of 2017! It will cross through the heart of the U.S.A. on August 21. Hear what causes a solar eclipse, how to safely observe it, and where to observe "TOTALITY" -- some of the topics covered. Leave with a student eclipse activity and a chance to win a door prize. Cris DeWolf, Chippewa valley Schools Kevin Dehne, Delta College		
Math	3-8	119	Ma/Sc	5-9	132
Math-Magical Word Wall Learn to create and incorporate a fully functioning, interactive word wall into your mathematics classroom. Deana Ryznar, Romulus Community Schools Alicia Haidar, Romulus Community Schools			Measure, Make, Model, Learn Practice and learn how making a model of an active galaxy can help students learn the difference between active and normal galaxies and learn more about the Fermi NASA Mission and what interesting things were discovered. Mary Garrett, Retired		
Science	3-6	12	Ma/Sc	6-12	102
Incorporating Belle Isle Aquarium and Conservatory into Your Curriculum Situated on the largest city owned island park are the nation's oldest aquarium and oldest continually-running conservatory. Both institutions provide a unique opportunity to incorporate the "Jewels of Detroit" into your science curriculum. Find out how a hands-on, exploratory adventure about living fossils of both plant and animal kind can complement and enhance the core content			Projects in the Math Classroom Explore hands-on projects in algebra, algebra II, personal finance, pre-calculus, and geometry. Learn how to engage all students at all levels. Explore some Web apps and leave with a project that can be used on Monday. Science teachers are welcome! Repeat of 1:00. Steve Durant, Wyandotte Public Schools		

2:30-3:30 Sessions

Math **Grades** **Room**
 8-12 104

Innovation in Formative Assessment (Really Cool Quiz Ideas)

Explore many different quiz methods that allow quiz day to be assessment, but also teaching and learning. Focus should be on getting students to work together, sharing information, teaching to, and learning from, one another. Discover a variety of quiz formats used for successfully teaching and assessing high school mathematics.

Repeat of 1:00.
 Derek Imboden, Bloomfield Hills Schools

Math **Grades** **Room**
 8-11 11

Rich Tasks for Algebra and Geometry

Use and walk away with lessons ready for your classroom. Investigate how the TI-84 family of calculators can help you teach difficult concepts while making it easier for your students to understand, remember and better connect mathematical concepts. Even if you do not have a classroom set of calculators see how you can use these lessons to benefit all your students. You may even learn some new features of the calculator. Deb Nutt, Teachers Teaching with Technology



Math **Grades** **Room**
 9-10 126

A New Math Competition for 9th and 10th Grade Students

The Moore Mathematics Marathon Competition is a new event hosted by Albion College in May. Teams of four students compete in a variety of individual and team events. Sample questions will be distributed along with information on how to prepare a team for the competition.

Ellen Kamischke, Albion College

Science **Grades** **Room**
 11-12 23

Kepler Made Me Do It

Collecting data from 450 million miles away, how cool is that?! Learn how your students can experiment verifying Kepler's third law of planetary motion using simple astronomy equipment. This is a great long-term experiment that can be used in any high school astronomy or physics class.

John Dumar

The DACTM-MDSTA 2016 Fall Conference Committee



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- Pamela Callaway, Exhibits Co-Chair, Scheduling, MDSTA Executive Director
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Debby Peters, Director, The Student Connection

Dr. Valentina Tobos, Director, Lawrence Technological University

Kelvin Wise, Director, Chandler Park Academy

Remaining Meeting Dates 2016-2017

You are welcome to attend all MDSTA Board Meetings. They are held at Lawrence Technological University, 2100 West 10 Mile Road, Southfield, MI, 48075. Meetings are held on the second Tuesday of the month. The remaining meetings are:

January 10, 2017

February 14, 2017

March 14, 2017

April 11, 2017

May 9, 2017 - Annual Membership Meeting



DACTM 2016-2017 Executive Board Members

President: Scot Acre, Warren Consolidated Schools

Past President: Samantha Hague, Waterford Schools

President Elect, V-P Pre K-5, NCTM Rep: Desiree Harrison, Farmington Public Schools

MCTM Rep, Parliamentarian, Historian: Christine Kincaid Dewey, Warren Consolidated Schools

V-P Post Secondary: Nelson Maylone, Eastern Michigan University

V-P Middle Grades, Membership, Website: Jennifer Lawson, Northville Schools

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ASA Rep, Scholarships and Mini-Grants: Kathy Peterson, Retired

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Wayne County Liason: Kristy Hanby, Wayne RESA

Members at Large: Jennifer Abler (Livonia Public Schools), Catherine Maxwell (Macomb County Community College), Curt Perry (Retired Plymouth-Canton Community Schools), Richard Strausz (Retired Shrine High School)

If interested in a vacant position, contact Scot Acre at sacre@wcskids.net

V-P Secondary: vacant

DACTM 2016-2017 Remaining Meeting Dates

Friday, December 4, 2016, TBD

Wednesday, January 18, 2017, Virtual Meeting

Wednesday, February 15, 2017, Virtual Meeting

March, 2017 TBD

Wednesday, April 19, 2017 @ Butcher Community Center

Wednesday, May 17, 2017, General Membership Meeting, 6:00 p.m. @ Butcher Community Center

Friday, June 23, 2017, 9:00 a.m.-3:00 p.m. Strategic Planning Meeting, TBD

All meetings start at 5:30 (dinner at 5:00)

Butcher Community Center Location: 27500 Cosgrove, Warren, MI 48092,



Outstanding Science Educator Award Application

The Metropolitan Detroit Science Teachers Association continues to promote and recognize excellence in teaching. Please help us to identify those friends and colleagues whose work is outstanding by completing the nomination form.

Selection Criteria (Information for Biography)

- Nominees must be current members of MDSTA at the time of nomination.
- Nominees must have made significant contributions in the classroom and in other professional activities.
- These should include one or more of the following:
 - **Idea sharing with colleagues**
 - **Presentations at professional workshops or conferences**
 - **Written or developed curriculum materials**
 - **Participation in extracurricular science activities**

Name of Nominee: _____

Home Address: _____

City, State, Zip: _____

Email address: _____

Home or cell phone: _____

Name of School and District: _____

Award Category (Circle One) **Elementary** **Middle School** **High School**

Date: _____

Your Name: _____

Your Phone: _____ Email: _____

Please submit **three letters of support and a one-page biography** of the nominee's professional contributions along with this form. Questions? Contact Debby Peters at 248.642.6326 or djapeters@gmail.com.

Nominations are accepted from November through April for award consideration for the current school year. **All materials must be postmarked by April 1 and mailed to:**

**MDSTA, Attention OSEA
P.O. Box 111
Southfield, MI 48037 or
email to: mdsta1941@gmail.com**

DACTM Mini-Grant Award 2017

If you are a DACTM member and have a project you would like to do with your class, but it requires some money, you can apply for a mini-grant of up to \$500. Current teachers who are DACTM members could also use this grant to further their education or for professional development such as attending conferences. Mini-grant proposal forms for a 2017 grant (to be awarded at the 2017 Fall conference) are due by Sept. 30, 2017. (Notice that this is a change in the traditional due date.)

Application for DACTM Nov. 2017 Mini-Grant (\$500 max)

Grade level (circle) Pre-K 1 2 3 4 5 6 7 8 9 10 11 12 13+

Describe project: Include who will be involved and the budget.

How will this project impact students/staff/school?

Implementation Schedule/Time

Write your name and address as it appears in the DACTM member data base. Only current DACTM members for 2017 will be eligible for this award. If this would be a second award for the same project, a description of the successful implementation of the first part of the project should be included.

Include your home phone number and e-mail address. Phone: () _____

E-mail _____

Write the name of your school district and school address: _____

Mini-grant recipients must submit an article to the *FACTORIAL!* about their projects and give a brief presentation about their project at the Annual May meeting.

Form due **Sept. 30, 2017**, for Awards announced at the 2017 November conference.

P. O. Box 1399

or kabob41@gmail.com

Warren, MI 48090-1399



Metropolitan Detroit Science Teachers Association

MDSTA Mini-Grant Application Form

The Metropolitan Detroit Science Teachers Association provides mini-grants to members for innovative and exciting science projects or programs.

Eligibility – You must be a current member of the MDSTA and be assigned at least 50% as a classroom teacher. You are not eligible if you have received an MDSTA mini-grant in the past two years. Current members of the MDSTA Board of Directors are not eligible.

Mini-grants are awarded for amounts up to \$500.00

Please write a one-page project proposal which includes the following: purpose/statement of need, description of the activity, timeline of activity, description of how the activity will be assessed, a brief itemized budget, number of students impacted and grade level(s). Writing should be proof-read before submission and essentially error-free in grammar, spelling, punctuation, sentence structure, etc.

A committee of the MDSTA Board will determine grant winner(s) in February. Winner(s) will be notified in March. Winner(s) are required to submit an article and photos related to the project upon completion to be featured in the newsletter and they will be required to present their projects at the general membership meeting in May and encouraged to present at the annual MDSTA Fall Conference.

Name of your Project or Proposal _____

Amount of request \$ _____ Date submitted _____

Name _____

Home Address _____

City _____ State _____ Zip _____

Home phone _____ E-mail _____

School name _____ School District _____

This form together with your one-page proposal constitutes a complete application.

All completed applications must be emailed or postmarked by **January 31**.

Please send proposal and completed form to: **MDSTA, Att: Mini-grant, P.O. Box 111, Southfield, MI 48037 or email to mdsta1941@gmail.com**

Questions? Contact Debby Peters at 248.642.6326 or djapeters@gmail.com <https://mdsta.wildapricot.org>

MDSTA Mini-Grant Application, p.2

MDSTA Mini-Grant Application Form

Purpose/Statement of Need

Clearly explain the purpose of your project. What problem will this grant solve or need will this grant address?

Activities

Outline the activities you're going to do that will address the purpose of your project. Individuals involved, start and completion dates, etc.

Project Assessment

How are you going to evaluate the success of this project? How will you determine if the problem was solved, need was met or objective mastered?

Budget

Write a budget outline for the project. Chart, table or list should include the following information: Item, Quantity, Item Amount, Sub Total and Total ex. supplies, equipment, bus etc.

Number of Students Impacted

Grade Level(s) of Students

<https://mdsta.wildapricot.org>

DACTM January 2017 Scholarship Award Application

Every year two DACTM scholarships, for up to \$1000, are available. Application deadline is **Sept. 30, 2017, and the award will be announced at the November 2017 conference.**

This year one of the scholarships is designated the Mary Zeppelin Scholarship. Mary was a past president of DACTM.

Purpose:

The scholarship goal is to financially assist, with tuition, books, labs, and fees :

- a) Students currently enrolled in a teacher education program pursuing a BA or BS degree with teacher certification in mathematics, or
- b) Current teachers (members of DACTM) pursuing additional education in the mathematics education field.

Eligibility:

Mathematics teachers-in-training must be currently enrolled at a Michigan college or university in an elementary or secondary teacher education program with a mathematics specialty. Current teachers can also use these scholarships for college level courses in mathematics .A pre-service applicant must be a college/university junior or senior in good academic standing by Sept. 30, 2016 with an overall GPA of 3.00 or higher. In addition, secondary education majors must have successfully completed the college's or university's required calculus sequence, while elementary education majors must have at least a mathematics minor. The classification (junior or senior) for an applicant who has earned a degree in another area and has enrolled in a teacher education program will be determined by his/her Sept. 30, 2017 status in the teacher education program.

Current mathematics teachers (members of DACTM) should submit for approval the plan, including costs, to pursue additional education in mathematics education for which they want a scholarship.

A check for a maximum of \$1,000 will be paid to the scholarship recipient(s). The term of each scholarship is for one year and shall not be renewable. Awards will be announced at the **November 2017** conference.

Requirements for Teachers-in-Training: - Applicants must submit:

- Completed application form on next page
- Typewritten essay of your personal goals/philosophy related to the teaching of mathematics, not to exceed one page in length
- Completed application on next page
- List of extracurricular/community activities and interests (not to be included in the essay)
- List of extracurricular activities related to teaching or to the support of student learning
- Current transcript(s) or copies of grades from all colleges and universities you have attended
- Official statement from current college transcript office verifying anticipated junior/senior status as of **Sept. 30, 2017.**
- One letter of recommendation on official letterhead from persons who can best attest to your potential for becoming a teacher of mathematics at the level you plan to teach. This would include, but not be necessarily limited to, persons such as mathematics and mathematics education professors, education/academic advisors, supervisors of classroom field experience, or a supervisor for a job in which you worked with children/students of any level in an educational, teaching, tutoring, or coaching situation.

Requirements for Current teachers:

A description of the program for which the scholarship is requested must be submitted, including its relevance for a math teacher, location, cost and time schedule.

continued on next page



Metropolitan Detroit Science Teachers Association

Ellen Daniel-Jones Distinguished Service Award

A devotion to children and learning ... those words describe this phenomenal woman. She was extremely dedicated to education and a consummate professional. In 1964 Ellen began her teaching career in the Detroit Public Schools System. She taught at every school level, elementary through high school. She served as a **Science Department Head** in 1987, and moved into the position of **Science Curriculum Supervisor** in 1994 where she continued to serve until her untimely passing.

Ellen prized learning. As a student at the Alger Elementary School, her love for science and mathematics were nurtured and developed. Ellen matriculated through the Detroit Public Schools, graduating in 1960 from Northwestern High School. Ellen's love for learning continued in college, where she received her Bachelor of Science degree from Michigan State University in 1964 and a Master of Education degree from the University of Michigan in 1976.

If you knew Ellen, you were keenly aware of her dedication, love and untiring efforts to remain at the forefront of emerging techniques and technologies to provide the very best in classroom instruction for the students of the Detroit Public Schools. She was passionate about education, devoting more than 40 years to the Detroit Public School System. Ellen attended conferences and workshops across the state. This allowed her to stay abreast of curriculum, educational trends, strategies and resources she could share with teachers in the Detroit Public School District and teachers of other school districts, which she coached and mentored.

In 2004, she was presented with the MDSTA "**Distinguished Service Award**" in recognition of her outstanding and selfless devotion to the teachers served by the Metropolitan Detroit Science Teachers Association, where she served on the board of Directors as Executive Secretary. She also enjoyed memberships in the Michigan Science Teachers Association and the National Science Teachers Association.

The Metropolitan Detroit Science Teachers Association recognizes the values, dedication and leadership of teachers who exhibit these qualities by renaming this award "**The Ellen Daniel-Jones Distinguished Service Award**," in honor of this dedicated educator.

continued on next page



Metropolitan Detroit Science Teachers Association

Ellen Daniel-Jones Distinguished Service Award Nomination Form

Eligibility – The nominee must be a current member of MDSTA, be actively involved with pre-K - college as a teacher, mentor, or serve as an administrator.

If you know an educator deserving of this award please complete this nomination form along with one page which includes the following: Background information on the nominee and explain briefly what makes this nominee a good candidate for “The Ellen Daniel-Jones Distinguished Service Award.” You may use examples such as: awards and achievements, leadership, presentations, classroom or educational contributions to students or teachers.

A committee of the MDSTA Board will review all nomination forms in February. The nominee will be notified in March. **The award will be presented to the selected nominee at the general membership meeting in May.**

All completed applications must be emailed or postmarked by **January 31**.

Please send this completed nominee form to: **MDSTA, Att: ED-JDSA, P.O. Box 111, Southfield, MI or email to mdsta1941@gmail.com**

Questions? Contact Debby Peters at 248.642.6326 or djapeters@gmail.com

Name of Nominee _____

Home Address _____ City _____ State _____

Phone Number _____ Email _____

School Name _____ School District _____

Nominated by _____ Date submitted _____

This form together with your one page nomination information sheet constitutes a complete application.

continued on page 34



Metropolitan Detroit Science Teachers Association

Ellen Daniel-Jones Distinguished Service Award Nomination Form

Nominee Background Information

Explanation of Service

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(As of October 24, 2016)



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Exhibitors

★ Amplify Learning
Monty Lammers
719-964-4501

Ann Arbor Hands On Museum
Sam McLaren Fahey
734-995-5439

Arts and Scraps
Ophelia T-Henry, Dana Robinson
313-640-4411

BaySail-Appledore Tall Ships
Scott Ellis
989-895-5193

Benz Microscope Optics
Michael Benz
734-994-3880

Big Ideas Learning Larson Text
Tim Taykowski
877-552-7766

Cengage/Learning National
Geographic Learning
Karen Everts, Megan Fileccia
586-260-3691
karen.everts@cengage.com

Exhibitors

CPM Educational Program
Bob Petersen, Lonnie Bellman
916-638-1145

Cranbrook Institute of Science
John Maddox, Janet Beylin,
James Kurleto
248-645-3117
248-645-3193

★ Delta Education/School Specialty
Kathleen Schutter
859-404-3870

Detroit Area Council of Teachers
of Mathematics (DACTM)
DACTM Board Members
www.dactm.org

★ ETAHand2Mind
Valerie Brosio
847-968-5204

Flinn Scientific
Carly Kurr
800-452-1261

★ Houghton Mifflin Harcourt
Jody Babich, 248-839-4025,
Brent Pulido, 734-983-8027,
Lore Harrington, Tiffany Gonzales
407-345-2000

Exhibitors

★ Lawrence Technological University
Jane Franko
248-204-3160

MA Education Science WMU
Dr. Bill Cobern, Jessie Pannu
269-387-5398

MAD Science
Angela Talo
734- 266-9444

McGraw Hill Education
Kevin Clark, Reggie Braxton
313-655-6319

Madonna University
John Sprys
734-432-5697

Math Expansion
Ingrid Macon
248- 762 - 7239

Metropolitan Detroit Science Teachers
Association (MDSTA)
MDSTA Board Members
www.mdsta.org

Exhibitors

Michigan Alliance for Environment
and Outdoor Education
Jody Harrington, Ashlie Smith,
Britanny Burgess
248-646-6142

Michigan Antibiotic Resistance
Reduction Coalition (MARR)
Jane Finn, Elaine Bailey
517-664-5263
586-201-4047

Michigan Council of Teachers
of Mathematics (MCTM)
Chris Berry, Jean Williams,
Kathy Berry, Anne Turner,
Carol Hermann
734-477-0421

Michigan Department of Natural
Resources (DNR)
Kevin Frailey
517-284-6043

Michigan Project Learning Tree
Mike Mansour
248-672-0682

Michigan Science Center
Susie Marvin
313-577-8400 ext 482

Michigan Science Teachers
Association (MSTA)
Brian Peterson
734-973-0433

Midmath
Ellen Hechler
248-345-9041

Exhibitors

Moving With Math
Rob Marold
800-852-2435

Nasa Space Place
Frances Castellaneta
818- 354-1067
spaceplaceconnect@jpl.nasa.gov

National Inventors Hall of Fame-
Camp Invention
Alisha Wilson
800-968-4332 x 8042

National Weather Service (NOAA)
Richard Pollman
248-625-3309 X726

NSTA Press
Tom Laureto
616-450-0122

Organization for Bat Conservation
Aja Marcato, Phil Garofalo,
Dawn Vinzena, Jenna Orr,
Amanda Bevan
248-645-3234

★ Pearson School Group
Bruce Perry, Shavon Johnson
847-224-2797

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Lauren Lechner, Brandon Pinkos,
Rick Pinkos
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Exhibitors

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Science & Engineering Fair
of Metro Detroit
Dave Egan
248-471-9900
SF2016@SEFMD.org

★ Texas Instruments
Michelle Grooms
214-567-6409
469-323-6385

University of Michigan-
Dearborn
Susan Everett
313-593-3893

University of Michigan-
Flint
Dr. Matt Wyneken
810-210-8051

Wayne State University
Dept. of Physics & Astronomy
Jeff Conn, Dawn Niedermiller,
John Niedermiller
313-577-7816

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