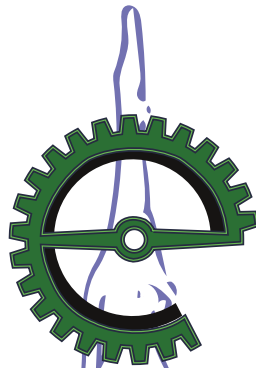


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WHAT A CAPITAL IDEA!

2016

63RD ANNUAL CONFERENCE



Pure Michigan *Science*

CONFERENCE PROGRAM

March 4-5, 2016 • Radisson Hotel and Lansing Center • Lansing, Michigan

When you ignite a mind, you fuel the future



“Every kid starts as a natural-born scientist. A few trickle through the system with their wonder and enthusiasm for science intact.”

CARL SAGAN



The Meemic Foundation is proud to sponsor the conference attendance of 60 science teachers.

At Meemic, we know that every new and innovative breakthrough—from curing diseases to developing new technologies to reaching for the stars—will be launched from lessons learned in the classroom today.

Science matters. Science teachers matter. So we applaud our partner MSTA’s mission to stimulate, support and provide leadership for the improvement of science education throughout Michigan.



AUTO



HOME



UMBRELLA



BOAT

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Message from the 2016 Conference Chair and Assistant Conference Chair

Dear Conference Attendees,

It is with great pleasure that MSTA welcomes you to the 2016 Annual Conference: *"What a Capital Idea" - Pure Michigan Science*. The MSTA Conference, in our state capital, is a place where educators will meet to share ideas, learn new strategies, and network. The MSTA conference is the "go to" destination for cutting-edge information, particularly the exciting changes being driven by the adoption of new Michigan Science Standards (MSS) based on the Frameworks and NGSS documents. We have over 280 sessions being offered, spanning levels from early elementary through college, so there is something for everyone.

Do you want to hear about the new MSS from Dr. Joe Krajcik?

As a lead developer of NGSS, Professor Krajcik is in a unique and expert position to inform us about our new MSS. In his 1:00 Friday Keynote presentation, Professor Krajcik will discuss the major shifts in the new standards and what they mean for classroom instruction and assessment, where students use disciplinary core ideas, scientific and engineering practices and crosscutting concepts to *explore, examine and use* science ideas to explain how and why phenomena occur or to find solutions to problems.

How do you start bringing the NGSS-based new Michigan Science Standards into your classroom?

There are many sessions being offered by NGSS specialists and teachers sharing what can be done in the classroom to embrace the new standards. Be sure to look for highlighted strands addressing elementary learners, CREATE for STEM, MSELA, and the MI Math/Science Centers!

Are you wondering what to do on Friday night?

There will be a movie presentation featuring BioInteractive videos from the Howard Hughes Medical Institute at 5:00 p.m. Friday, in the Lansing Center. Popcorn and a cash bar will be available.

Join this year's MSTA award winners at the Awards Banquet directly following the movie, in the Lansing Center. Be awed by these inspirational teachers and hear what they are doing in their classrooms. A dessert reception will follow the banquet, located in the Riverside Pub. Tickets for the banquet are available at Registration.

Do you have some new ideas for MSTA or want to get more involved?

Come to the "Muffins with Members" on Saturday at 8 a.m. Consider the next steps needed regarding the new Science standards. What do you need from your professional organization? Meet MSTA teacher early adopters! Learn more about the current work of MSTA leaders to help Michigan teachers transition to the new Michigan Science Standards. Share your needs!

Do you want to see the newest materials out there to use in your classroom?

Visit the exhibit hall to see the largest concentration of science educational materials available anywhere in the state. Enter one of the drawings for giveaways from the exhibitors.

We want to see you make this MSTA Conference your Pure Michigan Science *"What a Capital Idea"* Conference experience.

Karen Kelly
Conference Chair

Sandra Yarema
Assistant Conference Chair

Message from the Executive Director

On behalf of the MSTA Board of Directors and the 2016 Conference Committee, I would like to welcome you to the 63rd MSTA Annual State Science Conference! We are so pleased to be in Lansing at the Radisson Hotel and the Lansing Conference Center. The theme of our conference is "**Science...What A Capital Idea!**"

The State of Michigan Has New Science Standards! On November 10th, 2015 the State Board of Education officially voted to adopt the new **Michigan Science Standards**. Our MSTA Conference Leadership has been busy planning for how MSTA can be a professional support for you in your Michigan classrooms and schools. We have designed a conference full of sessions filled with Michigan's perspectives on the Michigan Science Standards that are based upon the Topic Arrangement of the Next Generation Science Standards. (NGSS). Please take time to read through the session descriptions to find ideas and resources to take back to your classroom, school, and or district.

This year our MSTA Conference will have a keynote address from Joseph Krajcik, Director of CREATE for STEM Institute at MSU. Joe will speak on: **What Do the New Michigan Science Standards Mean for Instruction and Assessment in your Classroom?** The New Michigan Standards shift the focus from science classrooms as places where students learn about science ideas to environments where students use disciplinary core ideas, scientific and engineering practices and crosscutting concepts to explore, examine and use science ideas to explain how and why phenomena occur or to find solutions to problems. To succeed, assessments, both summative and formative, will also need to shift to provide opportunities where students apply their knowledge to explain phenomena or design solutions to problems. In this session, Professor Krajcik will discuss the major shifts in New Standards and what they mean for classroom instruction and assessment.

The **Michigan Department of Education** is offering several sessions both Friday and Saturday to share the latest updates on the roll out of the new **Michigan Science Standards**.

Once again the Howard Hughes Medical Institute BioInteractive is offering a free movie on Friday at 5:00 PM! Relax with your colleagues with HHMI's BioInteractive movie. Free classroom resources and the movie DVD will be given away. We are delighted they are back for the third year in a row.

Thank you for joining us! We believe this conference will help you and your school districts deepen your understanding about our new Michigan Science Standards!

MSTA Executive Director



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Conference Planning Committee

Jennifer Arnswald
Richard Bacolor
Crystal Brown
David Brown
Yonee' Bryant Kuiphoff
LuAnne Clark
Paul Drummond
Wendy Johnson
Mary Jordan McMaster
Karen Kelly, 2016 Conference Chair
Holly McGoran
Kathy Mirakovits
Deborah Peek-Brown
Sandra Yarema, 2016 Assistant Conference Chair

Conference At-A-Glance

Friday, March 4, 2016

7:00 a.m. – 7:00 p.m.

Pre-Registration

Location: center concourse, Lansing Center

7:30 a.m. – 4:00 p.m.

On-site Registration/Speaker Check-In/Help Desk

Location: center concourse, Lansing Center

7:30 a.m. – 5:15 p.m.

SCECHs Desk

Location: center concourse, Lansing Center

8:00 a.m. – 4:45 p.m.

Sessions

Radisson Hotel and Lansing Center

8:00 a.m. – 4:45 p.m.

Special “Strand” Sessions from:

Michigan Mathematics/Science Centers Network
CREATE for STEM Institute, MSELA

10:00 a.m. – 11:45 a.m. – Workshop

Examples of How Higher Education is Supporting Teachers with NGSS

Charles Dershimer, U of M – School of Education

Location: LC – Banquet 6

9:00 a.m. – 5:00 p.m.

EXHIBITS

Location: Lansing Center, Exhibit Hall A

11:30 a.m. – 3:00 p.m.

RAFFLE items!

Make sure to put your raffle ticket next to the item you want to win! Items in the raffle are displayed at the MSTA booth (TT 33, TT 34). Raffle starts at 3!

1:00 p.m. – 1:45 p.m.

KEYNOTE SESSION

What Do the New Michigan Science Standards Mean for Instruction and Assessment in your Classroom

Joseph Krajcik, CREATE for STEM Institute

Location: LC - Banquet 1 & 3

2:00 p.m. – 2:45 p.m.

SPECIAL SESSION

Michigan’s New Science Standards – Next Steps

Stephen Best, MDE

Location: LC – Banquets 1 & 3

3:00 p.m. – 3:45 p.m.

SPECIAL SESSION

The Panel: Questions and Answers Regarding the Michigan Science Standards Implementations

Stephen Best, MDE, Peter McLaren, Achieve.org, MSTA

Science Leaders

Location: LC – Banquets 1 & 3

4:30 p.m.

MESTA Rock Raffle!

Location: Lansing Center, Exhibit Hall A

4:45 p.m. – 5:15 p.m.

Meet and Greet YOUR Region Director!

See who from your region received this year’s conference scholarships, and pick up your gift from your Region Director!

Location: Lansing Center, Banquets 1 & 3

5:00 p.m.

NIGHT AT THE MOVIES!

Come see the animation film about Mary Leakey and the film on the Color of Skin! Enjoy refreshments and the movies provided by the Howard Hughes Medical Institute!

Location: Lansing Center, Banquets 1 & 3

6:30 p.m.

Awards Program

Location: Lansing Center, Banquets 2 & 4

Awards Reception

Immediately following Awards Program

Location: Lansing Center, Pub Area

Conference At-A-Glance

Saturday, March 5, 2015

7:00 a.m. – 1:00 p.m.

Pre-Registration

Location: center concourse, Lansing Center

7:30 a.m. – Noon

On-site Registration/Speaker Check-in

Location: center concourse, Lansing Center

7:30 a.m. – 3:15 p.m.

SCECHs Desk

Location: center concourse, Lansing Center

8:00 a.m. – 8:45 a.m.

MUFFINS FOR MEMBERS!

Consider the next steps needed regarding the new Science standards. What do you need from your professional organization? Let us know!
Location: LC - 101

8:00 a.m. – 8:45 a.m.

Chemistry Teachers Meeting

Location: Radisson, Regency 1

8:00 a.m. – 2:45 p.m.

Sessions

Radisson Hotel and Lansing Center

8:00 a.m. – 2:45 p.m.

Special "Strand" Sessions from/for:

Elementary, MCSS

8:00 a.m. – Noon

RAFFLE items!

Make sure to put your raffle ticket next to the item you want to win! Items in the raffle are displayed at the MSTA booth (TT 33, TT 34). Raffle starts at Noon! MUST BE PRESENT TO WIN!

Noon

MESTA Rock Raffle!

Location: Lansing Center, Exhibit Hall A

11:00 a.m. – 11:45 a.m.

SPECIAL SESSION

Michigan's New Science Standards – Next Steps
Stephen Best, MDE
Location: LC – 101

12:00 p.m. – 12:45 p.m.

SPECIAL SESSION

The Panel: Questions and Answers Regarding the Michigan Science Standards Implementations
Stephen Best, MDE, and MSTA Science Leaders
Location: LC – 101

9:00 a.m. – 1:00 p.m.

EXHIBITS

Location: Lansing Center, Exhibit Hall A

Sponsors/Advertisers

THANK YOU to the following! They have advertised, provided a Bag Insert, supported our "Sponsor-a-Teacher" program, provided a raffle item, or helped with funds to off-set expenses for this year's conference! Some are here exhibiting, make sure to stop by and say "thanks"!

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Central Michigan University Biological Station

Consumers Energy

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Region 4 Director

June Teisan
Director at Large

Lynn Thomas
Region 14 Director

Sandra Yarema
SCST Representative/2016 Assistant
Conference Chair

MESTA

Lansing Center, Exhibit Hall A

Friday: 9:00 a.m. – 5:00 p.m.

Saturday: 9:00 a.m. - 1:00 p.m.

Come in and check all this fun stuff...and educational too! You may need a tote bag or cart to carry away all the goodies, or better yet, a friend/colleague to help you carry it!

Rock Raffle – Tabby Eldredgee

Check out the extraordinary samples you could win in the famous MESTA Rock Raffle! Buy your tickets anytime Friday and Saturday for the raffles — Friday @ 4:30 and Saturday @ Noon (MUST be present to win).

Will YOU be one of the lucky to walk away with an amazing rock, mineral, or fossil from the famous MESTA Rock Raffle? Bring your MESTA raffle tickets on Saturday and, "cross your fingers"!

Rock Shop – Parker Pennington

Need something to get your students excited about science? Come visit MESTA's fabulous Rock Shop! We have a variety of rocks, minerals, fossils and other oddities that will spark your student's curiosity. These purchases can be used as classroom showpieces and make great gifts. There is something for everybody. All proceeds go towards Earth Science scholarships and grants through the Michigan Earth Science Teachers Association. Major credit cards accepted.

FREE & Inexpensive – Judy Ruddock

This is it! Our famous FREE and Inexpensive rock and mineral sale. Lots of classroom samples, teaching kits and answers to your Earth questions. www.mestarocks.org

Past Presidents

(List shown from 1994 to current. For a full list, please contact the MSTA Office at 734-973-0433).

1994/96 ___ Alex Azima

1996/98 ___ Barb Berthlesen

1998/00 ___ Robert Long

2000/02 ___ Walter Rathkamp

2002/04 ___ Phil Walker

2004/06 ___ Robby Cramer

2006/08 ___ Paul Drummond

2008/10 ___ Betty Crowder

2010/12 ___ Mike Klein

2012/14 ___ Mike Sampson

2014/16 ___ Charles Bucienski

KEYNOTE SESSIONS

Friday, March 4, 2016

1:00 p.m. – 1:45 p.m.

What Do the New Michigan Science Standards Mean for Instruction and Assessment in Your Classroom?

Joseph Krajcik, CREATE for STEM Institute

Primary Subject: IN, AS

Interest Level: EE, LE, MS, HS, CO, Administrators

Location: LC – Banquet 1 & 3

The New Michigan Standards shift the focus from science classrooms as places where students learn about science ideas to environments where students use disciplinary core ideas, scientific and engineering practices and crosscutting concepts to explore, examine and use science ideas to explain how and why phenomena occur or to find solutions to problems. To succeed, assessments, both summative and formative, will also need to shift to provide opportunities where students apply their knowledge to explain phenomena or design solutions to problems. In this session, Professor Krajcik will discuss the major shifts in New Standards and what they mean for classroom instruction and assessment.

2:00 p.m. – 2:45 p.m.

Michigan's New Science Standards – Next Steps **Stephen Best, MDE**

Primary Subject: AS, GS

Interest Level: EE, LE, MS, HS

Location: LC – Banquets 1 & 3

Michigan has (finally) adopted new Science Standards for K-12 Students. So, now what do we do? This session will look at strategies that the Michigan Department of Education is moving on to implement the standards, and will look at a variety of considerations for schools and educators in what next to consider. Issues will include assessments, instructional practices, curriculum development and alignment, teacher certification, educator evaluation, and other issues impacted by the new standards.

3:00 p.m. – 3:45 p.m.

The Panel: Questions and Answers Regarding the Michigan Science Standards Implementations

Primary Subject: AS, GS

Interest Level: EE, LE, MS, HS

Location: LC – Banquets 1 & 3

The Panel: Stephen Best, MDE, Peter McLaren, Achieve.org, and MSTA Science Leaders

State and National Science leaders from Michigan will share perspectives, resources, and thoughts about next steps for work on the new Michigan Science Standards. Some time will be given for questions.

Saturday, March 5, 2016

2:00 p.m. – 2:45 p.m.

Michigan's New Science Standards – Next Steps **Stephen Best, MDE**

Primary Subject: AS, GS

Interest Level: EE, LE, MS, HS

Location: LC – 101

Michigan has (finally) adopted new Science Standards for K-12 Students. So, now what do we do? This session will look at strategies that the Michigan Department of Education is moving on to implement the standards, and will look at a variety of considerations for schools and educators in what next to consider. Issues will include assessments, instructional practices, curriculum development and alignment, teacher certification, educator evaluation, and other issues impacted by the new standards.

3:00 p.m. – 3:45 p.m.

The Panel: Questions and Answers Regarding the Michigan Science Standards Implementations

Primary Subject: AS, GS

Interest Level: EE, LE, MS, HS

Location: LC – 101

The Panel: Stephen Best, MDE, and MSTA Science Leaders

State and National Science leaders from Michigan will share perspectives, resources, and thoughts about next steps for work on the new Michigan Science Standards. Some time will be given for questions.

Featured Strands

Friday, March 4, 2016

CREATE for STEM Institute Strand Workshops/ Sessions

8:00 a.m. - 9:45 a.m.

Healthy Choices: Using PBL and NGSS to Explore Gene-Environment Interactions

Jane Lee, Michigan State University
Deborah Peek Brown, Renee Bayer, CREATE for STEM Institute

Primary Subject: BI, IN
Interest Level: MS
Location: LC - Banquet 7

Experience a project-based science curriculum that uses scientific practices, crosscutting concepts and core ideas to explain genetic and environmental factors that impact diabetes and the importance of healthy lifestyle choices.

SCECHS SESSION

10:00 a.m. - 11:45 a.m.

NGSS Meets the Outdoors: Teaching Elementary Science Outside

Renee Bayer, Michigan State University - College of Education
Kara Haas, Michigan State University, Kellogg Bio Station

Primary Subject: EN, IN
Interest Level: EE, LE
Location: LC - Banquet 7

In outdoor classrooms, students can explore and investigate natural phenomena supporting science teaching aligned with NGSS. Dress appropriately to go outside and learn techniques and lesson examples from MSU's Teaching Science Outdoors PD. This is a hands-on activities, any handouts will be web-based, links to resources will be emailed to participants.

SCECHS SESSION

10:00 a.m. - 11:45 a.m.

Interactions: A curriculum based on the Framework for Science Education

Kristin Mayer, Michigan State University
Jane Lee, Joseph Krajcik, CREATE for STEM Institute

Primary Subject: AS, IN
Interest Level: MS, HS
Location: LC - Banquet 8

In this hands-on workshop, experience a FREE online curriculum on intermolecular forces based on the Framework and NGSS. Explore lessons and find out how to access for use in classroom.

SCECHS SESSION

10:00 a.m. - 11:45 a.m.

Supporting Students' Modeling Practice Using Computer-Based Dynamic Systems Modeling Tool

Tom Bielek, Joseph Krajcik, CREATE for STEM Institute

Primary Subject: GS, CO
Interest Level: MS, HS
Location: LC - Banquet 1 & 3

Modeling is a core practice emphasized in the NGSS. We've developed a computer-based tool for supporting secondary school students in constructing and revising their models and learning dynamic systems thinking.

Session Key:

Primary Subject Levels:

AS – Assessment/Curriculum
CH – Chemistry
ES – Earth Science
GS – General Science
LT – Literacy
BI – Biology
CO – Computer/Technology
EN – Environmental Education
IN – Instruction/Pedagogy
PH – Physics
AST – Astronomy

Interest Levels:

EE – Early Elementary
LE – Late Elementary
MS – Middle Level
HS – High School
CO – College

 – SCECH Session
 – Vendor Session

Location:

R – Radisson
LC – Lansing Center

Featured Strands

Friday, March 4, 2016 *continued*

CREATE for STEM Institute Strand Workshops/ Sessions

SCECHS SESSION

1:00 p.m. - 2:45 p.m.

Developing NGSS Assessments for 3D Learning

Jane Lee, Michigan State University
Phyllis Haugabook Pennock, Deborah Peek-Brown, CREATE
for STEM Institute

Primary Subject: AS
Interest Level: MS
Location: LC - Banquet 8

Your classroom assessments can integrate core ideas, scientific practices, and crosscutting concepts. Find out how! Explore examples of items, student responses, and ways to use them in your instruction.

SCECHS SESSION

3:00 p.m. - 4:45 p.m.

Resources Integrating NGSS and CCS with Project-Based Learning

Susan Codere Kelly, Joseph Krajcik, Deborah Peek Brown,
CRETE for STEM Institute
Mario Lemmons, Dezia Harper, Moria Custodio, Henry Ford
Academy

Primary Subject: AS, IN
Interest Level: EE, LE
Location: LC - Banquet 7

Introducing the Multiple Literacies in Project-Based Learning Project:

- Bring science to life for young learners
- Experience 3-D Learning to meet NGSS, incorporate CCS
- Learn about free resources under development

MI Mathematics/Science Centers Network Strand Sessions

SCECHS SESSION

8:00 a.m. - 8:45 a.m.

Be Part of the Change: Developing Michigan Leadership in Science Education

Mary Starr, Starr & Associates

Primary Subject: AS
Interest Level: EE, LE, MS, HS, CO
Location: LC - 101

Michigan Science Education Leadership is a critical component of implementing changes in science teaching. Learn about each organization and how you can become part of the work!

SCECHS SESSION

10:00 a.m. - 10:45 a.m.

NSTA Learning Center as Part of Professional Learning Communities

Melissa Hayes, COOR ISD

Primary Subject: AS, IN
Interest Level: EE, LE, MS, HS, CO
Location: LC - 101

Through presentation and activities, learn more about the NSTA Learning Center and how the Mathematics and Science Centers Network is supporting Michigan teachers using the resources in professional learning.

SCECHS SESSION

11:00 a.m. - 11:45 a.m.

Engaging Elementary and Middle School Students in Modeling

James Emmerling, Genesee ISD

Primary Subject: AS, LT, IN
Interest Level: LE, MS
Location: LC - 101

Modeling is critical in elementary and middle school science learning. Through investigation, discussion and collaboration, learn about and then develop models that can be used in your own science teaching.

SCECHS SESSION

11:00 a.m. - 11:45 a.m.

Increasing Science Discourse in Your Classroom

Sarah Coleman, Genesee ISD

Primary Subject: AS
Interest Level: EE, LE, MS
Location: LC - 102

Integrating ELA and Science can happen through science talks. Learn about and practice using science talk tools to increase discourse and align your science teaching with your ELA goals.

SCECHS SESSION

1:00 p.m. - 1:45 p.m.

NGSx: One Pathway for Professional Learning

Melissa Hayes, COOR ISD

Primary Subject: AS, IN
Interest Level: EE, LE, MS, HS, CO
Location: LC - 101

NGSx is a national program for science professional learning. Become familiar with NGSx through an activity and learn about additional opportunities to become part of the NGSx team in Michigan.

Featured Strands

SCECHS SESSION

2:00 p.m. - 2:45 p.m.

What is the Michigan Mathematics and Science Centers Network?

Amy Oliver, Allegan/Van Buren M/S Center

*Primary Subject: AS
Interest Level: EE, LE, MS, HS, CO
Location: LC - 101*

The MMSCN is a resource for ALL Michigan science teachers. Each of the 33 Centers runs professional learning and student programs. Learn about our work and what's happening at your Center.

SCECHS SESSION

3:00 p.m. - 3:45 p.m.

Defining STEM

Kathy Agee, Regional M/S Center @ GVSU

*Primary Subject: AS, IN, GS
Interest Level: EE, LE, MS, HS, CO
Location: LC - 101*

Through examining current definitions of STEM education, active discussion, and reflection, develop your own working definition of STEM to share with parents and stakeholders and guide classroom instruction.

MSELA Strand Sessions

8:00 a.m. - 8:45 a.m.

MSELA Spring Business Meeting

**Jennifer Gottlieb, Troy School District
Sarah Coleman, Muskegon Area ISD**

*Primary Subject: AS
Interest Level: EE, LE, MS, HS, CO
Location: LC - 102*

Join the Michigan Science Education Leadership Association (MSELA) executive board in reviewing our work for the 2015/2016 during our MSELA Annual Business Meeting.

9:00 a.m. - 9:45 a.m.

Supporting Science for the Progressive Administrator

**Jennifer Gottlieb, Troy School District
Sarah Coleman, Muskegon Area ISD**

*Primary Subject: AS
Interest Level: EE, LE, MS, HS, CO
Location: LC - 102*

Strong sustained commitment and strategic support from building and district leadership will be necessary in order to realize the vision of the new standards. Now is the time to shift instructional practice and for leaders to remove barriers to change by transforming current systems.

10:00 a.m. - 10:45 a.m.

Supporting State and National Assessment from the Science Classroom

**Sarah Coleman, Muskegon Area ISD
Jennifer Gottlieb, Troy School District**

*Primary Subject: AS
Interest Level: EE, LE, MS, HS, CO
Location: LC - 102*

It's not about test, prep, drill - it's about engaging classrooms and reflective practice. Join us we examine sample district assessment plans that support state and national assessments.

1:00 p.m. - 1:45 p.m.

Facilitating and Sustaining Change in Your School or District

Julia Alder, Birmingham Public Schools

*Primary Subject: AS
Interest Level: EE, LE, MS, HS, CO
Location: LC - 102*

Learn from our elementary and middle school math, science, and technology integration program development initiative. Strengths, pitfalls, and current program state will be shared. See examples of process, protocols, and products from our multi-year technology integration for science and mathematics classrooms.

2:00 p.m. - 2:45 p.m.

Processes for Collaborative Decision Making and Leveraging Different Perspectives - Take 2

Mike Gallagher, Oakland Schools

*Primary Subject: AS
Interest Level: EE, LE, MS, HS, CO
Location: LC - 102*

It's universal. Most science departments are comprised of people with varying beliefs about our aims, instructional practices and urgency for change. Join us again as we explore processes and communication norms so that the energy that comes from varying views can be harnessed in a productive way.

3:00 p.m. - 3:45 p.m.

Using the Equip Rubric to Guide Materials Adoption

Jen Arnswald, Ionia Public Schools

*Primary Subject: AS
Interest Level: EE, LE, MS, HS, CO
Location: LC - 102*

Join us as we use the Equip Rubric to evaluate and examine curricular materials.

Featured Strands

Friday, March 4, 2016 *continued*

MSELA Strand Sessions

4:00 p.m. - 4:45 p.m.

Leading the Change Toward NGSS: Department Chair Round Table

Wendi Vogel, Kent ISD

*Primary Subject: AS
Interest Level: EE, LE, MS, HS, CO
Location: LC - 102*

Join department chairs, science coaches, and curriculum leaders in a round table discussion on leading the change to NGSS.

Saturday, March 5, 2016

Elementary Strand Sessions

SCECHS SESSION

8:00 a.m. - 8:45 a.m.

Catapult your kids into an Elementary STEM project! Crystal Brown, Parsons Elementary School

*Primary Subject: GS, IN
Interest Level: EE, LE
Location: LC - Banquet 1*

Elementary students thrive in STEM based projects! They want to create, build, tear apart and re-build. K-5 teachers will walk away with hands on experience and resources for a unit that is project-based and developed for students to explore, research and learn about the concepts of energy. They will then apply their understanding to build and redesign their best performing catapult model. Students are questioning, researching, analyzing, testing, and re-designing. Come see how a catapult unit can incorporate the cross-cutting concepts, disciplinary core ideas, and scientific and engineering practices in a meaningful way!

SCECHS SESSION

9:00 a.m. - 9:45 a.m.

How to Deliver a Dynamic Elementary Science Lesson with Rigor

Derek Sale, Gompers Elementary/Middle School

*Primary Subject: GS, IN
Interest Level: EE, LE, MS
Location: LC - 101*

This session will provide several strategies to transform your everyday elementary science lesson plan into a dynamic learning moment for your students.

SCECHS SESSION

10:00 a.m. - 10:45 a.m.

Integrate Literacy & Writing into Elementary Science by Using Interactive Notebooks

**Carolyn Mammen, TCAPS
Brian Peterson, Musson Elementary School
Betty Crowder, Oakland Schools**

*Primary Subject: GS
Interest Level: EE, LE, MS
Location: LC - 101*

Don't skip science in your elementary classroom - use it to strengthen your students expository writing and reading by integrating science notebooks into your instruction and make science fun!

SCECHS SESSION

1:00 p.m. - 1:45 p.m.

STEM for All Elementary Students! Crystal Brown, Parsons Elementary School

*Primary Subject: GS, IN
Interest Level: EE, LE
Location: LC - 103*

Providing incorporated Science, Technology, Engineering, and Mathematical experiences for ALL elementary students can be daunting. Come to gather ideas for STEM projects designed for each grade level, using materials readily available or inexpensive. I will provide resources teachers can use/adapt to teach any STEM project and we will complete one STEM project that could be adapted to be used K-5. Tap into your students' natural curiosity and desire to build and problem solve with a STEM project!

SCECHS SESSION

1:00 p.m. - 1:45 p.m.

Using Outstanding Science Trade Books Conni Crittenden, Williamston Schools

*Primary Subject: GS
Interest Level: EE, LE
Location: LC - 101*

Connecting science with great trade books. List from the Children's Book Council/NSTA Outstanding Science Trade Book Awards and activities to use with the books provided.

2:00 p.m. - 2:45 p.m.

Integrating Science in Social Studies Brian Peterson, Musson Elementary School

*Primary Subject: GS
Interest Level: EE, LE
Location: LC - 101*

We have all heard of Aristotle, Galileo, Edison, and Newton. But do you know how Alf Adams impacted the world of science every time you go shopping? In this session we will help integrate the world of science with your social studies lessons.

Featured Strands

MCSS Strand Sessions

SCECHS SESSION

1:00 p.m. - 1:45 p.m.

Letting Swift River Go

Carol Bacak - Egbo, Oakland University

Primary Subject: LT, EN

Interest Level: EE, LE

Location: LC - Banquet 7

Learn how to use picture books focusing on human/environment interaction to engage students in inquiry and connect science, social studies, and literacy.

2:00 p.m. - 2:45 p.m.

What Does This Graphic Say? Learning From Graphs Or Maps

Philip Gersmehl, Michigan Geographic Alliance

Primary Subject: EN, IN

Interest Level: LE, MS, HS

Location: LC - Banquet 7

Brain research identifies multiple parallel “pathways” for processing visual input. These underlie individual differences in “reading” visual aids. The optimum window for developing graph-reading skill is earlier than formerly thought.

SCECH Sessions - Friday

8:00 a.m. - 8:45 a.m.

Be Part of the Change: Developing Michigan Leadership in Science Education

Location: LC - 101

Educators Guide to Bloodstain Pattern Analysis: Real World Science!

Location: LC - Banquet 2 & 4

FREE teacher/student STEM labs and Career Exploration Labs

Location: R - Michigan 2

How to Write a Scientific Paper

Location: R - Regency 1

Making Grades More Meaningful

Location: LC - 104

New, Free K-3 Science Units: A Bridge to MSS Implementation

Location: R - Capital 2

What Is the COLOR of Science? EXCITING!

Location: R - Capital 4

Why Not Salmon in Your Classroom - Part 1

Location: LC - Governors

8:00 a.m. - 9:45 a.m.

Cool Tools for Force and Motion

Location: LC - 205

NASA STEM: The Scoop on Soils (Grades K-9)

Location: R - Capital 1

8:00 a.m. - 10:00 a.m.

MEECS Ecosystems and Biodiversity

Location: LC - 103

9:00 a.m. - 9:45 a.m.

Engaging Students and the Next Generation Science Standards through Recyclable 3-D Printing

Location: R - Regency 2

Meet the Biofuel Crops of the Future!

Location: R - Capital 4

Modeling, Explanations and Argument in Middle School Science

Location: LC - 104

NGSS, CCSS, and 21st Century Skills Oh MI!

Location: R - Capital 2

Observe, Investigate and Enjoy: New Conservation Education Toolkit

Location: LC - Governors

Put Your Simple Machines To Work To Better Learn STEM Concepts Using LEGO®

Location: LC - 101

Reconsidering the Scientific Method: Teaching the Connections between Science and Society

Location: R - Michigan 2

Save the Egg! A Physics and Chemistry Integrated Engineering Project.

Location: LC - Banquet 2 & 4

You Want To Do WHAT with Middle School Students Below a Super Fund Site?

Location: R - Michigan 1

9:00 a.m. - 10:45 a.m.

Bring Science Alive! Discovering the Science Practices

Location: LC - 202

Cool Tools for Light & Color

Location: R - Michigan 3

10:00 a.m. - 10:45 a.m.

Environmental Issues, PSAs, iPads, & NGSS!

Location: R - Michigan 1

Facilitating Students' Understanding of the Structure and Properties of Matter

Location: LC - 205

Hands-on, Minds-on Science

Location: LC - 201

Invasive Monsters of the Deep

Location: LC - Governors

NGSS (Michigan Science Standards) in the K-2 Classroom

Location: LC - 104

NGSS Human Impacts - Water, energy, food and climate change

Location: R - Capital 4

NSTA Learning Center as Part of Professional Learning Communities

Location: LC - 101

Solutions for Delivering Engineering Design into the Science Classroom

Location: R - Capital 2

STEM...(again) FOR THE YOUNGER SET

Location: R - Capital 3

Useful Manufacturing: Unleashing the Untapped MacGyver in Your Students

Location: R - Regency 1

Using NASA Data to Conduct Authentic Research with Students

Location: LC - 204

Utilizing Science and Engineering Practices in Biology and Chemistry

Location: LC - Banquet 2 & 4

10:00 a.m. - 11:45 a.m.

Interactions: A curriculum based on the Framework for Science Education

Location: LC - Banquet 8

NGSS Meets the Outdoors: Teaching Elementary Science Outside

Location: LC - Banquet 7

Project-based Learning - Using Video-enhanced Lessons

Location: LC - 203

Supporting Students' Modeling Practice Using Computer-Based Dynamic Systems Modeling Tool

Location: LC - Banquet 1 & 3

10:30 a.m. - 12:30 p.m.

MEECS Water Quality

Location: LC - 103

11:00 a.m. - 11:45 a.m.

A Collection of Chemistry

Location: LC - 201

Chemical Education Foundation -Educational Programs

Location: R - Regency 1

Climate Literacy - Climate Solutions

Location: LC - 204

Collaborating Classrooms: Connecting Year Round

Location: R - Michigan 2

Engaging Elementary and Middle School Students in Modeling

Location: LC - 101

Formative Assessments

Location: R - Capital 1

Future Sustainability Center: Education, Partnerships & STEM

Location: R - Capital 2

Green Chemistry Experiments for Grades 8-12

Location: LC - 104

Increasing Science Discourse in Your Classroom

Location: LC - 102

INTENSIFY Your Students Observation Skills - SETON WATCHING - A Capital Idea!

Location: R - Capital 3

STEM from Salmon Part II

Location: LC - Governors

Teacher Professional Development without the Loss of Instructional Time with Students

Location: R - Michigan 1

Totality is Coming in 2017!

Location: R - Capital 4

SCECH Sessions - Friday

Cars That Cannot Crash! (V2X - vehicle to vehicle computer communication)

Location: R - Michigan 3

1:00 p.m. - 1:45 p.m.

A "Simple" WALK will HEIGHTEN Your Students Enthusiasm for Learning!

Location: R - Capital 3

Avida-ED: Evolution You Can See

Location: LC - 202

Choosing the Best EdTech for Michigan's New Science Standards

Location: R - Regency 1

Energizing Education-A Complete and Free Energy Unit for Michigan Students

Location: LC - 204

Hominin Phylogeny Construction Using Skulls - Students Using NGSS & The Past

Location: LC - 203

Integrating iPad® with Vernier Technology

Location: LC - Banquet 6

Making Use of Conceptual Mapping in the Classroom

Location: R - Michigan 2

Neuroscience: Low-fi Development of High-tech hands-on teaching Labs

Location: LC - Banquet 7

NGSx: One Pathway for Professional Learning

Location: LC - 101

Phenomenal Science Units

Location: R - Capital 1

Science and Rigor... Music to my Ears!

Location: LC - 104

Simple and Effective Ways to Bring Inquiry Into Your Classroom

Location: R - Regency 2

What Do the New Michigan Science Standards Mean for Instruction and Assessment in your Classroom?

Location: LC - Banquet 1 & 3

Writing in Science -- How To Make It Meaningful

Location: R - Capital 2

1:00 p.m. - 2:45 p.m.

Developing NGSS Assessments for 3D Learning

Location: LC - Banquet 8

Great Transitions: The Origin of Humans - Examining the Evidence and Claims

Location: LC - 201

1:30 p.m. - 2:30 p.m.

Introduction to MEECS On-line Learning Portal

Location: LC - 103

2:00 p.m. - 2:45 p.m.

Academy of Natural Resources: Summer Professional Development for Educators

Location: LC - Governors

Carbon TIME Teaching Networks: Curriculum, Coordinating PD, and Professional Support

Location: R - Regency 1

Coding for Kids Clubs: Engaging Students with Computer Programming at the Elementary Level

Location: R - Capital 4

Differentiated Learning Through Stationed Activities

Location: LC - 203

Engineering and Design Activities for Chemistry

Location: LC - 104

Enhancing Classroom Learning Through Digital Dissection

Location: LC - 202

Green Chemistry Connections: Inspiring Students with Innovation

Location: R - Capital 1

Integrating Chromebook with Vernier Technology

Location: LC - Banquet 6

Reading in Science--Make Your Students Better Readers

Location: R - Capital 2

Referee? Not Me! Stop Refereeing and Start Teaching!

Location: R - Michigan 2

STEM = STEAM Different sides of the Equation

Location: R - Michigan 3

Student Talk for Deeper Understanding - Discourse in Science

Location: LC - 204

Teachers 2 Teachers International

Location: R - Michigan 1

Using Forensic Science to Teach Scientific Inquiry

Location: R - Regency 2

What is the Michigan Mathematics and Science Centers Network?

Location: LC - 101

2:00 p.m. - 3:45 p.m.

Nature Tales - Storybooks to Science

Location: R - Capital 3

3:00 p.m. - 3:45 p.m.

Atmospheric and Earth Observations with Kite-Borne Sensors

Location: R - Capital 4

Bacteria, Antibiotics and Antibiotic Resistance: What Your Students Need to Know

Location: LC - 203

Brilliant Biology

Location: LC - 204

Civics, Science, and Stewardship

Location: LC - Governors

Defining STEM

Location: LC - 101

Documenting Student Growth Through Interactive Notebooking

Location: R - Regency 2

Exploring Innovative Approaches to Blended STEM Instruction

Location: R - Michigan 2

Fostering Three-Dimensional Learning: Curiosity in the Science Classroom

Location: LC - 202

Great, Cheap, Easy Demonstrations for Matter and Energy

Location: LC - 205

Putting the Practices into Practice

Location: R - Capital 1

STEM Summer Camp

Location: R - Michigan 3

3:00 p.m. - 4:45 p.m.

Beak of the Finch: Using Statistics in Biology

Location: LC - 201

Engaging Students in Scientific Argumentative Reading, Writing, and Thinking

Location: LC - Banquet 8

Fast, Fantastic Formative Assessment for the Science Classroom

Location: R - Capital 2

Planning and Designing Safe and Sustainable Science Facilities for Project-Based/STEM Curriculum

Location: LC - Banquet 6

Resources Integrating NGSS and CCS with Project-Based Learning

Location: LC - Banquet 7

3:00 p.m. - 5:00 p.m.

MEECS Energy Resources

Location: LC - 103

SCECH Sessions - Friday & Saturday

4:00 p.m. - 4:45 p.m.

Carbon TIME: Free NGSS-Aligned Biology Curriculum and Professional Development Opportunities

Location: LC - 202

Cognitively Impaired Inclusion Classes in Biology, Chemistry, Physics, etc.?

Location: R - Capital 1

Energy that Powers Michigan

Location: LC - 205

Human Population: Past, Present and Future Carrying Capacity

Location: R - Regency 2

Live Animals & Bio Facts - Natural Tools for Learning

Location: LC - 203

Making It Real... Cheap!

Location: R - Michigan 3

NASA's Soil Moisture Measurement Mission

Location: R - Capital 4

Scientific Models: Shifting Lessons in Modeling to Deepen Conceptual Understanding

Location: R - Michigan 2

Standards-Based Grading in the Next Generation

Location: LC - 204

Talk Moves: Guiding Engaging Science Discussions

Location: R - Michigan 1

Saturday

8:00 a.m. - 8:45 a.m.

Catapult your kids into an Elementary STEM project!

Location: LC - Banquet 1

Get a Sneak Peek at the BCAMSC MSS Aligned Units

Location: LC - Banquet 8

Great, Cheap, Easy Demonstrations for Matter and Energy

Location: LC - 203

Human Population: Past, Present and Future Carrying Capacity

Location: LC - 102

MSS & STEM can be FUN!!

Location: R - Michigan 3

Next Steps Planning for Curriculum, Instruction, and Assessment

Location: LC - 104

8:00 a.m. - 9:45 a.m.

Investigate Photosynthesis and Cellular Respiration Using Algae Beads!

Location: LC - Banquet 2

NASA STEM: The Scoop on Soils (Grades K-9)

Location: LC - 202

Physics Make and Take

Location: R - Capital 3

Playing with Underwater Gliders and Exploring Engineering Design Process

Location: LC - 205

Project-based Learning - Using Video-enhanced Lessons

Location: LC - 204

Shish-Kebab Planet: (This is not a cooking class)

Location: R - Michigan 2

Stability and Change in Michigan Ecosystems: An Example Mi-STAR Unit

Location: R - Capital 2

The Physiological Impact of Poverty on Behavior and Academic Performance

Location: LC - Governors

What's in Your Walls? Teaching Sustainability through NGSS

Location: LC - 201

8:30 a.m. - 10:30 a.m.

MEECS Climate Change

Location: LC - 103

9:00 a.m. - 9:45 a.m.

Energy that Powers Michigan

Location: LC - 203

Engaging Science for English Language Learners (ELLs)

Location: R - Michigan 3

Facilitating Students' Understanding of the Structure and Properties of Matter

Location: LC - Banquet 4

Global Change in the Classroom: Creating Stewards of the Earth

Location: R - Capital 1

How to Deliver a Dynamic Elementary Science Lesson with Rigor

Location: LC - 101

Science and the MDE early literacy and numeracy initiative

Location: LC - 104

Teacher Professional Development without the Loss of Instructional Time with Students

Location: LC - 102

The Art of Chemistry

Location: R - Regency 1

What's Going On Under Ground? Michigan Potatoes: Nutritious and Delicious!

Location: LC - Banquet 7

9:00 a.m. - 10:45 a.m.

Eco Impact: How Our Choice Affect the Earth and Its Inhabitants

Location: R - Capital 4

Effective Strategies for Teaching Nature of Science

Location: R - Michigan 1

Engineering the Future - Exploring Engineering Design in the NGSS

Location: LC - Banquet 3

Framing Your Lessons in Phenomena

Location: LC - Banquet 8

9:00 a.m. - Noon

The Modeling Method in Electricity and Magnetism

Location: R - Regency 2

10:00 a.m. - 10:45 a.m.

An Integrated Approach to Teaching Metamorphic Rocks of Michigan

Location: R - Capital 1

Bacteria, Antibiotics and Antibiotic Resistance: What Your Students Need to Know

Location: LC - 204

Bridging the STEM Gap with Science Olympiad

Location: R - Regency 1

Co-Robots Can Serve as Co-Educators for Students

Location: LC - 205

Continuing the Journey into Technology; Building a Curriculum

Location: LC - 104

FREE teacher/student STEM labs and Career Exploration Labs

Location: LC - 102

Integrate Literacy & Writing into Elementary Science by Using Interactive Notebooks

Location: LC - 101

Modeling Dynamic Equilibrium Activity

Location: R - Capital 3

Science in the Making: 3-D Printing

Location: LC - 203

Simple and Effective Ways to Bring Inquiry Into Your Classroom

Location: LC - Governors

Small Eruptions with Big Impacts: An Eyjafjallajokull-like eruption in U.S.?

Location: R - Michigan 2

SCECH Sessions - Saturday

"Spring" into Hands-on Learning

Location: LC - 201

Standards-Based Grading in the Next Generation

Location: LC - Banquet 4

Teach Students How To Write A Story Using LEGO®

Location: R - Banquet 1

Three-Dimensional Learning in Your Classroom: Applying NGSS through Michigan Themes

Location: R - Capital 2

10:00 a.m. - 11:45 a.m.

Creative Engineering in STEM Using Design Thinking for Problem Solving

Location: LC - Banquet 6

Institute of Food Technologists - Middle and High School Outreach Program

Location: R - Michigan 3

Science Saturdays---Detroit Public Schools' Monthly Hands-On Science PLCs

Location: LC - Banquet 2

11:00 a.m. - 11:45 a.m.

An Integrated to Teaching the Geology of the Cascade Volcanoes

Location: R - Michigan 2

Bull's Eye Lab for Different Levels of Physics

Location: LC - 205

Challenge Your Students to Make Waves

Location: LC - 201

Differentiated Learning Through Stationed Activities

Location: LC - 204

Do It Outdoors - MSS/ GLCE's, ELA, Math, and More!

Location: R - Regency 1

Enhancing Classroom Learning Through Digital Dissection

Location: LC - 202

Exploring the Science Explanation Framework through What's Your Evidence?

Location: LC - 102

Family Engineering Night: A Night for the Whole Family!

Location: R - Capital 3

Interactive (and effective!) Formative Assessment for your Science Classroom

Location: LC - Banquet 7

NGSS, CCSS, and 21st Century Skills Oh MI!

Location: R - Capital 2

Powerful Science Notebooks

Location: LC - 203

Reorganizing Biology Content - A Bottom up Approach

Location: LC - Banquet 1

Simple, Authentic Inquiry

Location: R - Capital 4

Solutions for Delivering Engineering Design into the Science Classroom

Location: LC - Banquet 4

Supporting English Learners in the Science Classroom

Location: LC - Banquet 8

The Kirtland's Warbler: A New Vision for Endangered Species Conservation

Location: LC - Banquet 3

Transform your Science Fair into a STEM Challenge Fair!

Location: LC - 104

11:00 a.m. - 12:00 p.m.

Introduction to MEECS On-line Learning Portal

Location: LC - 103

1:00 p.m. - 1:45 p.m.

Design A Sustainable Future

Location: R - Michigan 3

Energizing Education-A Complete and Free Energy Unit for Michigan Students

Location: LC - 205

Great Adaptations: Teaching Practices That Support Diverse Learners

Location: R - Regency 2

Integrating Effective Leadership, Science Literacy, and Technology into Science Instruction

Location: R - Capital 3

Interdisciplinary Learning for a Changing Planet

Location: LC - 202

Letting Swift River Go

Location: LC - Banquet 7

Physics of Atomic Nuclei - learn about MSU Cyclotron and FRIB

Location: R - Capital 1

Promoting Collaborative Learning and Productive Interactions in the Science Classroom

Location: R - Regency 1

Science Saturdays---Detroit Public Schools' Monthly Hands-On Science PLCs

Location: LC - Banquet 4

STEM = STEAM Different sides of the Equation

Location: LC - Governors

STEM for All Elementary Students!

Location: LC - 103

Super Science from the Smithsonian

Location: LC - 102

Talk Moves: Guiding Engaging Science Discussions

Location: R - Michigan 1

Teaching Evolution: A Conversation About Misconceptions and Models

Location: LC - 204

Thermochemistry and LOL Diagrams for All Levels

Location: R - Capital 2

Tools for Helping Teach Meiosis

Location: LC - Banquet 6

Using Outstanding Science Trade Books

Location: LC - 101

1:00 p.m. - 2:45 p.m.

Contagion! Track the Progress of Dangerous Viruses throughout the Country

Location: LC - Banquet 1

Implementing Low Cost Engineering Projects for the MS/HS classroom

Location: LC - 203

Lloyd's Toolbox of Engineering Ideas & Activities

Location: LC - 104

The Arts in ENGINEERING

Location: LC - 201

2:00 p.m. - 2:45 p.m.

A Climate Change in Your Classroom!

Location: LC - Banquet 8

Advancements in Science and Medicine - History of Laboratory Animal Use

Location: LC - 202

Creating and Programming Apps at the Elementary Level

Location: LC - 103

Daytime Astronomy

Location: LC - 205

Minecraft in the Classroom: Incorporating Video Games into Core Instruction

Location: R - Michigan 3

Science Saturdays---Detroit Public Schools' Monthly Hands-On Science PLCs

Location: LC - Banquet 4

Speed-Reading and Other Time Saving Teaching Techniques

Location: R - Regency 1

Using Authentic Environmental Research to Engage High School Biology Students

Location: LC - 204

Using Particle Diagrams to Increase Student Learning in Chemistry

Location: R - Capital 2



Schedule Your Day - Friday LANSING CENTER

	8:00 am-8:45 am	8:00 am-9:45 am	8:00 am-10:00 am	9:00 am-9:45 am	9:00 am-10:45 am	10:00 a.m. - 10:45 a.m.	10:00 am-11:45 am	10:30 am-12:30 pm	
101	*Be Part of the Change...(EE, LE, MS, HS, CO)			*Put Your Simple Machine...(EE, LE, MS, HS)		*NSTA Learning Center...(EE, LE, MS, HS, CO)			
102	MSELA Spring Business Mtg...(EE, LE, MS, HS, CO)			Supporting Science for...(EE, LE, MS, HS, CO)		Supporting State & National...(EE, LE, MS HS)			
103			*MEECS Ecosystems...(LE, MS)					*MEECS Water Quality...(LE, MS)	
104	*Making Grades More...(MS, HS)			*Modeling, Explanations...(MS)		*NGSS in the K-12...(EE, LE)			
201		Wading into Ecology...(MS, HS)				*Hands-on, Minds-on...(MS, HS)			
202					*Bring Science Alive!(EE, LE)				
203				Science Fusion...(LE)			*Project-based Learning...(MS, HS)		
204		Paper Mache Anatomy...(MS, HS)				*Using NASA Data...(HS, CO)			
205		*Cool Tools for Force...(MS, HS, CO)				*Facilitating Students'...(MS, HS)			
Governor's	*Why Not Salmon in...(LE, MS, HS)			*Observe, Investigate...(EE, LE, MS, HS, CO)		*Invasive Monsters...(LE, MS, HS, CO)			
Banquet 1							*Supporting Students' Modeling...(MS, HS)		
Banquet 2	*Educators Guide to Bloodstain...(HS, CO)			*Save the Egg!...(HS)		*Utilizing Science...(HS)			
Banquet 3							*Supporting Students' Modeling...(MS, HS)		
Banquet 4	*Educators Guide to Bloodstain...(HS, CO)			*Save the Egg!...(HS)		*Utilizing Science...(HS)			
Banquet 5				Repressive Gene Expressions...(HS)		Understand Photosynthesis...(HS)			
Banquet 6		How Can Methods Classes...(CO)					Examples of How Higher...(CO)		
Banquet 7		Healthy Choices: Using PBL...(MS)					*NGSS Meets the Outdoors...(EE, LE)		
Banquet 8				STEM in Forensics...(LE, MS, HS)			*Interactions: A Curriculum...(MS, HS)		

= Featured Session
 = Vendor
 = MI M/S CENTER NETWORK STRAND
 = ELEMENTARY STRAND
 = MSELA STRAND
 = CREATE FOR STEM STRAND
 = MCSS STRAND
 **SCECH Session

Interest Levels: EE = Early Elementary; LE = Late Elementary; MS = Middle Level; HS = High School; CO = College

Schedule Your Day - Friday LANSING CENTER

	11:00 am-11:45 am	1:00 pm-1:45 pm	1:00 pm-2:45 pm	1:30 pm-2:30 pm	2:00 pm-2:45 pm	3:00 pm-3:45 pm	3:00 pm-4:45 pm	3:00 pm-5:00 pm	4:00 pm-4:45 pm
	*Engaging Elementary & MS... (LE, MS)	*NGSx: One Pathway... (EE, LE, MS, HS, CO)			*What is the Michigan... (EE, LE, MS, HS, CO)	*Defining STEM... (EE, LE, MS, HS, CO)			
	*Increasing Science... (EE, LE, MS)	*Facilitating & Sustaining... (EE, LE, MS, HS, CO)			Processes for Collaborative... (EE, LE, MS, HS, CO)	Using the EQUIP Rubric... (EE, LE, MS, HS, CO)			Leading the Change... (EE, LE, MS, HS, CO)
				*Introduction to MEECS... (LE, MS)				*MEECS Energy Resources	
	*Green Chemistry... (MS, HS, CO)	*Science & Rigor... (MS, HS, CO)			*Engineering & Design... (HS)	POGIL Activities... (HS)			Investigate Forensics... (HS)
	*A Collection of... (HS)		*Great Transitions... (HS, CO)				*Beak of the Finch... (HS, CO)		
	Immerse Your Students... (LE, MS, HS, CO)	*Avida-ED: Evolution... (MS, HS, CO)			*Enhancing Classroom Learning... (MD, HS, CO)	*Fostering 3-Dimensional... (MS, HS, CO)			*Carbon TIME: Free NGSS... (MS, HS)
		*Hominin Phylogeny... (MS, HS, CO)			*Differentiated Learning... (MS, HS)	*Bacteria, Antibiotics... (LE, MS, HS)			*Live Animals & Bio Facts... (EE, LE)
	*Climate Literacy... (LE, MS, HS)	*Energizing Education... (LE, MS, HS)			*Student Talk for... (MS, HS)	*Brilliant Biology... (HS)			*Standards-Based Grading... (LE, MS, HS)
	Physics, Algebra... (HS)		Cool Tools for Electricity... (LE, MS, HS, CO)			*Great, Cheap, Easy... (LE, MS, HS)			*Energy that Powers... (LE, MS, HS)
	*STEM from Salmon... (LE, MS, HS)	*Environmental Educator's... (EE, LE, MS, HS, CO)			*Academy of Natural... (EE, LE, MS, HS, CO)	*Civics, Science... (LE, MS, HS, CO)			
		*What Do the New... (EE, LE, MS, HS, CO, ADM)			MI New Science Standards... (EE, LE, MS, HS)	The Panel: Q & A... (EE, LE, MS, HS)			
		*What Do the New... (EE, LE, MS, HS, CO, ADM)							
	Biomes & Invasive... (HS)	Classifying Space Objects... (MS)			Chemical Batteries... (MS)	Who Infected Whom?... (MS)			
		*Integrating iPad... (LE, MS, HS, CO)			*Integrating Chromebook... (LE, MS, HS, CO)		*Planning & Designing... (EE, LE, MS, HS)		
		*Neuroscience: Low-fi... (MS, HS, CO)					*Resources Integrating NGSS... (EE, LE)		
			*Developing NGSS... (MS)				*Engaging Students in... (MS, HS)		

■ = Featured Session
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 ■ = CREATE FOR STEM STRAND
 ■ = MCSS STRAND
 **SCECH Session

Interest Levels: EE = Early Elementary; LE = Late Elementary; MS = Middle Level; HS = High School; CO = College

Schedule Your Day - Friday RADISSON HOTEL

	8:00 a.m. - 8:45 a.m.	8:00 a.m. - 9:45 a.m.	9:00 a.m. - 9:45 a.m.	9:00 a.m. - 10:45 a.m.	10:00 a.m. - 10:45 a.m.	11:00 a.m. - 11:45 a.m.	
Capital 1		*NASA STEM: The Scoop...(EE, LE, MS)				*Formative Assessments...(MS)	
Capital 2	*New, Free K-3 Science...(EE)		*NGSS, CCSS, and 21st...(EE, LE, MS)		*Solutions for Delivering...(LE, MS, HS)	*Future Sustainability...(LE, MS, HS)	
Capital 3		Using History to Integrate...(LE, MS, HS)			*STEM...(again)...(EE)	INTENSIFY Your Students...(EE, LE, MS, HS, CO)	
Capital 4	*What is the COLOR...(EE, LE, MS, HS, CO)		*Meet the Biofuel...(MS, HS, CO)		*NGSS Human Impact...(MS, HS)	*Totality is Coming...(MS, HS, CO)	
Michigan 1			*You Want to Do WHAT...(MS)		*Environmental Issues...(LE, MS)	*Teacher Professional...(EE, LE, MS)	
Michigan 2	*FREE Teacher/Student STEM...(MS)		*Reconsidering the Scientific...(HS)		I quit Grading...(MS, HS)	*Collaborating Classrooms...(LE, MS, HS)	
Michigan 3				*Cool Tools for Light...(LE, MS, HS, CO)		*Cars That Cannot...(HS)	
Regency 1	How to Write a...(HS)		Project-Based Inquiry...(MS)		*Useful Manufacturing...(EE, LE, MS, HS)	*Chemical Education...(EE, LE, MS)	
Regency 2	Lessons Learned...(MS, HS)		*Engaging Students...(MS, HS, CO)		Integrating Soil Ecology...(MS, HS)	Use Science Olympiad...(LE, MS, HS)	

= Featured Session
 = Vendor
 = MI M/S CENTER NETWORK STRAND
 = ELEMENTARY STRAND
 = MSELA STRAND
 = CREATE FOR STEM STRAND
 = MCSS STRAND
 **SCECH Session

Interest Levels: EE = Early Elementary; LE = Late Elementary; MS = Middle Level; HS = High School; CO = College

Schedule Your Day - Friday RADISSON HOTEL

	1:00 p.m. - 1:45 p.m.	2:00 P.M. - 2:45 P.M.	2:00 p.m. - 3:45 p.m.	3:00 p.m. - 3:45 p.m.	3:00 p.m. - 4:45 p.m.	4:00 p.m. - 4:45 p.m.
	*Phenomenal Science... (EE, LE)	*Green Chemistry...(MS, HS, CO)		*Putting the Practices... (LE, MS)	*Fast, Fantastic Formative...(EE, LE, MS HS, CO)	*Cognitively Impaired... (MS, HS)
	*Writing in Science... (MS, HS)	*Reading in Science... (MS, HS)				
	*A "Simple" WALK...(EE, LE, MS, HS, CO)		*Nature Tales...(EE, LE)			
		*Coding for Kids Clubs... (EE)		*Atmospheric & Earth... (MS, HS)		*NASA's Soil Moisture... (MS, HS)
Can Challenge-Building...(LE)		*Teachers2Teachers... (EE, LE, MS, HS, CO)		I-Engineering...(MS)		*Talk Moves...(EE, LE, MS, HS)
*Making Use of Conceptual...(MS, HS, CO)		*Referee? Not me!...(EE, LE, MS, HS)		*Exploring Innovative... (HS, CO)		*Scientific Models... (LE, MS)
Ok2Say - Student...(EE, LE, MS, HS)		*STEM=STEAM...(EE, LE, MS, HS, CO)		*STEM Summer Camp... (EE, LE, MS)		*Making it Real..Cheap!... (LE, MS)
*Choosing the Best EdTech...(EE, LE, MS, HS)		*Carbon TIME...(MS, HS)		Making Connections... (HS)		Active Physics/Active Chemistry...(HS)
*Simple & Effective Ways...(LE, MS)		*Using Forensic Science...(HS)		*Documenting Student...(LE, MS, HS)		*Human Population: Past...(MS, HS)

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 **SCECH Session

Interest Levels: EE = Early Elementary; LE = Late Elementary; MS = Middle Level; HS = High School; CO = College

Schedule Your Day - Saturday LANSING CENTER

	8:00 a.m. - 8:45 a.m.	8:00 a.m. - 9:45 a.m.	8:30 a.m. - 10:30 a.m.	9:00 a.m. - 9:45 a.m.	9:00 a.m. - 10:45 a.m.	10:00 a.m. - 10:45 a.m.	
101	Muffins for Members... (EE, LE, MS, HS, CO, ADM)			*How to Deliver a Dynamic... (EE, LE, MS)		*Integrate Literacy & Writing... (EE, LE, MS)	
102	*Human Population: Past... (MS, HS)			*Teacher Professional... (EE, LE, MS)		*FREE Teacher/Student... (MS)	
103			*MEECS Climate Change				
104	*Next Steps Planning for... (EE, LE, MS, HS, CO)			*Science & the MDE... (EE, LE)		*Continuing the Journey... (HS)	
201		*What's in Your Walls?... (MS, HS)				*"Spring" into Hands-on... (MS, HS)	
202		*NASA STEM... (EE, LE, MS)				MI Magnetic Secrets... (HS)	
203	*Great, Cheap, Easy... (LE, MS, HS)			*Energy that Powers... (LE, MS, HS)		*Science in the Making... (MS, HS)	
204		*Project-based Learning... (MS, HS)				*Bacteria, Antibiotics... (LE, MS, HS)	
205		*Playing with Underwater... (MS, HS)				*Co-Robots Can Serve... (MS, HS, CO)	
Governor's		*The Physiological Impact... (EE, LE, MS, HS, CO)				*Simple & Effective Ways... (LE, MS)	
Banquet 1	*Catapult your Kids Into... (EE, LE)			Elementary Inquiry... (EE, LE, MS, HS)		*Teach Students How to... (EE, LE, MS, HS)	
Banquet 2		*Investigate Photosynthesis... (MS, HS)					
Banquet 3				*Engineering the Future... (EE)			
Banquet 4				*Facilitating Students'... (MS, HS)		*Standards-Based Grading... (LE, MS, HS)	
Banquet 5				The Chemistry of Color... (HS)		Fingerprint of an Atom... (HS)	
Banquet 6		Energizing Lessons Learned... (MS, HS)					
Banquet 7				*What's Going on Under Ground?... (MS)		*MI Environmental... (EE, LE, MS, HS, CO)	
Banquet 8	*Get a Sneak Peak at... (EE, LE, MS)				*Framing Your Lessons... (EE, LE, MS)		

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 **SCECH Session

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Schedule Your Day - Saturday LANSING CENTER

	10:00 a.m. - 11:45 a.m.	11:00 a.m. - 11:45 a.m.	11:00 a.m. - Noon	12:00 - 12:45 p.m.	1:00 p.m. - 1:45 p.m.	1:00 p.m. - 2:45 p.m.	2:00 p.m. - 2:45 p.m.
		Michigan's New Science...(EE, LE, MS, HS)		The Panel: Q & A...(EE, LE, MS, HS)	*Using Outstanding Science...(EE, LE)		Integrating Science in...(EE, LE)
		*Exploring the Science...(EE, LE)			*Super Science from the...(EE, LE)		Amazing Productive...(EE, LE, MS, HS, CO)
			Introduction to MEECS...(LE, MS)		*STEM for all Elementary...(EE, LE)		*Creating & Programming...(LE)
		*Transform your Science...(EE, LE)				*Lloyd's Toolbox of...(LE, MS, HS, CO)	
		*Challenge Your Students...(LE, MS, HS, CO)				*The Arts in Engineering...(EE, LE, MS)	
		*Enhancing Classroom Learning...(MS, HS, CO)			*Interdisciplinary Learning...(MS, HS)		*Advancements in Science...(MS, HS)
		*Powerful Science...(EE, LE)				*Implementing Low Cost...(MS, HS)	
		*Differentiated Learning...(MS, HS)			*Teaching Evolution...(MS, HS)		*Using Authentic Envir...(MS, HS)
		*Bull's Eye Lab...(HS)			*Energerizing Education...(LE, MS, HS)		*Daytime Astronomy...(MS, HS)
		Human Evolution...(HS)			*STEM=STEAM...(EE, LE, MS, HS, CO)		
		*Reorganizing Biology Content...(HS)				*Contagion! Track the Progress...(MS, HS)	
	*Science Saturdays...(LE)						
		*The Kirkland's Warbler...(EE, LE, MS, HS)					
		*Solutions for Delivering...(LE, MS, HS)			*Science Saturdays...(EE)		*Science Saturdays...(EE)
		Using Climate Proxies...(MS, HS)					
	*Creative Engineering in STEM...(MS, HS)				*Tools for Helping...(HS, CO)		
		*Interactive (and effective!)...(EE, LE, MS, HS, CO)			*Letting Swift River Go...(EE, LE)		What Does This Graphic...(LE, MS, HS)
		*Supporting English Learners...(EE, LE)					*A Climate Change...(EE, LE, MS, HS)

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Schedule Your Day - Saturday RADISSON HOTEL

	8:00 a.m. - 8:45 a.m.	8:00 a.m. - 9:45 a.m.	9:00 a.m. - 9:45 a.m.	9:00 a.m. - 10:45 a.m.	9:00 a.m. - Noon	
Capital 1	Bridging Physical Ed... (EE, LE)		*Global Change in the... (LE, MS)			
Capital 2		*Stability & Change in...(MS)				
Capital 3		*Physics Make & Take...(MS, HS)				
Capital 4				*Eco Impact: How Our...(EE, LE, MS, HS, CO)		
Michigan 1				*Effective Strategies for... (MS, HS, CO)		
Michigan 2		*Shish-Kebab Planet...(LE, MS)				
Michigan 3	*MSS & STEM...(EE, LE)		*Engaging Science for...(EE, LE, MS, HS)			
Regency 1	Chemistry Teachers Mtg... (HS)		*The Art of Chemistry...(HS)			
Regency 2					*The Modeling Method... (EE, LE, MS, HS)	

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Schedule Your Day - Saturday RADISSON HOTEL

	10:00 a.m. - 10:45 a.m.	10:00 a.m. - 11:45 a.m.	11:00 a.m. - 11:45 a.m.	1:00 p.m. - 1:45 p.m.	2:00 p.m. - 2:45 p.m.
	*An Integrated Approach... (MS, HS)			*Physics of Atomic Nuclei... (Ms, HS)	
	*3-Dimensional Learning... (LE, MS, HS, CO)		*NGSS, CCSS, and 21st...(EE, LE, MS)	*Thermochemistry & LOL... (MS, HS)	*Using Particle Diagrams...(HS)
	*Modeling Dynamic...(MS, HS, CO)		*Family Engineering...(EE, LE)	*Integrating Effective Leadership...(MS, HS)	
			*Simple, Authentic Inquiry... (EE, LE, MS, HS)	Bring Out the "T" in STEM... (Le, MS)	
				*Talk Movers...(EE, LE, MS, HS)	
	*Small Eruptions with...(MS, HS)		*An Integrated to...(HS, CO)	Update on Credit-by-Exam... (HS, CO)	
		*Institute of Food Tech... (MS, HS)		*Desing a Sustainable...(LE, MS, HS)	*Minecraft in the Classroom... (LE, MS, HS)
	*Bridging the STEM...(EE, LE, MS, HS)		*Do It Outdoors - MSS...(EE, LE)	*Promoting Collaborative Learning...(HS)	*Speed-Reading &...(Ms, HS< CO)
				*Great Adaptations...(EE, LE, MS)	

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Looking for a content-strong, online program? Lawrence Technological University can help!

Master of Science Education

- \$1,320 per course scholarship for all K-12 educators (DI or non-DI endorsements) covers nearly 42 percent of tuition.
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For more information visit www.ltu.edu/sciences

Master of Educational Technology

- \$1,320 per course scholarship for all participants covers nearly 42 percent of tuition.
- 100 percent online and asynchronous format.
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Friday, March 4, 2016

Michigan Science Teacher's Association

2016 Awards Program

Please join us as we celebrate to honor individuals who have been awarded Teacher or Educator of the Year. They were chosen for their use of modeling best practices, inspiring students, demonstrating innovative teaching strategies, being an excellent role model for students and other teachers, demonstrating leadership, and exhibiting a passion for science and teaching.

MSTA will be honoring:

Dan Wolz Water Grant Winners

- Connie Atkisson
- Lea Sevigny, Forest Hills Public Schools

Teacher of Promise – Dakota Bahlau, George Long Elementary, Grass Lake

Teacher of Promise – Paula Gentile, Belleville High School, Belleville

Elementary Science Teacher of the Year – Sherri Hane, Dicken Elementary, Ann Arbor

Middle School Science Teacher of the Year – Colleen Polydoros, Hillsdale Middle School, Northville

High School Science Teacher of the Year – Joshua Barclay, West Bloomfield High School, West Bloomfield

College Science Teacher of the Year – Dr. Mark Francek, Central Michigan University, Mt. Pleasant

Informal Science Educator – Janet Vail, GVSU Annis Water Resources, Grand Valley State University

MSTA Special Award – Stephen Best, MDE

Distinguished Service Award – Cheryl Hach, Kalamazoo Math and Science Center

2016 MSTA Awards Committee

LuAnne Clark
Conni Crittenden
Liz Larwa
Marlenn Maicki
David Mastie
Susan Tate

Session Descriptions

Friday

Friday, March 4, 2016

8:00 a.m. - 8:45 a.m. Sessions

Michigan Mathematics/Science Centers Network Strand

Be Part of the Change: Developing Michigan Leadership in Science Education

Mary Starr, Executive Director, Michigan Mathematics & Science Center Network

*Primary Subject: AS
Interest Level: EE, LE, MS, HS, CO
Location: LC - 101*

Michigan Science Education Leadership is a critical component of implementing changes in science teaching. Learn about each organization and how you can become part of the work!

Educators Guide to Bloodstain Pattern Analysis: Real World Science!

Kathy Mirakovits, Portage Northern High School

*Primary Subject: GS, PH
Interest Level: HS, CO
Location: LC - Banquet 2 & 4*

Entice and engage students to use science and problem solve! Blood spatter analysis is a student favorite and it uses projectile motion concepts and mathematics - a win-win! Hands on activity!

FREE teacher/student STEM labs and Career Exploration Labs

Robert Tonti, Macomb Community College

*Primary Subject: IN, IS
Interest Level: MS
Location: R - Michigan 2*

FREE Teacher/Student STEM Labs taught in your classroom for Macomb, Oakland and Wayne County schools. Learn how to bring the STEM Outreach program to your school or community group.

How to Write a Scientific Paper

Ruthann Thorne, MI Society for Medical Research

*Primary Subject: GS
Interest Level: HS
Location: R - Regency 1*

I will explain the essay contest that our organization holds every year for ALL Michigan High School Students "Why Animals are Important in Biomedical Research" and walk teachers through a step by step process on writing the paper and gathering research!

Lessons Learned from a Decade of Extra-Curricular Partnerships

Ernest Delemeester, Jen Countegan, New Lothrop High School

*Primary Subject: GS
Interest Level: MS, HS
Location: R - Regency 2*

Teachers attending this session will gain familiarity with the value obtained by developing a wide variety of extra-curricular

partnerships with both private and public agencies at local, state, and federal levels. The presentation will describe tips for initiating partnerships and the impact of these partnerships on students, the school district, and teaching philosophy.

Making Grades More Meaningful

Brian Langley, Novi High School

*Primary Subject: AS
Interest Level: MS, HS
Location: LC - 104*

Participants will learn about one teacher's quest for more meaningful grading practices, gaining assessment strategies that can be immediately implemented in the classroom. This session is perfect for those eager for field-tested alternatives to common grading procedures.

MSELA Strand

MSELA Spring Business Meeting

**Jennifer Gottlieb, Troy School District
Sarah Coleman, Muskegon Area ISD**

*Primary Subject: AS
Interest Level: EE, LE, MS, HS, CO
Location: LC - 102*

Join the executive board in reviewing our work for 2015/2016 during our MSELA Annual Business Meeting.

New, Free K-3 Science Units: A Bridge to MSS Implementation

Rochelle Rubin, Joe Austin, Waterford School District

*Primary Subject: AS, LT, IN
Interest Level: EE
Location: R - Capital 2*

Oakland Schools ISD has revised its free K-3 science units to reflect the NRC Framework framework. As a bridge to the future, these new versions incorporate Three Dimensional Learning; embed NGSS Science and Engineering Practices, Crosscutting Concepts, Engineering Design and CCSS Writing while remaining targeted to the content of Michigan's science GLCEs and assessments. Sample products and curriculum adaptation strategies will be shared during this session.

What Is the COLOR of Science? EXCITING!

David Mastie

*Primary Subject: ES, GS
Interest Level: EE, LE, MS, HS, CO
Location: R - Capital 4*

How can we capture the imagination and curiosity of your students to hook them on science? See colorful and engaging hands-on activities that offer science excitement while delivering essential content.

Session Descriptions

Friday

Why Not Salmon in Your Classroom - Part 1

Kevin Frailey, MI Dept. of Natural Resources

Primary Subject: BI, EN
Interest Level: LE, MS, HS
Location: LC - Governors

Nearly 200 Michigan schools are raising Chinook Salmon in the classroom and teaching across the curriculum. Michigan DNR staff will highlight the advantages and excitement that more than 15,000 students share as they raise, monitor, and release a live Michigan resource throughout the school year. This session will detail the demands of the program and how to apply for the fall of 2016. Don't miss Part Two where you will learn how to add a STEM engineering component to this popular program.

8:00 a.m. - 9:45 a.m. - Workshops

Cool Tools for Force and Motion

Donald Pata, Arbor Scientific

Primary Subject: PH
Interest Level: MS, HS, CO
Location: LC - 205

You'll be moved by these engaging demos presented by award-winning Teacher Don Pata. These classroom-ready activities include: the Monkey-Hunter, the vertical vs. horizontal acceleration demonstration, and the Human Dynamics Cart.

CREATE for STEM Institute Strand

Healthy Choices: Using PBL and NGSS to Explore Gene-Environment Interactions

Jane Lee, Michigan State University
Deborah Peek-Brown, Renee Bayer, CREATE for STEM Institute

Primary Subject: BI, IN
Interest Level: MS
Location: LC - Banquet 7

Experience a project-based science curriculum that uses scientific practices, crosscutting concepts and core ideas to explain genetic and environmental factors that impact diabetes and the importance of healthy lifestyle choices.

How Can Methods Classes Engage Pre-Service Science Teachers with NGSS?

R. Charles Dershimer, U of M - School of Education

Primary Subject: IN
Interest Level: CO
Location: LC - Banquet 6

Science methods instructors are invited to a university panel (EMU, MSU, OU, U-M and WSU) that will present ideas for engaging pre-service teachers with the Next Generation Science Standards.

NASA STEM: The Scoop on Soils (Grades K-9)

Susan Kohler, NASA Glenn Research Center

Primary Subject: ES, IN
Interest Level: EE, LE, MS
Location: R - Capital 1

Experience water studies with the NASA GLOBE resources including teacher guides, ELA storybooks and related STEM activities designed for grades K-6. These activities promote problem solving and communication skills.

Paper Mache Anatomy

Kerry Williams, Renaissance High School

Primary Subject: BI
Interest Level: MS, HS
Location: LC - 204

Come explore the modeling component of Next Generation of Science Standards (NGSS) through paper mache. We will each build a paper mache skull while discussing applications in anatomy and biology courses.

Using History to Integrate Nature of Science in the Classroom

Laura Tinigin
Peggy McNeal, Western Michigan University

Primary Subject: GS
Interest Level: LE, MS, HS
Location: R - Capital 3

In this interactive workshop, you will practice how to excite students with stories about scientists through history. You will receive a booklet of vignettes illustrating how the human endeavor propels discovery.

Session Key:

Primary Subject Levels:

AS - Assessment/Curriculum
CH - Chemistry
ES - Earth Science
GS - General Science
LT - Literacy
BI - Biology
CO - Computer/Technology
EN - Environmental Education
IN - Instruction/Pedagogy
PH - Physics
AST - Astronomy

Interest Levels:

EE - Early Elementary
LE - Late Elementary
MS - Middle Level
HS - High School
CO - College
📖 - SCECH Session
👤 - Vendor Session

Location:

R - Radisson
LC - Lansing Center

Session Descriptions

Friday

8:00 a.m. - 9:45 a.m. Workshop *continued*

Wading into Ecology; Using Aquatic Invertebrates to Explore Stream Ecosystems

Keith Piccard, Allendale PS/Grand Valley State University
Peter Riemersma, GVSU - Geology Department
Stephen Rybczynski, GVSU - Biology Department

Primary Subject: BI, EN
Interest Level: MS, HS
Location: LC - 201

The mysterious world of stream macroinvertebrates is going to be brought to the classroom. Participants will identify and classify living organisms such as “shredders” and “scrapers” to show the interactions between these invertebrates and their stream habitat. We outline our 5E learning cycle approach to implement this award winning project a transformative NGSS ready application of the scientific method, as students ask meaningful questions, and collect, interpret and contribute real data.

8:00 a.m. – 10:00 a.m. – Workshop

MEECS Ecosystems and Biodiversity

Jessica Wagenmaker, Holton Middle School

Primary Subject: AS, EN
Interest Level: LE, MS
Location: LC - 103

This unit provides students with a better understanding of ecosystems by examining how organisms interact within their environment. An additional set of materials explores concepts related to biodiversity.

9:00 a.m. - 9:45 a.m. – Sessions

Engaging Students and the Next Generation Science Standards through Recyclable 3-D Printing

Richard Eberly, New Buffalo High School

Primary Subject: GS, CO
Interest Level: MS, HS, CO
Location: R - Regency 2

Grant funded, student built, open source 3-D printing is an ideal approach for experiencing the Next Generation Science Standards and developing student peer scientists.

Michigan Mathematics/Science Centers Network Strand

Increasing Science Discourse in Your Classroom

Sarah Coleman, Muskegon Regional M/S Center

Primary Subject: AS
Interest Level: EE, LE, MS
Location: LC - 101

Integrating ELA and Science can happen through science talks. Learn about and practice using science talk tools to increase discourse and align your science teaching with your ELA goals.

Meet the Biofuel Crops of the Future!

Joyce Parker, Jane Rice, Michigan State University

Primary Subject: BI, EN
Interest Level: MS, HS, CO
Location: R - Capital 4

Come interact with the biofuel crops of the future. Learn how they end up in your gas tank and how current research on them reflects multiple NGSS standards.

Modeling, Explanations and Argument in Middle School Science

Debra Wilson, Kevin White, Grand Blanc Schools

Primary Subject: AS, GS
Interest Level: MS
Location: LC - 104

We will share our experience with work on modeling, constructing explanations and argument in the middle school classroom. We'll share what we have learned so far and how we have used these lessons. Handouts provided.

NGSS, CCSS, and 21st Century Skills Oh MI!

Katie Stevenson, Fisher Elementary
Richard Bacolor, Pierce Middle School

Primary Subject: AS, IN
Interest Level: EE, LE, MS
Location: R - Capital 2

Overwhelmed with all of the standards you have to teach? Trying to get students college and career ready? Leave with strategies that address CCSS and NGSS while preparing students for the 21st century. Handouts provided.

Observe, Investigate and Enjoy: New Conservation Education Toolkit

Natalie Elkins, MI Department of Natural Resources

Primary Subject: EN
Interest Level: EE, LE, MS, HS, CO
Location: LC - Governors

Take a tour through fun, relevant, life science, hands-on lessons, targeted for upper el through high school. These FREE online guides were developed through the Association of Fish and Wildlife Agencies as part of their Conservation Education Toolkit. These online guides give teachers tools they have asked for to illustrate to students real life applications of field investigations,

Session Descriptions

Friday

observation skills, systems thinking and how to determine biodiversity--all using problem-based learning.

Project-Based Inquiry Science

Carrie Anne Sherwood, It's About Time

Primary Subject: GS
Interest Level: MS
Location: R - Regency 1

Exemplifying the blending of science and engineering practices, core ideas, and cross-cutting concepts to support student learning.

Put Your Simple Machine to Work to Better Learn STEM Concepts Using LEGO

Ivery Toussant, LEGO Education

Primary Subject: GS
Interest Level: EE, LE, MS, HS
Location: LC - 101

This hands-on solution allow students to predict, test, observe, measure, record, and present their findings. In this way, they work as young scientist, engineers, and designers, making their own discoveries along the way. Even the least science oriented educators will feel secure teaching these standards and concepts with LEGO.

Reconsidering the Scientific Method: Teaching the Connections between Science and Society

Prasad Venugopal, Mark Benvenuto, University of Detroit Mercy

Primary Subject: IN
Interest Level: HS
Location: R - Michigan 2

This session will present results from student responses in two introductory college science classes when a discussion of socio-political history was integrated with case studies of scientific discovery using the Scientific Method.

Repressive Gene Expressions: Turning Students to Stone!

Bill Cline, LAB-AIDS

Primary Subject: BI
Interest Level: HS
Location: LC - Banquet 5

Students have trouble conceptualizing how gene expression works. We'll use manipulatives to model this concept and relate its connection to genetic engineering. During this activity we will model the programs philosophy, notebooking and discussion strategies that support the new teach/student talk ratios. Innovative activities are selected from the new Science and Global Issues: Biology program from SEPUP and LAB-AIDS.

Save the Egg! A Physics and Chemistry Integrated Engineering Project

Kathy Mirakovits, Michelle Mason, Portage Northern High School

Primary Subject: CH, PH
Interest Level: HS
Location: LC - Banquet 2 \$ 4

Physics and chemistry students unite with the common goal to save the egg from certain peril! Join us as we present our integrated project, inspired by the NGSS and the science and engineering practices, and discuss its results.

Science Fusion

Tristan Fuerbacher, Houghton Mifflin Harcourt

Primary Subject: IS
Interest Level: LE
Location: LC - 203

Inquiry activities with handouts.

STEM in Forensics

Rachel Badanowski

Primary Subject: GS
Interest Level: LE, MS, HS
Location: LC - Banquet 8

Hands-on activities will mesh STEM and forensic science in an engaging, problem solving fashion. Handouts will be provided.

MSELA Strand

Supporting Science for the Progressive Administrator

**Jennifer Gottlieb, Troy Public Schools
Sarah Coleman, Muskegon Area ISD**

Primary Subject: AS
Interest Level: EE, LE, MS, HS, CO
Location: LC - 102

Strong sustained commitment and strategic support from building and district leadership will be necessary in order to realize the vision of the new standards. Now is the time to shift instructional practice and for leaders to remove barriers to change by transforming current systems.

Session Key:

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R - Radisson
LC - Lansing Center



Academy of Natural Resources

July 10-15, 2016

Learn about Michigan's diverse natural resources, discover trends in their management, and experience activities that bring that knowledge to the classroom by attending this engaging professional development opportunity.

- Includes 15 meals, 5 night's lodging and materials for only \$395 (\$295 with scholarship)
- Approximately 35 SCECH available from Michigan Department of Education
- One to Three credits offered by Ferris State University (additional tuition rates apply)

For more information, go to www.michigan.gov/anr

Centrally located at the MacMullan Conference Center on the north shore of Higgins Lake.



www.michigan.gov/anr

Session Descriptions

Friday

9:00 a.m. - 9:45 a.m. Sessions *continued*

You Want To Do WHAT with Middle School Students Below a Super Fund Site? 🗣️

Todd Starry, St. Louis Public Schools

*Primary Subject: EN
Interest Level: MS
Location: R - Michigan 1*

With a STEM grant from Alma College, funded by The Dow Foundation, I attended Alma College for six weeks of water quality training with one of my students.

9:00 a.m. - 10:45 a.m. – Workshops

Bring Science Alive! Discovering the Science Practices 🗣️ 👁️

Matt Moorman, TCI

*Primary Subject: GS
Interest Level: EE, LE
Location: LC - 202*

In this hands-on session, participants experience the NGSS Science Practices from a student's perspective through TCI's Bring Science Alive! Participants will experience a lesson built from the ground up to meet NGSS.

Cool Tools for Light & Color 🗣️ 👁️

Dale Freeland, Arbor Scientific

*Primary Subject: PH
Interest Level: LE, MS, HS, CO
Location: R - Michigan 3*

Mix primary colors to cast shadows in cyan and magenta, why it's perfectly acceptable to eat a black strawberry, compare yellow light from a lemon peel to yellow screen light.

10:00 a.m. - 10:45 a.m. – Sessions

Environmental Issues, PSAs, iPads, & NGSS! 🗣️

**Barbara Pepper, Ann Cole, Derby Middle School
Ann Cole, Derby Elementary School**

*Primary Subject: EN
Interest Level: LE, MS
Location: R - Michigan 1*

Research! Create! Collaborate! Connect NGSS cross-cutting concepts with environmental issues. Preview samples, learn to create trailers. Bring a device with iMovie. Some iPads will be available to borrow. Handouts provided.

Facilitating Students' Understanding of the Structure and Properties of Matter

David Doherty, BitWixt Software Systems

*Primary Subject: CH, CO
Interest Level: MS, HS
Location: LC - 205*

From middle to high school, students' understanding of the structure/properties of matter increases in complexity. We demonstrate 3D atomic and molecular models, for laptops/Chromebooks and iPads, to facilitate this growth in understanding.

Hands-on, Minds-on Science 🗣️

Jennifer Billington, Jodie Lugar-McManus, Parchment High School

*Primary Subject: AS, BI
Interest Level: MS, HS
Location: LC - 201*

Modeling of different concepts and activities in biology will be demonstrated. The minds on part will be focused on bioethics. Real world topics in the classroom! Handouts and rubrics provided!

I Quit Grading Homework (and Lived to Tell About It)

Alaina Sharp, Western High School

*Primary Subject: IN
Interest Level: MS, HS
Location: R - Michigan 2*

Do you sometimes feel like a "grade" doesn't really mean what it should? Learn how a modified form of standards-based grading revolutionized my teaching and saved my mental health. Handouts provided.

Session Key:

Primary Subject Levels:

AS – Assessment/Curriculum
CH – Chemistry
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AST – Astronomy

Interest Levels:

EE – Early Elementary
LE – Late Elementary
MS – Middle Level
HS – High School
CO – College
🗣️ – SCECH Session
👁️ – Vendor Session

Location:

R – Radisson
LC – Lansing Center

Session Descriptions

Friday

10:00 a.m. - 10:45 a.m. *continued*

Integrating Soil Ecology Into Your Classroom

Ashley Carroll, Gull Lake Middle School

Primary Subject: GS
Interest Level: MS, HS
Location: R - Regency 2

In this session, participants will learn how to utilize inquiry in the classroom when studying soil ecology. The presenter will share about her research experience for teachers (RET) at MSU's Kellogg Biological Station. Participants will engage in hands on activities and leave with handouts they may use in their classroom.

Invasive Monsters of the Deep

Kevin Frailey, Tori Frailey, MI Dept. of Natural Resources

Primary Subject: BI, EN
Interest Level: LE, MS, HS, CO
Location: LC - Governors

Long before there was an interest in the walking dead, Michigan was fending off an invasion of live, swimming, flesh-eating monsters, and still is. Come see one of the captured monsters and learn how it changed the Great Lakes ecosystem forever. Invasive species are one of the greatest threats to our state and need to be included in your science curriculum. There is no better critter to stir interest in invasive species than Michigan's Monster of the Deep, the sea lamprey.

NGSS (Michigan Science Standards) in the K-2 Classroom

Debra Wilson, Kevin White, Grand Blanc Schools

Primary Subject: AS, GS
Interest Level: EE, LE
Location: LC - 104

We will share our experiences exploring and implementing 3-dimensional learning and NGSS in the K-2 classroom. Lesson ideas, what worked, what didn't will be shared. Handouts will be available.

NGSS Human Impacts - Water, energy, food and climate change

Jane Rice, Michigan State University

Primary Subject: ES, BI, EN
Interest Level: MS, HS
Location: R - Capital 4

Be an active participant in planning NGSS-aligned professional development and instructional materials for teaching current issues such as sustainable agriculture and energy, food and water quality, and climate change.

Michigan Mathematics/Science Centers Network Strand

NSTA Learning Center as Part of Professional Learning Communities

Melissa Hayes, COOR ISD

Primary Subject: AS, IN
Interest Level: EE, LE, MS, HS, CO
Location: LC - 101

Through presentation and activities, learn more about the NSTA Learning Center and how the Mathematics and Science Centers Network is supporting Michigan teachers using the resources in professional learning.

Solutions for Delivering Engineering Design into the Science Classroom

Jason Albert Rossner, BES Solutions

Primary Subject: AS, IN
Interest Level: LE, MS, HS
Location: R - Capital 2

Our active-learner digital program teaches standards-based math, science, engineering, and English language skills to elementary, middle and high school children. The online digital curriculum is designed to meet the Next Generation Science Standards and aligns with a range of state standards. Students and teachers will want to spend time in our STEM labs. Our comprehensive library contains over 1,000 STEM lessons, which are available anytime, anywhere online.

STEM...(again) FOR THE YOUNGER SET

Diana Matthews, Lisa Morgan, Detroit Country Day Lower School

Primary Subject: GS
Interest Level: EE
Location: R - Capital 3

STEM with young children is doable and FUN! Learn new ideas that work for the classroom and the school community. Engage your youngest learners in STEM activities that encourage minds-on, hands-on learning.

MSELA Strand

Supporting State and National Assessment from the Science Classroom

Sarah Coleman, Muskegon Area ISD
Jennifer Gottlieb, Troy School District

Primary Subject: AS
Interest Level: EE, LE, MS, HS, CO
Location: LC - 102

It's not about test, prep, drill - it's about engaging classrooms and reflective practice. Join us we examine sample district assessment plans that support state and national assessments.

Session Descriptions

Friday

Understand Photosynthesis and Cellular Respiration

Bill Cline, LAB-AIDS

*Primary Subject: BI
Interest Level: HS
Location: LC - Banquet 5*

Students have misconceptions about photosynthesis and cellular respiration but this content is essential for understanding how matter and energy flow, both at the micro (cellular) and macro (ecosystem) levels. You will use a computer simulation, hands-on activity, engage in notebooking, and, model strategies that support new teacher/student discussion ratios all from SEPU's new Science and Global Issues: Biology program from LAB-AIDS.

Useful Manufacturing: Unleashing the Untapped MacGyver in Your Students

Elizabeth Rice, Most Holy Trinity Schools

*Primary Subject: GS, EN
Interest Level: EE, LE, MS, HS
Location: R - Regency 1*

Participants invent/create a useful product for the classroom—using the materials at hand. Materials are common recyclable products. This is engineering as imagination that meets practical manufacturing.

Using NASA Data to Conduct Authentic Research with Students

Cris DeWolf, Chippewa Hills High School

*Primary Subject: AST
Interest Level: HS, CO
Location: LC - 204*

Learn about the Heliophysics CoP, NGSS, and the research project a group of teachers and their students are doing with SOHO, THEMIS, and ACE data. Details at www.mestarocks.org.

Utilizing Science and Engineering Practices in Biology and Chemistry

Michelle Mason, Donna Hertel, Portage Northern High School

*Primary Subject: CH, BI
Interest Level: HS
Location: LC - Banquet 2 & 4*

Looking for some ideas to integrate SEP's into your teaching? We'll show you our ideas to start moving toward an NGSS style classroom.

10:00 a.m. - 11:45 a.m. – Workshops

Examples of How Higher Education is Supporting Teachers with NGSS

**R. Charles Dershimer, U of M - School of Education
Deborah Peek-Brown, CREATE for STEM Institute
Brenda Bergman, Michigan Tech University
Susan Ipri Brown, Eric Mann, Hope College
Jeff Conn, Wayne State University**

*Primary Subject: GS, IN
Interest Level: CO
Location: LC - Banquet 6*

This panel will present examples of several higher education professional development projects that engage STEM teachers with learning more about NGSS. Discussion will include lessons learned and funding ideas.

CREATE for STEM Institute Strand

Supporting Students' Modeling Practice Using Computer-based Dynamic Systems Modeling Tool

Tom Bielek, Joseph Krajcik, CREATE for STEM Institute

*Primary Subject: GS, CO
Interest Level: MS, HS
Location: LC - Banquet 1 & 3*

Modeling is a core practice emphasized in the NGSS. We've developed a computer-based tool for supporting secondary school students in constructing and revising their models and learning dynamic systems thinking.

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 – SCECH Session
 – Vendor Session

Location:

R – Radisson
LC – Lansing Center

Session Descriptions

Friday

10:00 a.m. - 11:45 a.m. *continued*

CREATE for STEM Institute Strand

Interactions: A curriculum based on the Framework for Science Education

Kristin Mayer, Michigan State University
Jane Lee, Joseph Krajcik, CREATE for STEM Institute

Primary Subject: AS, IN
Interest Level: MS, HS
Location: LC - Banquet 8

In this hands-on workshop, experience a FREE online curriculum on intermolecular forces based on the Framework and NGSS. Explore lessons and find out how to access for use in classroom.

CREATE for STEM Institute Strand

NGSS Meets the Outdoors: Teaching Elementary Science Outside

Renee Bayer, Michigan State Univ - College of Education
Kara Haas, MSU - Kellogg Bio Station

Primary Subject: EN, IN
Interest Level: EE, LE
Location: LC - Banquet 7

In outdoor classrooms, students can explore and investigate natural phenomena supporting science teaching aligned with NGSS. Dress appropriately to go outside and learn techniques and lesson examples from MSU's Teaching Science Outdoors PD. This is a hands-on activities, any handouts will be web-based, links to resources will be emailed to participants.

Project-based Learning - Using Video-enhanced Lessons

Mike Heithaus, Houghton Mifflin Harcourt

Primary Subject: BI
Interest Level: MS, HS
Location: LC - 203

Project-based Learning - Using video-enhanced lessons to bring students into the field.

10:30 a.m. - 12:30 p.m. – Workshop

MEECS Water Quality

Joan Chadde, W UP Cntr-Sci/M & Envir. Ed.

Primary Subject: AS, EN
Interest Level: LE, MS
Location: LC - 103

Discover the essential role that water plays in Michigan's economy and in everyone's lives. Students calculate how much water they use, investigate the link between land uses and water quality, and find out how water is monitored and standards are set.

11:00 a.m. - 11:45 a.m. – Session

A Collection of Chemistry

Tracy Haroff, Marshall High School
Melyssa Lenon, Chesaning Schools

Primary Subject: CH
Interest Level: HS
Location: LC - 201

This hands-on session will highlight a variety of activities and inquiry labs that keep students engaged while learning chemistry concepts. Handouts will be provided.

Biomes and Invasive Species

Bill Cline, LAB-AIDS

Primary Subject: BI
Interest Level: HS
Location: LC - Banquet 5

How do the characteristics of a biome determine the plant and animal life found there? How do non-native species survive to become invasive species? In this activity from Science and Global Issues: Biology Program, students match a set of organism cards to proper climate/biome cards, then use literacy strategies to consider the impact of invasive species. You'll receive a full set of kit and printed materials for later use with your students, complements of LAB-AIDS.

Cars That Cannot Crash! (V2X - vehicle to vehicle computer communication)

Dale Freeland, Portage Central High School

Primary Subject: CO, PH
Interest Level: HS
Location: R - Michigan 3

Students have been developing working on vehicle to vehicle and vehicle to infrastructure computer communication. The Raspberry Pi computer has been used on scale model vehicles to detect distances, to determine position and to compute speeds. This information has been communicated wirelessly to other mobile computer platforms. The shared information is used to promote safer vehicle travel. This session will highlight details of our journey into the V2X world and successes and challenges that we yet face. Students are learning about aspects of self-driving vehicles which will be in their future. Engineering aspects abound in this study. We will show some custom parts that students have designed and 3D printed which are utilized in the study.

Chemical Education Foundation - Educational Programs

Kathleen O'Conner, Chemical Educational Foundation

Primary Subject: CH
Interest Level: EE, LE, MS
Location: R - Regency 1

In this session, I will introduce the Chemical Education Foundations educational resources. This includes hands-on activities for K-8 classrooms and highlight the 'You Be The Chemist

Session Descriptions

Friday

Program'. Participants will be given handouts and Flash drives containing all 'Chemical Education Foundation Educational Resources'. Two hand-on activities will be done during the workshop. All materials will be provided.

Climate Literacy - Climate Solutions

June Teisan, NOAA

Primary Subject: GS
Interest Level: LE, MS, HS
Location: LC - 204

Want to teach climate literacy but don't know where to start? The National Oceanic and Atmospheric Administration (NOAA) offers a spectrum of online lesson plans, videos, data sets, webinars, and more that can inform and inspire students to engineer solutions to climate concerns.

Collaborating Classrooms: Connecting Year Round

Norm Lownds, Michigan State University

Primary Subject: IS
Interest Level: LE, MS, HS
Location: R - Michigan 2

Explore how to connect your classroom to the 4-H Children's Gardens and scientists at MSU throughout the year. Customize your collaborations to best enhance and expand your students' STEM learning. Handouts provided.

Michigan Mathematics/Science Centers Network Strand

Engaging Elementary and Middle School Students in Modeling

James Emmerling, Genesee ISD

Primary Subject: AS, LT, IN
Interest Level: LE, MS
Location: LC - 101

Modeling is critical in elementary and middle school science learning. Through investigation, discussion and collaboration, learn about and then develop models that can be used in your own science teaching.

Formative Assessments

Tammy Daenzer, Birch Run Area Schools

Primary Subject: AS
Interest Level: MS
Location: R - Capital 1

Formative Assessments used before, during and after teaching enables effective learning. This lesson provides a variety of formative assessments tools.

Future Sustainability Center: Education, Partnerships & STEM

Christine Kelly, Allendale Middle School

Primary Subject: EN, IN
Interest Level: LE, MS, HS
Location: R - Capital 2

Description of Session: Challenge students to create a "Sustainability Center!" Teams apply environmental concepts,

put them into action, and partner with community organizations. Teams design and build solutions to identified problems; students and community members evaluate and judge solutions. [I will provide handouts and digital forms. Teachers will participate in some of the action steps that their students will take in this process.]

Green Chemistry Experiments for Grades 8-12

Larry Kolopajlo, EMU - Chemistry Department

Primary Subject: CH, GS
Interest Level: MS, HS, CO
Location: LC - 104

The twelve principles of Green Chemistry will be presented in several novel experiments and worksheets involving physical/chemical changes, calorimetry, and stoichiometry. Designed for the grades 8-12. Handouts provided.

Immerse Your Students in NGSS Practices with NexGen Inquiry

Bill Dinkelmann, Van Andel Education Institute Sci Academy

Primary Subject: GS, IN
Interest Level: LE, MS, HS, CO
Location: LC - 202

NexGen Inquiry's web-based student journal and teacher classroom tools are built to support implementation of inquiry-based curriculums. Bring your technology device to create an account and get started.

INTENSIFY Your Students Observation Skills - SETON WATCHING - A Capital Idea!

Wil Reding, Rent a Rambling Naturalist

Primary Subject: GS, EN
Interest Level: EE, LE, MS, HS, CO
Location: R - Capital 3

A simple, yet truly effective way to help your students enhance their ABILITY to observe through the use of their senses in an outdoor or indoor setting. (possibly going outdoors) This is a "hands-on activity and I will provide handouts!

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📖 – SCECH Session
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Location:

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Session Descriptions

Friday

11:00 p.m. - 11:45 p.m. *continued*

Physics, Algebra II, STEM OH MY!!!

Nickie Clark, Jen Peruski, Freeland Schools

*Primary Subject: PH
Interest Level: HS
Location: LC - 205*

We are NOT in Kansas anymore!!! We will share with you our experience in teaching PBL, STEM, Physics and Algebra II all in one course. Information will include specific projects that we developed. We will outline our approach to covering the power standards in a co-teaching environment.

STEM from Salmon Part II

Josh Nichols, Heritage Elementary School

*Primary Subject: GS, CO, EN
Interest Level: LE, MS, HS
Location: LC - Governors*

The most exciting feature of the Salmon in the Classroom program is it's hands-on capability and the creativity of students. Come find out how you can add an engineering component to this program when your students build Remote Operational Vehicles (ROVs) to release the salmon in the river next spring. Measure water quality? - Video invasive species? There is no end to the extensions you can add to this program with an engineering component.

Teacher Professional Development without the Loss of Instructional Time with Students

Michelle Cline, Hope for K-8 Education

*Primary Subject: IS
Interest Level: EE, LE, MS
Location: R - Michigan 1*

Does your district struggle with finding substitutes? Are you tired of leaving plans that are not taught by the sub while you attend PD? We have the solution for you!

Totality is Coming in 2017!

Kevin Dehne, Delta Community College/MESTA

*Primary Subject: ES, AST
Interest Level: MS, HS, CO
Location: R - Capital 4*

Total Solar Eclipse across the USA in 2017! Participants will learn about totality during a solar eclipse. Details on how to observe, locations and time across the United States will be discussed. Student eclipse activity will be presented and a chance to win a door prize!

Use Science Olympiad Events to Jazz Up Your STEM Curriculum

**Marty Buehler, Hastings Area Schools
Scot Conant, WMU College of Eng/Applied Science**

*Primary Subject: AS, GS
Interest Level: LE, MS, HS
Location: R - Regency 2*

Science Olympiad provides many hands on STEM events that fit well into multiple subjects, grade or ability levels and can be used

collaboratively to connect your content, kids and department to the new Michigan NGSS expectations. Handouts provided.

1:00 p.m. - 1:45 p.m. – Sessions

A "Simple" WALK will HEIGHTEN Your Students Enthusiasm for Learning!

Wil Reding, Rent a Rambling Naturalist

*Primary Subject: GS, EN
Interest Level: EE, LE, MS, HS, CO
Location: R - Capital 3*

A truly effective way to help your students eagerness to learn! Come WALK the Capital area to learn techniques you can use to increase their WISH to learn. This is a "hands-on" activity and I will provide handouts.

Avida-ED: Evolution You Can See

**Rick Schultz, St. Johns Public Schools
Fred Hingst, DeWill High School**

*Primary Subject: BI, CO
Interest Level: MS, HS, CO
Location: LC - 202*

This session will introduce the Avida-ED program to both middle school and high teachers. Included in the program will be everything from how to download the program to how to use in open inquiry. Teachers will receive access to the accompanying user manual and lesson plans.

Can Challenge - Building A Better Insulator

Gabriel Knowles, Whitehall District Schools

*Primary Subject: GS
Interest Level: LE
Location: R - Michigan 1*

In this session we will use inquiry-based learning to design insulators to keep things warm or cold for as long as possible.

Choosing the Best EdTech for Michigan's New Science Standards

Emily Pohlonski, Novi Community Schools

*Primary Subject: AS, CO
Interest Level: EE, LE, MS, HS
Location: R - Regency 1*

Despite fancy NGSS labels, not all tech tools have kept up with this major shift in science education. Participants will use the NGSS app (BYOD) to determine which EdTech supports this new vision for science education. (Handouts Provided)

Classifying Space Objects (Exploring the Solar System for Grade 5)

Bill Cline, LAB-AIDS

*Primary Subject: GS
Interest Level: MS
Location: LC - Banquet 5*

In this initial activity from the space science unit of SEPUP's middle level earth science program, participants classify 24 space object

Session Descriptions

Friday

cards using criteria of their own choosing. They then reclassify the cards using criteria used by modern astronomers. Participants then use clues on the cards to try to identify these objects to determine where they might be in the solar system - and beyond. You'll engage in an activity from the SEPUP Science Grade 5 Program from LAB-AIDS that support the new teacher/student talk ratios, and also has the literacy, notebooking, assessment strategies built in that make it NGSS ready!

Energizing Education-A Complete and Free Energy Unit for Michigan Students

Michelle Mitchell, Michelle Stepek, Consumers Energy

*Primary Subject: ES, EN
Interest Level: LE, MS, HS
Location: LC - 204*

Consumers Energy will showcase our new Energy Unit targeted at middle and high school students and demonstrate several hands-on activities from the unit. Attendees receive a copy of the unit containing 12 energy lessons covering a range of energy topics.

Environmental Educator's Certification Introduction

Cindy Fitzwilliams-Heck, Ferris State University

*Primary Subject: EN
Interest Level: EE, LE, MS, HS, CO
Location: LC - Governors*

This session will introduce the basic requirements for earning the Environmental Educator's Certification (EEC) credential. The EEC is a new offering by the Michigan Alliance for Environmental and Outdoor Education (MAEOE), unique to the field of environmental education in Michigan, and pivotal for our profession.

MSELA Strand

Facilitating and Sustaining Change in Your School or District

Julia Alder, Birmingham Public Schools

*Primary Subject: AS
Interest Level: EE, LE, MS, HS, CO
Location: LC - 102*

Learn from our elementary and middle school math, science, and technology integration program development initiative. Strengths, pitfalls, and current program state will be shared. See examples of process, protocols, and products from our multi-year technology integration for science and mathematics classrooms.

Hominin Phylogeny Construction Using Skulls - Students Using NGSS & The Past

Heather Peterson, Holt High School

*Primary Subject: BI
Interest Level: MS, HS, CO
Location: LC - 203*

Observe and measure skulls to create phylogenetic trees and the evolution of primates and hominins. Michigan teachers with support from the MSU Museum and BEACON will share hands-on & virtual labs that guide students through the dimensions of NGSS.

Integrating iPad® with Vernier Technology

Patti Smith, Vernier Software & Technology

*Primary Subject: GS, CO
Interest Level: LE, MS, HS, CO
Location: LC - Banquet 6*

Collecting and analyzing data helps students learn critical science concepts that increase test scores and promote science inquiry. This hands-on workshop will address data collection with iPads and Vernier technology, including our new Go Wireless Link, and experiments, including Boyle's Law and Grip Strength Comparison, will be conducted.

Making Use of Conceptual Mapping in the Classroom

Shannon Long, Lansing Community College

*Primary Subject: IN
Interest Level: MS, HS, CO
Location: R - Michigan 2*

Learn about various concept mapping techniques and how to adapt them to your classroom. Student co-presenters will be speaking on the impact of concept mapping on student learning and understanding.

Neuroscience: Low-fi Development of High-Tech Hands-on Teaching Labs

Gregory Gage, Backyard Brains

*Primary Subject: GS
Interest Level: MS, HS, CO
Location: LC - Banquet 7*

Our organization (Backyard Brains) develops open-source DIY neuroscience tools which are appropriate for the benchtop of both research and instructional teaching labs. Our focus is on hands-on experiments and electrophysiology. This lecture will provide an overview of our mission to re-engineer research-grade lab equipment using first principles and will highlight basic principles of neuroscience in a "DIY" fashion: neurophysiology, functional electrical stimulation, micro-stimulation effect on animal behavior, neuropharmacology, even neuroprosthesis and optogenetics!

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Session Descriptions

Friday

1:00 p.m. - 1:45 p.m. *continued*

Michigan Mathematics/Science Centers Network Strand

NGSX: One Pathway for Professional Learning

Melissa Hayes, COOR ISD

*Primary Subject: AS, IN
Interest Level: EE, LE, MS, HS, CO
Location: LC - 101*

NGSX is a national program for science professional learning. Become familiar with NGSX through an activity and learn about additional opportunities to become part of the NGSX team in Michigan.

Ok2Say – Student Safety Program

Mary Drew, Attorney General's Office

*Primary Subject: AS, CO
Interest Level: EE, LE, MS, HS
Location: R – Michigan 3*

OK2SAY encourages Michigan students to submit confidential tips on potential harm or criminal activities directed at students, school employees, and schools. Tips may be submitted 24/7 by phone, text, email, mobile app, or via the OK2SAY website. Learn more about how OK2SAY can be implemented in your school and how to host a free seminar.

Phenomenal Science Units

Darcy McMahon, SMTM/Central Michigan University

*Primary Subject: AS, GS
Interest Level: EE, LE
Location: R - Capital 1*

Come experience Phenomenal Science! Our collaborative team has developed a complete three-dimensional elementary curriculum for the new MSS. It's highly engaging and includes blended learning freely available by 2017. Handouts, opportunities to review and pilot units provided.

Science and Rigor... Music to my Ears!

Teneshia Moore, Eric Steele, Detroit Public Schools

*Primary Subject: AS, CH
Interest Level: MS, HS, CO
Location: LC - 104*

Participants will explore cognitive demand and the role it plays in informing lesson planning, instruction and assessment in the science classroom.

Simple and Effective Ways to Bring Inquiry Into Your Classroom

Jaime Ratliff, Patrick Lothrop, Lapeer Community Schools

*Primary Subject: GS
Interest Level: LE, MS
Location: R - Regency 2*

Leary of query? Let us help you bring inquiry to your classroom. We have assembled an easy to follow plan to help you scaffold and get started right away! Handouts provided.

KEYNOTE SESSION

What Do the New Michigan Science Standards Mean for Instruction and Assessment in your Classroom?

Joseph Krajcik, CREATE for STEM Institute

*Primary Subject: IN
Interest Level: EE, LE, MS, HS, CO, Administrators
Location: LC - Banquet 1 & 3*

The New Michigan Standards shift the focus from science classrooms as places where students learn about science ideas to environments where students use disciplinary core ideas, scientific and engineering practices and crosscutting concepts to explore, examine and use science ideas to explain how and why phenomena occur or to find solutions to problems. To succeed, assessments, both summative and formative, will also need to shift to provide opportunities where students apply their knowledge to explain phenomena or design solutions to problems. In this session, Professor Krajcik will discuss the major shifts in New Standards and what they mean for classroom instruction and assessment.

Writing in Science -- How To Make It Meaningful

Kimberly Sharplin, Joni VanCampenhout, Wayne Memorial High School

*Primary Subject: GS
Interest Level: MS, HS
Location: R - Capital 2*

Come get some great ideas to have your students write in science. Handouts and prizes available!

1:00 p.m. - 2:45 p.m. – Workshops

Cool Tools for Electricity & Magnetism

Donald Pata, Arbor Scientific

*Primary Subject: PH
Interest Level: LE, MS, HS, CO
Location: LC - 205*

Make a light bulb dance 60 times a second. See why the hand-crank Van De Graaff is better than the electric version. Presented by award winning Physics teacher Don Pata.

CREATE for STEM Institute Strand

Developing NGSS Assessments for 3D Learning

**Jane Lee, Michigan State University
Phyllis Haugabook Pennock, Deborah Peek-Brown, CREATE for STEM Institute**

*Primary Subject: AS
Interest Level: MS
Location: LC - Banquet 8*

Your classroom assessments can integrate core ideas, scientific practices, and crosscutting concepts. Find out how! Explore examples of items, student responses, and ways to use them in your instruction.

Session Descriptions

Friday

Great Transitions: The Origin of Humans - Examining the Evidence and Claims

Mark Eberhard, St. Clair High School
David Kenyon, Paw Paw High School

Primary Subject: BI
Interest Level: HS, CO
Location: LC - 201

Using FREE resources from the HHMI Biointeractive, we will explore evidence and claims for the evolutionary story of our human origins. In this hands-on session, participants will work through three field tested student activities that incorporate the NGSS core ideas and science practices. HHMI Biointeractive resources are always 100% FREE and are based on the primary literature of actual research being conducted in the field! Resources will be available to all participants!

1:30 p.m. - 2:30 p.m. – Workshop

Introduction to MEECS On-line Learning Portal

Susan Loughrin, Kevin Holohan, Amanda Syers, Grand Valley State University

Primary Subject: EN
Interest Level: LE, MS
Location: LC - 103

MEECS Online! MEECS workshops have been offered to Michigan Educators since 2006. MEECS is now adding online course to supplement the workshop training.

2:00 p.m. - 2:45 p.m. – Sessions

Academy of Natural Resources: Summer Professional Development for Educators

Becky Durling, Discovery Elementary School
Jon Gray, Waldon Middle School

Primary Subject: GS
Interest Level: EE, LE, MS, HS, CO
Location: LC - Governors

The Academy of Natural Resources is a fun, engaging, week-long camp for all educators! Come learn about the sessions offered this year, SCECH, graduate credit and more!

Carbon TIME Teaching Networks: Curriculum, Coordinating PD, and Professional Support

Christie Morrison Thomas, Carbon TIME
Jennifer Wilkening, Ann Arbor Huron High School

Primary Subject: AS, BI
Interest Level: MS, HS
Location: R - Regency 1

MS/HS science teachers: learn about the Carbon TIME (Transformations In Matter and Energy) teaching networks, which include NGSS-aligned curriculum, online assessments, materials, professional development, and (yes!) stipends.

Chemical Batteries (Energy for Grade 6)

Bill Cline, LAB-AIDS

Primary Subject: GS
Interest Level: MS
Location: LC - Banquet 5

Although we live a battery-powered lifestyle, most of us (middle school and high school students included) have no idea how batteries actually work. Make a wet cell battery. Explore the effect of using different metal electrodes on battery output, and consider ways to reduce the number of discarded batteries in the waste system. You'll engage in an activity from the SEPUP Science Grade 6 Program from LAB-AIDS that supports the new teacher/student talk ratios, and also has the literacy, notebooking, assessment strategies built in that makes it NGSS ready!

Coding for Kids Clubs: Engaging Students with Computer Programming at the Elementary Level

Kathy Surd, Mason-Lake Oceana Math/Science Center

Primary Subject: CO
Interest Level: EE
Location: R - Capital 4

Coding for Kids Clubs were established in elementary schools in Mason, Lake, and Oceana Counties using the code.org resources. (This program was developed under a grant awarded by the Michigan STEM Partnership in conjunction with the Mason-Lake Oceana Mathematics and Science Center.)

Differentiated Learning Through Stationed Activities

Cortney Ford, Mason High School

Primary Subject: BI
Interest Level: MS, HS
Location: LC - 203

Looking for lessons that get your students collaborating and thinking critically while they are actively engaged? Try using stations to reinforce old concepts and get your students thinking about new ideas.

Session Key:

Primary Subject Levels:

AS – Assessment/Curriculum
CH – Chemistry
ES – Earth Science
GS – General Science
LT – Literacy
BI – Biology
CO – Computer/Technology
EN – Environmental Education
IN – Instruction/Pedagogy
PH – Physics
AST – Astronomy

Interest Levels:

EE – Early Elementary
LE – Late Elementary
MS – Middle Level
HS – High School
CO – College
📖 – SCECH Session
📍 – Vendor Session

Location:

R – Radisson
LC – Lansing Center