8:00 a.m. - 8:45 a.m. – Sessions

Bridging Physical Education and Environmental Education at the Elementary Level
Patricia McNinch, Mayville Elementary School
Primary Subject: EN
Interest Level: EE, LE
Location: R - Capital 1
Teaching Physical Education through experiences in Environmental Education gives opportunities for students to become physically fit and to encourage students to explore science in new ways.

SCECH’s Session
Elementary Strand
Catapult your kids into an Elementary STEM project!
Crystal Brown, Parsons Elementary School
Primary Subject: GS, IN
Interest Level: EE, LE
Location: LC - 104
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!

Chemistry Teacher Meeting
Mary Jordan McMaster, Allen Park High School
Primary Subject: CH
Interest Level: HS
Location: R - Regency 1
Join other high school chemistry teachers to discuss recent developments and opportunities pertaining to teaching Chemistry.
Continued - Saturday, March 5, 2016
8:00 a.m. - 8:45 a.m. – Sessions

SCECH’s Session
Vendor Session
Get a Sneak Peek at the BCAMSC MSS Aligned Units
Nancy Karre, Battle Creek Area Math/Science Center
*Primary Subject:* AS, IN
*Interest Level:* EE, LE, MS
*Location:* LC - Banquet 8
This session will give current and interested participants in the BCAMSC Science unit program a glimpse into the BCAMSC alignment process, progress, and how districts and teachers can prepare for MSS in the classroom.

SCECH’s Session
Great, Cheap, Easy Demonstrations for Matter and Energy
Andrew Frisch, Farwell Area Schools
*Primary Subject:* GS, IS
*Interest Level:* LE, MS, HS
*Location:* LC - 203
There will be several great demonstrations designed for upper elementary though introductory high school science courses. These demonstrations will focus on Laws of Conservation of Energy and Law of Conservation of Matter.

SCECH’s Session
Human Population: Past, Present and Future Carrying Capacity
Larry Feldpausch
*Primary Subject:* EN
*Interest Level:* MS, HS
*Location:* LC - 102
More than the demographic facts of life, the social, economic and environmental impact of a burgeoning population will also be explored. The approach to the issue is interdisciplinary. Lessons for teachers outside of science will be shared.
Continued - Saturday, March 5, 2016
8:00 a.m. - 8:45 a.m. – Sessions

SCECH’s Session
MSS & STEM can be FUN!!
Lu Anne Clark
*Primary Subject:* ES, PH
*Interest Level:* EE, LE
*Location:* R - Michigan 3
A fun, hands-on and interactive presentation of several Michigan science standard STEM earth and physical science related activities for children that are cheap and supply friendly. Handouts will be available.

Muffins for Members
Robby Cramer, MSTA Executive Director
Jen Arnswald, MSTA President Elect
Paul Drummond, MSTA Membership Chair
*Primary Subject:* IS, AS
*Interest Level:* EE, LE, MS, HS, CO, Administrators
*Location:* LC – 101
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!

SESSION CANCELLED
SCECH’s Session
Next Steps Planning for Curriculum and Instruction
Megan Schrauben, Tamara Smolek, MDE—John Hannah Bldg.
*Primary Subject:* GS
*Interest Level:* EE, LE, MS, HS, CO
*Location:* LC – 104
MDE has grant opportunities and standards updates to share. We hope to show how the different initiatives support each other and answer any questions that you may have for us.
Saturday, March 5, 2016
8:00 a.m. - 9:45 a.m. – Workshops

**Energizing Lessons Learned from a Chemistry Teacher & Industry Partnership**
R. Charles Dershimer, U of M - School of Education
Vicki Behe
Rebecca Talik, Carrollton High School
Mary Hillebrand, Calvary Baptist Academy
Scott Harrison, Freeland Middle School

*Primary Subject:* CH  
*Interest Level:* MS, HS  
*Location:* LC - Banquet 6  
Learn about engaging chemistry lessons developed through a partnership with the American Association of Chemistry Teachers and Dow Chemical Company. Handouts for lessons and information on ACS Science Coaches provided.

**SCECH’s Session**

**Vendor Session**

**Investigate Photosynthesis and Cellular Respiration Using Algae Beads!**
Tamica Stubbs, Bio-Rad Laboratories

*Primary Subject:* CH, BI  
*Interest Level:* MS, HS  
*Location:* LC - Banquet 2  
In this hands-on workshop, learn how algae beads can be used in inquiry investigations to study photosynthesis and cellular respiration in a calorimetric assay that examines CO2 consumption and release.

**SCECH’s Session**

**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:* LC - 202  
Experience water studies with the NASA GLOBE resources including teacher guides, ELA storybooks and related STEM activities designed for grades K-6. The activities promote problem solving, and communication skills.
Continued - Saturday, March 5, 2016
8:00 a.m. - 9:45 a.m. – Workshops

SCECH’s Session
Physics Make and Take
Steve Dickie, Divine Child High School
James Gell, Plymouth High School
Primary Subject: PH
Interest Level: MS, HS
Location: R - Capital 3
Participants will have the opportunity to construct several apparatuses for classroom demonstrations of physics phenomena. These apparatuses will be constructed of inexpensive and easily-obtainable materials. Sponsored by the MIAAPT.

SCECH’s Session
Playing with Underwater Gliders and Exploring Engineering Design Process
Nina Mahmoudian, Donna Ziaee Fard, Michigan Tech
Primary Subject: AS, EN, IN
Interest Level: MS, HS
Location: LC - 205
A hands-on activity for exploring engineering design process inspired by underwater gliders exploring ocean environment will be presented. The activity is inexpensive and can be easily adopted in classrooms.

SCECH’s Session
Vendor Session
Project-based Learning - Using Video-enhanced Lessons
Mike Heithaus, Houghton Mifflin Harcourt
Primary Subject: BI
Interest Level: MS, HS
Location: LC - 204
Project-based Learning - Using Video-enhanced Lessons to Bring Students Into the Field.
Continued - Saturday, March 5, 2016
8:00 a.m. - 9:45 a.m. – Workshops

SCECH’s Session
Shish-Kebab Planet: (This is not a cooking class)
David Mastie
Primary Subject: ES, GS
Interest Level: LE, MS
Location: R - Michigan 2
Participants will: Skewer an Earth model, Illustrate Earth's tilt, model latitude and longitude, discover year, seasons, time zones and satellite orbits. Build a magnetometer to find Earth's magnetism and poles, and use sky calendars.

SCECH’s Session
Stability and Change in Michigan Ecosystems: An Example Mi-STAR Unit
Robin Allen, Barbara McIntyre, Midland Public Schools
Steph Tubmand, Anthony Matthys
Primary Subject: AS, GS
Interest Level: MS
Location: R - Capital 2
Mi-STAR is developing an integrated science curriculum for Michigan that aligns with NGSS. Participate in hands-on activities from a classroom-tested unit on health and disturbance of Michigan ecosystems. Handouts provided.

SCECH’s Session
The Physiological Impact of Poverty on Behavior and Academic Performance
Audrey Richardson, Detroit Public Schools
Primary Subject: GS, IN
Interest Level: EE, LE, MS, HS, CO
Location: LC - Governors
Examine how acute and chronic stressors impact low socioeconomic students' behavior and academic performance. Demonstrate and discuss effective strategies to reduce the impact of poverty on behavior and academic performance. This includes a "hands-on" activities. Handouts will be provided.
Continued - Saturday, March 5, 2016
8:00 a.m. - 9:45 a.m. – Workshops

SCECH’s Session
What's in Your Walls? Teaching Sustainability through NGSS
Gwen Windiate, Sheri Turner, Emily Gochis, Luke Bowman
Primary Subject: CH, ES
Interest Level: MS, HS
Location: LC - 201
Mi-STAR is developing an integrated science curriculum for Michigan that aligns with NGSS. Participate in activities from a classroom-tested unit on the life cycles of building materials. Handouts provided.

Saturday, March 5, 2016
8:30 a.m. - 10:30 a.m. – Workshop

SCECH’s Session
MEECS Climate Change
Janet Vail, Grand Valley State University
Primary Subject: AS, EN
Interest Level: MS, HS
Location: LC - 103
Learn about climate and weather, the energy balance, the carbon cycle, and the Greenhouse effect. Students will observe change in the Earth's cycles and climate.

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

Elementary Inquiry Extravaganza!
Tim Larrabee, Oakland University
Betty Crowder
Primary Subject: GS
Interest Level: EE, LE, MS, HS
Location: LC - Banquet 1
Join the fun as Oakland University pre-service teachers provide you with a wealth of inquiry and engineering activities that will engage your students and their inquisitive minds. This hands-on session targets elementary science and engineering, but many of the activities could be adjusted for younger or older students.
SCECH’s Session

Energy that Powers Michigan
Andrew Frisch, Farwell Area Schools

**Primary Subject:** GS, PH
**Interest Level:** LE, MS, HS
**Location:** LC - 203

The Law of Conservation of Energy rules our modern world. This session will explain how our natural resources are turned into electricity. Then it will expand into how these fuels are the cause of Global Climate change. It will demonstrate how leaving your lights on is causing the polar ice caps to melt.

SCECH’s Session

Engaging Science for English Language Learners (ELLs)
Puja Mullins, Brick Elementary School
Amanda Pringle, Lincoln Consolidated Schools

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

Children learn language and science in much the same way through authentic, meaningful experiences. Learn strategies for ELLs and struggling readers in your science class. Participate in activities that target language and literacy goals through science content.

SCECH’s Session

Vendor Session

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 - Banquet 4

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.
Continued – Saturday, March 5, 2016
9:00 a.m. - 9:45 a.m. – Sessions

SCECH’s Session
Global Change in the Classroom: Creating Stewards of the Earth
Zakiya Jackson, Detroit Public Schools
Diana Koss, Ralph J. Bunche Pre K-8 School
Primary Subject: EN
Interest Level: LE, MS
Location:
Make environmental science come alive for all students through interactive and engaging hands-on projects. Global change topics including stewardship, outdoor education, and environmental appreciation and literacy will be addressed. For general Ed, and special Ed. teachers alike.

SCECH’s Session
Elementary Strand
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.

SCECH’s Session
Science and the MDE early literacy and numeracy initiative
Megan Schrauben, MDE - John Hannah Bldg.
Primary Subject: LT, IN
Interest Level: EE,LE
Location: LC - 104
You may have heard about the Governor's Third-Grade Literacy Workgroup Report and how additional funds are moving into classrooms to support this work--come find out how science directly relates to this work, the supports and initiatives that MDE is working on, and how your students will greatly benefit.
SCECH’s Session

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:* LC - 102

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!

SCECH’s Session

The Art of Chemistry
Jelane Richardson, Allen Park High School

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

Come see how Art and Chemistry blend to make great hands-on experiences for Chemistry.

Vendor Session

The Chemistry of Color: Getting Students on the Right Frequency
Bill Cline, LAB-AIDS

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

Would you use a spectrophotometer in your high school chemistry classes if it were inexpensive, reliable, and easy for students to use? Since this powerful tool is a common feature in modern chemical analysis - of course you would! Join us for hands-on activities using RGB spectrophotometers to explore simple serial dilutions and core applications of the technology. From a **Natural Approach to Chemistry** from LAB-AIDS.
Continued – Saturday, March 5, 2016
9:00 a.m. - 9:45 a.m. – Sessions

SCECH’s Session
Vendor Session
Amelia Miller, Michigan Farm Bureau
Primary Subject: BI, EN
Interest Level: MS
Location: LC - Banquet 7
Investigate differences between roots and tubers in this plant science and nutrition lesson.
Meeting 7 - 9 grade science and main standards.

Saturday, March 5, 2016
9:00 a.m. - 10:45 a.m. – Workshops

SCECH’s Session
Eco Impact: How Our Choice Affect the Earth and Its Inhabitants
Lisa Forzley, Detroit Zoological Society
Primary Subject: EN
Interest Level: EE, LE, MS, HS, CO
Location: R - Capital 4
Participate in hands-on activities/discussions that will connect our daily choices with the impact they have on the planet. Walk away with lessons that you can immediately implement in your classroom.
SCECH’s Session
Engineering the Future - Exploring Engineering Design in the NGSS
Dr. Eric Mann, Hope College - Dept of Math/Phy/Eng.
Susan Ipri-Brown, Lindsey Gryniewics, Sherah Head, Alex Klunder, Hope College
*Primary Subject:* EN
*Interest Level:* EE
*Location:* LC - Banquet 3
After a brief introduction to the engineering design process, participate in a hands-on design challenge that you can take back to your classrooms. Handouts will be provided.

SCECH’s Session
Framing Your Lessons in Phenomena
Nancy Karre, Battle Creek Area Math/Science Center
*Primary Subject:* IN
*Interest Level:* EE, LE, MS
*Location:* LC - Banquet 8
Make the shift from inquiry-based lessons to a lessons framed in relevant phenomena! Learn how to frame lessons in phenomena that is applicable and significant to student learning and aligned with MSS.

9:00 a.m. – Noon – Workshop

SCECH’s Session
The Modeling Method in Electricity and Magnetism
Donald Pata, Grosse Pointe North HS
Laura Ritter, Troy High School
*Primary Subject:* PH
*Interest Level:* EE, LE, MS, HS
*Location:* R - Regency 2
Participants will create and apply models in electrostatics, circuits and magnetism. They will be introduced to the Modeling Method for teaching physics through hands on activities designed to engage and enlighten.
SCECH’s Session
An Integrated Approach to Teaching Metamorphic Rocks of Michigan
Sarah Van Goor, GVSU
Primary Subject: ES
Interest Level: MS, HS
Location: R - Capital 1
Participants will explore a new, integrated approach to teaching about the metamorphic rocks and history of Michigan using hand samples, Google Earth, and geologic maps.

SCECH’s Session
Vendor Session
Bacteria, Antibiotics and Antibiotic Resistance: What Your Students Need to Know
Elaine Bailey, MARR
Primary Subject: BI
Interest Level: LE, MS, HS
Location: LC - 204
This session will provide an overview of recent CDC report about antibiotic resistance threats in the U.S. and environmental impact and global concerns. Participants will also learn about a free two day high school biology/health, and a 2nd – 8th grade elementary curriculum. And much more!

SCECH’s Session
Bridging the STEM Gap with Science Olympiad
Michele Svoboda
Primary Subject: AS
Interest Level: EE, LE, MS, HS
Location: R - Regency 1
Learn about the Science Olympiad program and how many of the events will translate into STEM lessons that support NGSS. Lesson ideas will be shared in a handout.
Continued - Saturday, March 5, 2016
10:00 a.m. - 10:45 a.m. – Sessions

SCECH’s Session
Co-Robots Can Serve as Co-Educators for Students
Nina Mahmoudian, Michigan Tech
Primary Subject: AS, CO, IN
Interest Level: MS, HS, CO
Location: LC - 205
This session introduces two of Michigan Tech robots (GUPPIE and Neu-pulator) that enable students to learn how robots can help to explore the environment and augment human capabilities.

SCECH’s Session
Continuing the Journey into Technology; Building a Curriculum
Carl Van Faasen, Holland High School
Primary Subject: CH
Interest Level: HS
Location: LC – 104
I will share the curriculum I built that is available to all online. We will discuss the advantages and disadvantages of 1:1 technology in the classroom as we prepare for the future of education.

Vendor Session
Fingerprint of an Atom
Bill Cline, LAB-AIDS
Primary Subject: CH
Interest Level: HS
Location: LC - Banquet 5
Students have trouble relating electron orbitals and spectra lines. Join us for a unique and fun atom building model experience. After modeling electron configurations, we will explore how color is used to identify elements using a unique deck of spectrum cards to take home. In fact, we will send you home with 58 engaging chemistry labs from A Natural Approach to Chemistry from LAB-AIDS that support the new teacher/student talk ratio.
SCECH’s Session
FREE teacher/student STEM labs and Career Exploration Labs
Robert Tonti, Macomb Community College
Primary Subject: IN, IS
Interest Level: MS
Location: LC - 102
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.

SCECH’s Session
Elementary Strand
Integrate Literacy & Writing into Elementary Science by Using Interactive Notebooks
Carolyn Mammen, Hart Middle School
Brian Peterson, Musson Elementary School
Betty Crowder, Oakland University
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!

Vendor Session
Michigan Environmental Literacy Plan Update
Elaine Kampmueller, MAEOE
Tom Occhipinti, DEQ
Megan Schrauben, MDE
Pan Bunch, STEM Learning Connections
Primary Subject: EN
Interest Level: EE, LE, MS, HS, CO
Location: LC - Banquet 7
A summary of the MIELP will be presented by members of the MIELP task force. Attendees will be able to ask questions, make suggestions, and give feedback on this plan.
Continued - Saturday, March 5, 2016
10:00 a.m. - 10:45 a.m. – Sessions

Michigan's Magnetic Secrets
Eric Engel, South Lyon East High School
Primary Subject: ES
Interest Level: HS
Location: LC - 202
See how Michigan Technological University's Research Experience for Teachers in Paleomagnetism can be used to help students get over their misconceptions about the Earth's magnetic field.

SCECH’s Session
Modeling Dynamic Equilibrium Activity
Scott Milam, Plymouth Canton Community Schools
Primary Subject: CH
Interest Level: MS, HS, CO
Location: R - Capital 3
A hands on activity for representing dynamic equilibrium. Models will be constructed for concentration and rate. The activity can be used for AP chemistry or for physical equilibrium situations.

SCECH’s Session
Science in the Making: 3-D Printing
Christie Gayheart, Jefferson Middle School
Primary Subject: GS
Interest Level: MS, HS
Location: LC - 203
Real-world engineering design and modeling. The fun begins by building 2-liter bottle rockets, and ends with a challenge between classes of redesigned bottle rockets with 3-D printed fins.
Continued - Saturday, March 5, 2016
10:00 a.m. - 10:45 a.m. – Sessions

SCECH’s Session
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: LC - Governors
Leary of inquiry? 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.

SCECH’s Session
Small Eruptions with Big Impacts: An Eyjafjallajokull-like eruption in U.S.?
Brooke Ramsey
Steve Mattox, GVSU
Primary Subject: ES
Interest Level: MS, HS
Location: R - Michigan 2
Participants predict movement of the Eyjafjallajokull ash cloud and the economic and political impacts. Then apply a model of an ash cloud from Redoubt over America and evaluate the impacts.

SCECH’s Session
"Spring" into Hands-on Learning
Krystle St. John, Nah Tah Wahsh PSA
Emily Gochis, Michigan Tech University
Primary Subject: ES, PH
Interest Level: MS, HS
Location: LC - 201
Engage students by connecting unique natural sites to scientific phenomena. In this NGSS hands-on lesson, students apply basic principles of energy to investigate the source of Michigan's largest spring.
SCECH’s Session
Standards-Based Grading in the Next Generation
Phil King, Erik Johnson, Lakeview Middle School
*Primary Subject:* AS, IN
*Interest Level:* LE, MS, HS
*Location:* LC - Banquet 4
Learn a practical set of steps to make the shift to a standards-based grading system. Promote student proficiency on learning targets, streamline your interventions, and foster student ownership and reflection.

Vendor Session
SCECH’s Session
Teach Students How to Write a Story Using LEGO®
Ivery Toussant, LEGO Education
*Primary Subject:* GS
*Interest Level:* EE, LE, MS, HS
*Location:* LC – Banquet 1
Is there a student on Earth who doesn't love LEGO? StoryStarter, from LEGO Education, taps into that enthusiasm with a language and literacy product that combines an inviting tub of LEGO's with thoughtful lessons on user-friendly writing and comic software while addressing core standards. Hands-on Elementary.

SCECH’s Session
Three-Dimensional Learning in Your Classroom: Applying NGSS through Michigan Themes
Jennifer Grivins, Eaton Rapids High School
Brenda Bergman, Michigan Tech University
Dawn Kahler, Stephanie Tubman
*Primary Subject:* AS, GS
*Interest Level:* LE, MS, HS, CO
*Location:* R - Capital 2
Unpack the three dimensions of NGSS and identify ways to engage Michigan students in NGSS through 21st-century applications, real-world data, and significant places related to Michigan. Hands-on and handouts provided.
Saturday, March 5, 2016
10:00 a.m. - 11:45 a.m. – Workshops

SCECH’s Session
Creative Engineering in STEM Using Design Thinking for Problem Solving
R. Charles Dershimer, U of M - School of Education
Christopher Patten, Henry Ford Learning Institute
**Primary Subject:** IN
**Interest Level:** MS, HS
**Location:** LC - Banquet 6
Participate in this hands-on design challenge where you use design thinking to creatively solve a problem that meets human needs. A great way to introduce engineering to your students.

SCECH’s Session
Vendor Session
Institute of Food Technologists - Middle and High School Outreach Program
Gene Maly, Institute of Food Technologists
**Primary Subject:** AS, IN
**Interest Level:** MS, HS
**Location:** R - Michigan 3
IFT is an international professional association composed of chemists, microbiologists, nutritionists, and food scientists. IFT is dedicated to providing nutritious foods to the world. We will detail the teaching resources IFT has to assist middle and HS teachers to teach the basics of the chemistry of food.

SCECH’s Session
Science Saturdays---Detroit Public Schools' Monthly Hands-On Science PLCs
Amy Lazarowicz, Neinas Elementary School
Alica Brown, Detroit Public Schools
Donna Holtz
**Primary Subject:** AS, IN
**Interest Level:** LE
**Location:** LC - Banquet 2
Participate in a condensed version of Science Saturdays Workshops. District Teacher Leaders plan and facilitate grade level PLCs using hands-on activities for the current curriculum and science concepts. GRADES 3-5.
SCECH’s Session

An Integrated to Teaching the Geology of the Cascade Volcanoes
Claire Sobolak, Grand Valley State University
*Primary Subject:* ES  
*Interest Level:* HS, CO  
*Location:* R - Michigan 2  
Participants will explore a new integrated approach to teaching igneous petrology and volcanology of the Cascade Range using hand samples, Google Earth, and geologic maps.

SCECH’s Session

Bull’s Eye Lab for Different Levels of Physics
Amy Stone, Jason Colegrove, Forest Hills Central HS
*Primary Subject:* PH  
*Interest Level:* HS  
*Location:* LC - 205  
Explore two dimensional projectile motion where students are required to predict where to place a target to be hit with a projectile. Hands on lab. Handouts are provided.

SCECH’s Session

Challenge Your Students to Make Waves
Michael Suckley, Paul Klozik
*Primary Subject:* GS, IN, PH  
*Interest Level:* LE, MS, HS, CO  
*Location:* LC - 201  
Sound is the sensation perceived by the ear caused by the vibration of some medium. This workshop will explore sound through the use of the "Sound Portal" which provides access to thirty classic hands-on activities/demonstrations designed to illustrate fundamental characteristics of sound using easily available materials. The "Portal" can be accessed through the internet or downloaded and modified for specific classroom or individual use.
Continued – Saturday, March 5, 2016
11:00 a.m. - 11:45 a.m. – Sessions

SCECH’s Session
Differentiated Learning Through Stationed Activities
Cortney Ford, Mason High School
Primary Subject: BI
Interest Level: MS, HS
Location: LC - 204
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.

SCECH’s Session
Do It Outdoors - MSS/ GLCE's, ELA, Math, and More!
Jody Harrington
Primary Subject: AS, EN
Interest Level: EE, LE
Location: R - Regency 1
Combine science with reading, writing, and math in an active outdoor garden setting. Get students "doing science" using the latest Michigan Science Standards (or GLCE's), Science Practices, and Crosscutting Concepts. Participants will be presented with MSS Performance Expectations aligned to each grade level with the best Environmental Education activities.

SCECH’s Session
Vendor Session
Enhancing Classroom Learning Through Digital Dissection
Samantha Suiter, PETA
Primary Subject: BI
Interest Level: MS, HS, CO
Location: LC - 202
This interactive session includes hands-on experience with dissection software programs, covering educational efficacy, economic benefits and current laws/policies regarding the use of animals in science. Participants are asked to bring a laptop.
Continued – Saturday, March 5, 2016
11:00 a.m. - 11:45 a.m. – Sessions

SCECH’s Session
Exploring the Science Explanation Framework through What's Your Evidence?
Jan Douglas, Pioneer Middle School
Donna Pahl, Carrie McManus, Plymoth-Canton Community Schools
Primary Subject: IN
Interest Level: EE, LE
Location: LC - 102
A district science instructional coach and two elementary teachers will share their experience of transforming their teaching from "hands-on" to "minds-on" through a study of What's Your Evidence? Handouts provided.

SCECH’s Session
Family Engineering Night: A Night for the Whole Family!
Kristie Massey, Allen Academy
Primary Subject: GS
Interest Level: EE, LE
Location: R - Capital 3
Want to get families involved and you're not sure how? Host a Family Engineering Night! Learn how with hands on activities. Hand outs will be provided.

SCECH Session
Interactive (and effective!) Formative Assessment for your Science Classroom
Shawn McNamara, Grosse Pointe Public Schools
Primary Subject: AS, ES
Interest Level: EE, LE, MS, HS, CO
Location: R - Capital 1
Looking for quick and effective ways to assess your students' progress? Experience first-hand how to use a variety of high-tech and low-tech tools for measuring student learning.
Michigan's New Science Standards - Next Steps
Stephen Best, MI Department of Education-School Reform
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.

SCECH’s Session
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.

SCECH’s Session
Powerful Science Notebooks
Joanne Rowe, Birmingham Public Schools
Michelle Ladd, West Maple Elementary School
Primary Subject: GS, IN
Interest Level: EE, LE
Location: LC - 203
Learn how to leverage science notebooks using the NGSS Science and Engineering Practices. Templates, journal entry types, student examples, implementation strategies, assessments, rubrics will be shared. Electronic handouts provided.
SCECH’s Session
Reorganizing Biology Content - A Bottom up Approach
Julie Alexander, Erin Marsh, Grand Ledge High School

*Primary Subject:* BI
*Interest Level:* HS
*Location:* LC - Banquet 1

Join us on a journey through the biology content that begins in the cell and ends with ecology. Attendees will participate in several hands-on activities. Handouts will be provided.

SCECH’s Session
Simple, Authentic Inquiry
Claire Lannoye-Hall, Detroit Zoological Society

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

This hands-on workshop will provide attendees with examples of simple ways to incorporate authentic inquiry in the classroom. Successes and challenges will be openly shared and discussed.

SCECH’s Session
Solutions for Delivering Engineering Design into the Science Classroom
Jason Albert Rossner, BES Solutions

*Primary Subject:* AS, IN
*Interest Level:* LE, MS, HS
*Location:* LC - Banquet 4

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.
SCECH’s Session

Supporting English Learners in the Science Classroom
Wendi Vogel, Kent Intermediate School District
Sanela Sprecic, Kentwood Public Schools

Primary Subject: IN
Interest Level: EE, LE
Location: LC - Banquet 8

Join an EL teacher and a science teacher walk through some research-based ways to assist these learners in your science classroom, while still honoring their culture.

SCECH’s Session

The Kirtland’s Warbler: A New Vision for Endangered Species Conservation
Abigail Ertel, Kirtland’s Warbler Alliance

Primary Subject: BI, EN
Interest Level: EE, LE, MS, HS
Location: LC - Banquet 3

As birds go, the Kirtland's Warbler is a rock star. People come from all over the world to see it in its northern Michigan summer home. They are attracted to it because it is so rare (only about 4,000 birds in the total population) and because it has a fascinating story. That story may soon be changing: There are signs that the Kirtland's Warbler may soon be coming off the Endangered Species List. That change would present several challenges because the species is conservation reliant -- it depends upon continuing intervention by humans for its survival. So, what happens if the species is removed from the ESA and conservation efforts are withdrawn? The presentation will include an overview of the bird's biology, causes of its near extinction, efforts that have been made to bring it back from the brink, and a look at a new vision for conservation that relies on public-private partnerships. I will provide handouts.
SCECH’s Session

Transform your Science Fair into a STEM Challenge Fair!
Crystal Brown, Parsons Elementary School

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

If you've been doing the same old Science Fair, come learn about the amazing opportunities for a STEM Challenge Fair! You will see your students able to design their own models, analyze their own results, and use their data to re-develop a better model.

Vendor Session

Using Climate Proxies to Learn About Earth's Climate History
Bill Cline, LAB-AIDS

*Primary Subject:* ES  
*Interest Level:* MS, HS  
*Location:* LC - Banquet 5

How can scientists tell what Earth's climate was like thousands of years before human measurements? This activity simulates the use of fossil ocean foraminifera, tiny organisms whose growth patterns are different in warm and cold water. Your students will analyze and graph samples of replicas of these organisms, and use this information to determine relative warm and cold periods in the past 200,000 years. This activity is from EDC Earth Science, and new NSF-sponsored earth system program that uses an active, BIG DATA approach from LAB-AIDS that supports the new teacher/student talk ratio, and also has the literacy, notebooking, assessment strategies built in that make it NGSS ready!
SCECH’s Session

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.

Saturday, March 5, 2016
12:00 p.m. - 12:45 p.m. - Session

The Panel: Questions and Answers Regarding the Michigan Science Standards
MSTA Leadership
Primary Subject: AS, GS
Interest Level: EE, LE, MS, HS
Location: LC - 101

Panel: Stephen Best, MI Department of Education – School Reform
State and National Science Teachers 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
1:00 p.m. - 1:45 p.m. – Sessions

**Bring Out the "T" in STEM with Special Education Students**
Jennifer Wickersham, Peck Elementary School
Deb Stephan, Rockwell Junior High School

*Primary Subject:* CO  
*Interest Level:* LE, MS  
*Location:* R - Capital 4

Technology does not have to be overwhelming. Lessons that incorporate the use of technology by special education students will inspire you to remember that there are no limits to what students can do!

**SCECH’s Session**  
**Design A Sustainable Future**  
Joan Chadde, W UP Cntr-Sci/M & Envir. Ed.
Lauri Davis, Houghton High School

*Primary Subject:* EN  
*Interest Level:* LE, MS, HS  
*Location:* R – Michigan 3

Students are confronted by many challenging issues in today’s world, from climate change to pollution, overpopulation, and more. This session will present a positive counter-balance. There is a lot happening to support sustainability and today’s youth need to hear about it so they can aspire to sustainable career paths and feel positive about the future. Students will investigate building design, renewable energy sources, product life cycles, transportation, vehicle design, sustainable forestry, and food systems.

**SCECH’s Session**  
**Vendor Session**  
**Energizing Education-A Complete and Free Energy Unit for Michigan Students**
Michelle Mitchell, Michelle StepekConsumers Energy

*Primary Subject:* ES, EN  
*Interest Level:* LE, MS, HS  
*Location:* LC - 205

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.
SCECH’s Session
Great Adaptations: Teaching Practices That Support Diverse Learners
Julia Maceri, Davis Jr. High School
Primary Subject: GS, IN
Interest Level: EE, LE, MS
Location: R - Regency 2
The power of a learning community builds strong relationships, resulting in adaptations of teaching practices. The outcome is highly engaging science for students with diverse needs.

SCECH’s Session
Integrating Effective Leadership, Science Literacy, and Technology into Science Instruction
Tooba Mansoor, Dearborn Center for M/S/Tech
Primary Subject: GS
Interest Level: MS, HS
Location: R - Capital 3
Experience hands-on activities to incorporate literacy and technology in your science classroom. In addition, learn leadership skills to assist students to become better leaders. Handouts will be provided.

SCECH’s Session
Interdisciplinary Learning for a Changing Planet
Holly Schaeffer, Potterville Public Schools
Primary Subject: BI, EN
Interest Level: MS, HS
Location: LC - 202
Participate in hands-on activities that apply math and science skills to tackle major global challenges, including human population pressures, finite natural resources and climate change. Receive a CD of lesson plans.
SCECH’s Session
Letting Swift River Go
*MCSS Strand*
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.

SCECH’s Session
Physics of Atomic Nuclei - learn about MSU Cyclotron and FRIB
Caleb Miller, Richard Lund, St. Johns Public High School
*Primary Subject:* CH, PH, AST
*Interest Level:* MS, HS
*Location:* R - Capital 1
Learn about the research being done at the MSU Cyclotron and FRIB facility including Summer workshops for teachers, students and field trips. Door prizes, hand-outs and hands on activities related to star life cycles, rare isotopes, and astro-physics for all ages!

SCECH’s Session
Promoting Collaborative Learning and Productive Interactions in the Science Classroom
Paula Gentile, Jennifer Garland, Belleville High School
*Primary Subject:* GS, BI
*Interest Level:* HS
*Location:* R - Regency 1
This session focuses on strategies to support science students in collaborating on task-based initiatives, critiquing the work of their peers, and productively interacting with one another throughout the learning process.
Continued – Saturday, March 5, 2016
1:00 p.m. - 1:45 p.m. – Sessions

SCECH’s Session
Science Saturdays---Detroit Public Schools' Monthly Hands-On Science PLCs
Jennifer Edwards, Ronald Brown Academy
Constance Elliott, Detroit Public Schools
Rosemarie Gurin
Primary Subject: AS, IN
Interest Level: EE
Location: LC - Banquet 4
Participate in a condensed version of Science Saturdays Workshops. District Teacher Leaders plan and facilitate grade level PC's using hands-on activities for the current curriculum and science GLCEs. (First Grade).

SCECH’s Session
STEM = STEAM Different sides of the Equation
David Larwa
Primary Subject: GS
Interest Level: EE, LE, MS, HS, CO
Location: LC - Governors
Artists and designers have given life and form to science. Join me for a new look at the technical and creative models of origami. Used today from auto design to heart operations, origami isn't a child's game.

SCECH’s Session
Elementary Strand
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!

Continued – Saturday, March 5, 2016
1:00 p.m. - 1:45 p.m. – Sessions

SCECH’s Session
Vendor Session
Contagion! Track the Progress of Dangerous Viruses throughout the Country
Tamica Stubbs, Bio-Rad Laboratories
Primary Subject: CH, BI
Interest Level: MS, HS
Location: LC – Banquet 1
Disease can spread like wildfire through populations. Become an epidemiologist in this hands-on workshop and track diseases like the fictional Zombie Virus. See if you can track down patient zero!

SCECH’s Session
Super Science from the Smithsonian
Laura Trombley, Shields Elementary School
Mary Jo Griffin, Adams Elementary School
Primary Subject: ES, BI, CO
Interest Level: EE, LE
Location: LC - 102
Looking for new ways to strengthen the science curriculum in your classroom? Why not look to the most notable science institution in the world? Join members from the 2014 and 2015 Smithsonian Science Education Academies for Teachers (SSEATS) as they share many of the amazing activities and FREE resources offered by the Smithsonian.

SCECH’s Session
Talk Moves: Guiding Engaging Science Discussions
Richard Bacolor, Pierce Middle School
Primary Subject: GS
Interest Level: EE, LE, MS, HS
Location: R - Michigan 1
NGSS asks students to do the heavy lifting developing a deep understanding of science concepts. This session gives teachers a framework for facilitating small and whole group discussions that help students go beyond "learn about" science, and "figure out" science for themselves.
Continued – Saturday, March 5, 2016
1:00 p.m. - 1:45 p.m. – Sessions

SCECH’s Session
Teaching Evolution: A Conversation About Misconceptions and Models
Kara Haas, MSU - Kellogg Bird Sanctuary
Jamie Bowman, Thornapple Kellogg Schools

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

Hands-on models and discussion tips for Teaching Evolution (TE). The TE project brought together students, mentor teachers and MSU faculty/educators to learn about evolution and methods to engage students in the classroom.

SCECH’s Session
Thermochemistry and LOL Diagrams for All Levels
Peg Convery, Farmington High School

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

Use modeling techniques to teach thermochemistry conceptually through the use of energy exchange diagrams, affectionately called LOL diagrams.

SCECH’s Session
Tools for Helping Teach Meiosis
Arthur Wohlwill, Lansing Community College

*Primary Subject:* BI
*Interest Level:* HS, CO
*Location:* LC - Banquet 6

In order to help students understand meiosis I have developed several hands-on activities including a cooperative game that links genetics and meiosis.
Update on Credit-by-Exam at Michigan High Schools for University Physical Geology
Christina Sobolak, Steven Mattox, Grand Valley State University
Primary Subject: AS, ES
Interest Level: HS, CO
Location: R - Michigan 2
The number of students taking and passing the exam for college credit continues to grow. We share and discuss challenges, support, and opportunities for your students to succeed in geology.

SCECH’s Session
Elementary Strand
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.
Saturday, March 5, 2016
1:00 p.m. - 2:45 p.m. – Workshops

CANCELLED

SCECH’s Session

Asking Questions About Our Changing Climate: An Example Mi-STAR Unit
Stephanie Tubman, Michigan Tech University
Primary Subject: AS, GS
Interest Level: MS
Location: LC – Banquet 2
Mi-STAR is developing an integrated science curriculum for Michigan that aligns with NGSS. Participate in hands-on activities from a classroom-tested unit on climate change causes and mitigation. Handouts provided.

SCECH’s Session

Implementing Low Cost Engineering Projects for the MS/HS Classroom
Yonee’ Bryant-Kuiphoff, Linden Grove Middle School
Chery Hach, Kalamazoo Area M/S Center
Primary Subject: GS, IN
Interest Level: MS, HS
Location: LC - 203
Are you experiencing anxiety with Engineering Practices? Let us help you discover low cost projects to take back to your classroom. Hands-on experience.

SCECH’s Session

Lloyd's Toolbox of Engineering Ideas & Activities
Lloyd Hilger, Jonesville Middle School
Judy Warner, Williams Elementary School
Primary Subject: GS
Interest Level: LE, MS, HS, CO
Location: LC - 104
In this presentation we will be looking at the engineering design process and how to teach engineering in a variety of grade levels. We will also look at ways to help students become more aware of various engineering careers. Many lesson plans and resources will be provided. Also, please come ready to share any engineering resources that you have.
Saturday, March 5, 2016
1:00 p.m. - 2:45 p.m. – Workshops

SCECH’s Session
The Arts in ENGINEERING
Kimberlee Quinn, Miller Elementary School
Michael Quinn, Centerline Public Schools
Primary Subject: GS, IN
Interest Level: EE, LE, MS
Location: LC - 201
Come experience one the many authentic and engaging Engineering Design Challenges that can be created by YOU! Gain a new perspective on every day materials and how to integrate multiple content areas into a single challenge. This is sure to get your students thinking critically and creatively.

Saturday, March 5, 2016
2:00 p.m. - 2:45 p.m. – Sessions

SCECH’s Session
A Climate Change in Your Classroom!
Mary Ann DeVries
Primary Subject: IN
Interest Level: EE, LE, MS, HS
Location: LC - Banquet 8
Science Education is extremely important! To be successful, effective management is essential. Join this session and leave with tools that will create a positive climate change in your classroom!

SCECH’s Session
Advancements in Science and Medicine - History of Laboratory Animal Use
Robert Sigler, Unit for Laboratory Animal Medicine
Primary Subject: BI
Interest Level: MS, HS
Location: LC - 202
Examples of scientific and medical advancements with emphasis on Michigan contributions. The history and role of lab animals in these discoveries and regulatory oversight of animal use will be discussed.
Saturday, March 5, 2016
Continued - 2:00 p.m. - 2:45 p.m. – Sessions

Amazing Productive Discussion in the Science Classroom
James Dehaan, De La Salle Collegiate
Don Pata, Grosse Pointe High School

*Primary Subject:* IN
*Interest Level:* EE, LE, MS, HS, CO
*Location:* LC - 102
Through an immersion in the techniques and strategies that maximize dialogue, teachers will learn the tools that help initiate and sustain productive student discussions in science classrooms.

SCECH’s Session
Creating and Programming Apps at the Elementary Level
Maggie Thelen, Carly Pomarius, Michele Bates, Kat Humphreys, Rockford Public Schools

*Primary Subject:* CO
*Interest Level:* LE
*Location:* LC - 103
Though a STEM grant from the state of Michigan, all upper elementary students have an opportunity to learn how to create a mobile app. We will be using the MAD-Learn site and curriculum along with learning HTML to create the apps.

SCECH’s Session
Daytime Astronomy
Sherry Claflin, Hesperia High School

*Primary Subject:* ES, AST
*Interest Level:* MS, HS
*Location:* LC - 205
You can teach Astronomy in the daytime! Find out how to use real data to meet your STEM objectives. Hands-on activities with hand outs and resources provided.
**Elementary Strand**

**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.

**SCECH’s Session**

**Minecraft in the Classroom: Incorporating Video Games into Core Instruction**
Melissa Gosbee, Carson City Crystal Upper Elementary School

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

Video games are a passion of many students. Bring their passion into the classroom by exploring what Minecraft truly involves and how to use it across the science curriculum. Handouts provided.

**SCECH’s Session**

**Science Saturdays---Detroit Public Schools' Monthly Hands-On Science PLCs**
Kathryn Sergeant, Ronald Brown Academy  
Deidre Davis, Detroit Public Schools

*Primary Subject:* AS, IN  
*Interest Level:* EE  
*Location:* LC - Banquet 4

Participate in a condensed version of Science Saturdays Workshops. District Teacher Leaders plan and facilitate grade level PLCs using hands-on activities for the current curriculum and science GLCEs. (Second Grade).
SCECH’s Session
Speed-Reading and Other Time Saving Teaching Techniques
Laura Harris, Davenport University
Primary Subject: BI, IN
Interest Level: MS, HS, CO
Location: R - Regency 1
Instructors can more efficiently use their time if they could read and grade faster. This hands-on presentation with handouts teaches Evelyn Wood speed-reading techniques and ways to grade faster.

SCECH’s Session
Using Authentic Environmental Research to Engage High School Biology Students
Lauri Davis, Houghton High School
Primary Subject: BI, EN
Interest Level: MS, HS
Location: LC - 204
Learn how you can engage your students in real-world, authentic environmental research. All you need is a few simple supplies, an outdoor area, and some students! Informational handouts provided.

SCECH’s Session
Using Particle Diagrams to Increase Student Learning in Chemistry
Michelle Tindall, Birmingham Public Schools
Primary Subject: CH, IN
Interest Level: HS
Location: R - Capital 2
Drawing particle diagrams can be used in chemistry classes to promote discussions, explain laboratory observations, and assess student understanding. Examples of these particle diagram activities using whiteboards will be discussed.
Saturday, March 5, 2016  
Continued - 2:00 p.m. - 2:45 p.m. – Sessions

**MCSS Strand**  
What Does This Graphic Say? Learning From Graphs or Maps  
Phil 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.