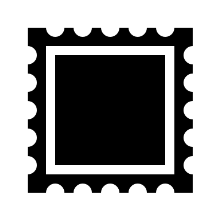
Transitioning to **3D** learning:

Connecting the vision of the K-12 Science Framework to TN Science Standards

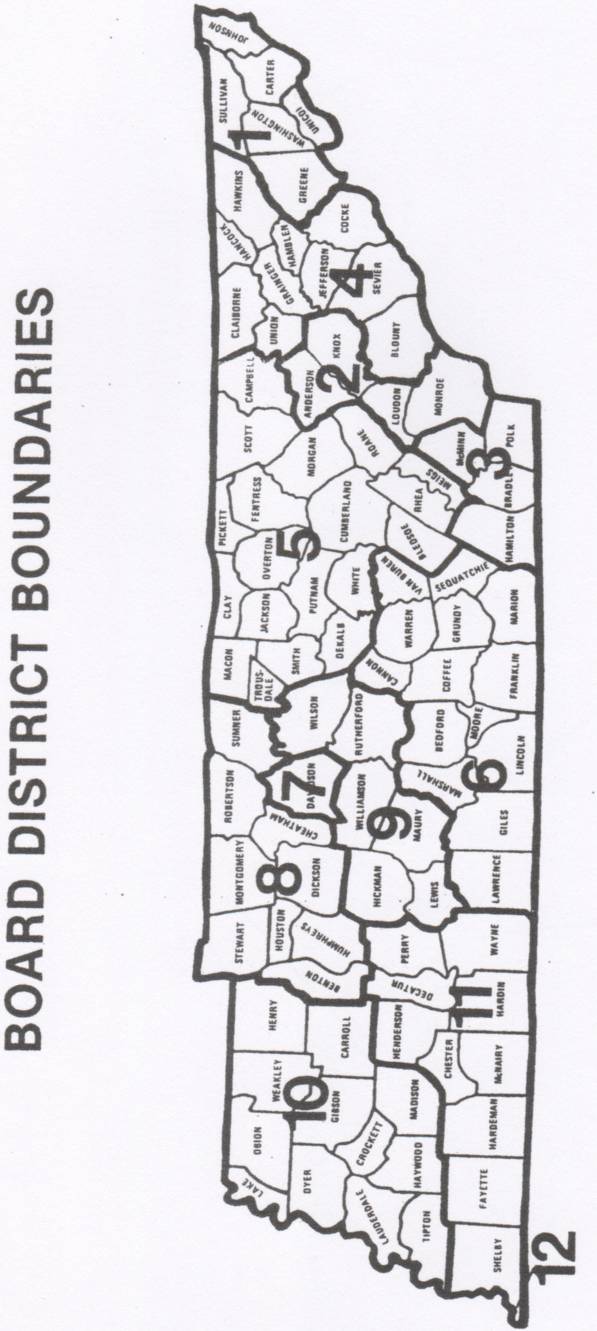
TN Science Teachers Association

Annual Professional Development Institute

November 8-10, 2017

Murfreesboro, TN

****

****

**TSTA EXECUTIVE BOARD**

**President**: [Linda Jordan](mailto:jordan.linda1212@gmail.com)

**President-Elect**: Jennifer Dye

**Past President**: [Gale Stanley](mailto:gale.stanley@ccpstn.net)

**Secretary**: [Josh Monroe](mailto:joshmonroe4501@gmail.com)

**Treasurer**: [Dr. Barry Farris](mailto:dr.barry.farris@gmail.com)

**Parliamentarian**: [Dr. Elaine Huffines](mailto:huffines@cafes.net)

**Representatives** **District Number: Counties**

[Gant Patteson](mailto:gantpatteson@gmail.com), [Courtney](mailto:carpentp@comcast.net) Leifert **1:** Carter, Greene, Johnson, Sullivan, Unicoi, Washington

[Andrea Berry](mailto:andrea.allen@knoxschools.org), [Michael Knapp](mailto:Knapp-Michael.knapp@knoxschools.org) **2:** Anderson, Knox, Loudon, Monroe

[Elaine Colson](mailto:tnladyfree@yahoo.com), [Jeannie Cuervo](mailto:jcuervo@clevelandschools.org) **3:** Bradley, Hamilton, McMinn, Polk

[Patti Stinger-Barnes](mailto:pstinger@utk.edu), [Donette McNabb](mailto:dmcnabb@hcboe.net) **4:** Blount, Claiborne, Cocke, Grainger, Hamblen, Hancock

Hawkins, Jefferson, Sevier, Union

[Kelly Moore](mailto:kellymoore@tntech.edu), [Leslie](mailto:swendt@tntech.edu) Suiters **5:** Bledsoe, Campbell, Clay, Cumberland, DeKalb, Fentress

Jackson, Macon, Meigs, Morgan, Overton, Pickett, Putnam

Rhea, Roane, Scott, Smith, Trousdale, White

[Mary Hickerson](mailto:mhickerson@k12marshalltn.net), [Jennifer Pollock](http://www.tsta.wildapricot.org/jennifer.pollock@tcsedu.net.) **6:** Bedford, Cannon, Coffee, Franklin, Giles, Grundy

Lawrence, Lincoln, Marion, Marshall, Moore, Sequatchie

Van Buren, Warren

[Dr. Andrea](mailto:jennifer.berry@mnps.org) W. Henrie, [Jamie Phifer Schimenti](mailto:jamie.phifer@mnps.org) **7**: Davidson

[Sue McPherson](mailto:suemcpilot@yahoo.com), [Betty Phillips](mailto:ScienceNana@aol.com) **8:** Benton, Cheatham, Dickson, Houston, Humphreys

Montgomery, Robertson, Stewart, Sumner

[Margie Hawkins](mailto:margiehawkinsstem@gmail.com), [Ashley Popovich](mailto:popovicha@rcschools.net) **9:** Hickman, Lewis, Maury, Rutherford, Williamson, Wilson

[Sheila](mailto:lummusr@yahoo.com) Lowrance, [Molly Vann](mailto:Vannmollie@gmail.com) **10:** Carroll, Crockett, Dyer, Gibson, Haywood, Henry, Lake

Lauderdale, Madison, Obion, Tipton, Weakley

[Charlotte Frazier-Cantkier](mailto:cacantkier72@gmail.com), [Dr. Marjorie Rothschild](mailto:doctormags@yahoo.com) **11**: Chester, Decatur, Fayette, Hardeman, Hardin, Henderson

McNairy, Perry, Shelby, Wayne

[Dedric McGhee](mailto:mcgheed@gmail.com), [La Toya Pugh](mailto:PUGHLN@scsk12.org) **12:** Memphis City Schools

**Liaisons**

American Chemical Society - Local chapters [Dr. Al Hazari](mailto:ahazari@utk.edu)

NSTA District Director Cindi Smith-Walters

Tennessee Scholars [Ruth Woodall](mailto:ruth.woodall@gmail.com)

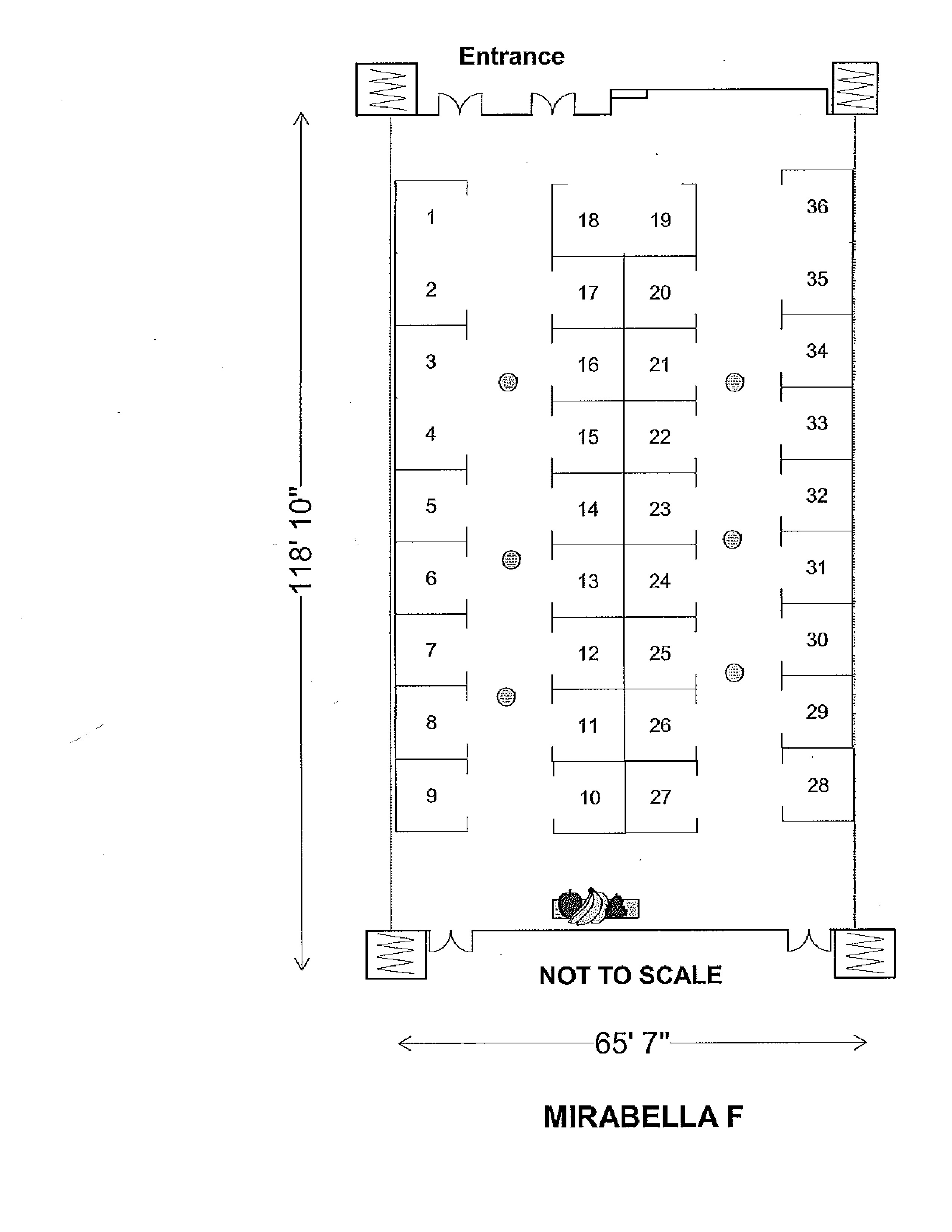
TnSELA [Bonnie](mailto:jennifer.dye@jp2hs.org) Principle

BCTSE Scott Eddins

TDOE Ex-official Brian Caine

TN Science Standards [Sally Pardue](mailto:SPardue@tntech.edu)

TN Academy of the Sciences (TAS) [Preston McDougal](mailto:preston.macdougall@mtsu.edu)



**Booth**

**Organization**

**2**

**1-**

**McGraw Hill**

3

Nashville American

Chemical Society

4-5

Stem Scopes TN

6

TN Science Olympiad

7

Booksource Publishing

8

Forestry Supply Inc

9

LearnED Notebooks

**10-11**

**Houghton Mifflin**

**Harcourt**

12

Vernier

13

EMC School Publishing

14

Great Smokey Mountains

Institute at Tremont

15

Goodheart Wilcox

Publishing

16

Flinn Scientific

17

NSTA

**18-19**

**PASCO**

20

Learning A-Z

21

Biology in a Box

22

Microscopes and More

23

ORAU

24-25

Frey Scientific CPO

Science

26

USM Marine Education

Center

27

Wards Scientific

**28-29**

**Discovery Education**

30

Bedford Freeman and

Worth Publishing

31

Central Tech Inc

32-33

National Geographic

Learning/Cengage

34

Bio Rad Laboratories

**35-36**

**Pearson**

Mirabella F

**BOLD**

INDICATES SPONSORS

**Thank You to our Sponsors of the 2017 TSTA Conference**

[[PLATINUM SPONSORS](http://www.pasco.com/)](http://www.pasco.com/" \t "_blank)

[](http://www.pasco.com/)

**GOLD SPONSORS**

[](http://mheducation.com/)

**[](http://www.ngl.cengage.com/)**C:\Users\Administrator\AppData\Local\Microsoft\Windows\INetCache\Content.Word\de-logo.png

**Transitioning to 3D Learning: Connecting the Vision of the K-12**

**Science Framework to TN Science Standards**

**TSTA Professional Development Conference**

**November 8-10, 2017**

**Embassy Suites, Murfreesboro**

**Schedule of Activities**

*Please note that your badge is required for admittance to all TSTA functions****.***

**Thursday, November 8, 2017**

Special Workshop Sessions (Pre-Registration required) 8:00 a.m. – 4:30 p.m.

Registration 8:00 a.m. – 7:30 p.m.

Opening Session 5:00 p.m. – 6:00 p.m.

Keynote by TDOE Commissioner McQueen

Exhibits Open Mirabella F (Badge required for admission) 6:00 p.m. – 8:00 p.m.

Reception Mirabella F (Badge required for admission) 6:00 p.m. – 8:00 p.m.

Friday, November 9, 2017

**Registration and Balloting 7:30 a.m. – 5:00 p.m**.

(*Please take time to vote. Ballots are located near the registration booth.)*

Morning Concurrent Sessions 8:00 a.m. – 11:00 a.m.

Exhibits Open 8:30 a.m. – 6:00 p.m.

(Exhibits will be closed during lunch: 11:15 a.m. – 12:45 p.m.)

General Session/Luncheon (Mirabella E) 11:15 a.m. – 12:45 p.m.

Keynote Address by Brian Caine

Awards Ceremony

There is no additional charge for luncheon for paid registrants

Afternoon Concurrent Sessions 1:00 p.m. – 5:00 p.m.

There will be a morning and afternoon Refreshment Break provided for participants on Friday.

**Saturday, November 10, 2017**

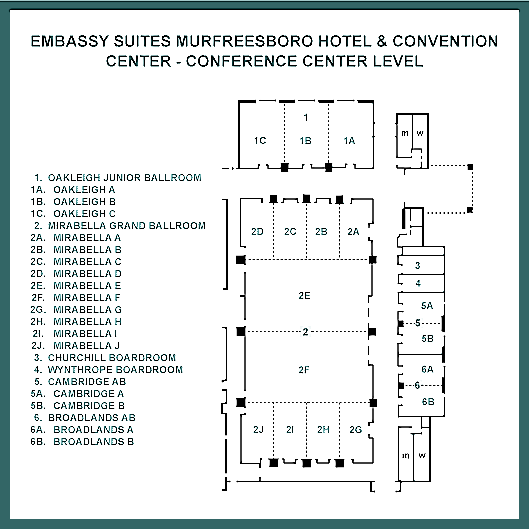
Registration and Balloting 7:00 a.m. – 9:00 a.m.

Concurrent Sessions 7:45 a.m. – 11:15 a.m.

Oakleigh C, Closing Session 11:30 a.m. – 12:30 p.m.

Do not miss this opportunity to close out the conference on a high note. Door Prizes given!!!!

**CONFERENCE CENTER FLOORPLAN**



**THURSDAY PRECONFERENCE SESSIONS**

|  |  |  |
| --- | --- | --- |
| BROADLANDS A | | |
| **1P** | **Dr. Ellen Granger** | 9:00-12:00 |
| 3D teaching by Constructing Scientific Explanations in the Classroom | | |

|  |  |  |
| --- | --- | --- |
| BROADLANDS A | | |
| **2P** | **Joyce Tugel [McGraw Hill]** | 1:30-4:30 |
| Uncovering Student Thinking in Science through Formative assessment | | |

|  |  |  |
| --- | --- | --- |
| BROADLANDS B | | |
| **4P** | **Andrea Berry** | 1:30-4:30 |
| Picture Perfect Science: Using Children’s Books to Guide Inquiry | | |

|  |  |  |
| --- | --- | --- |
| CAMBRIDGE A | | |
| **5P** | **Tamika Stubbs [Bio-Rad]** | 8:00-12:00 |
| It takes a Village to Correct and Conserve: Exploring the Tactics and Technologies to Conserve the Giant Panda Population | | |

|  |  |  |
| --- | --- | --- |
| CAMBRIDGE A | | |
| **6P** | **Jennie McGoogan, John Didiego** | 1:30-4:30 |
| Understanding by Design as a Tool for Achieving Understanding | | |

|  |  |  |
| --- | --- | --- |
| CAMBRIDGE B | | |
| **7P** | **Alisha Newton, Nancy Dorman** | 9:00-12:00 |
| Environmental Topics in Science: Activity Workshop | | |

|  |  |  |
| --- | --- | --- |
| CAMBRIDGE B | | |
| **8P** | **Bonnie Principle** | 2:00-4:00 |
| TnSELA Annual Meeting | | |

Preconference sessions

|  |  |  |
| --- | --- | --- |
| MIRABELLA A | | |
| **9P** | **Jen Gitierrez [NSTA]** | 9:00-12:00 |
| Picture-Perfect Science: Using Children’s Literature to Inspire STEM Learning | | |

|  |  |  |
| --- | --- | --- |
| MIRABELLA A | | |
| **10P** | **Damon Smerchek, Margo Dye [HMH]** | 1:30-4:30 |
| Engaging Learners in 3-Dimensional and Effective STEM Learning with Virtual Field Fields, Amazing Design Labs, and Video-Based Projects | | |

**TSTA Conference Organization**

Exhibits and sponsors: Gant Patteson

Registration: Dr. Barry Farris

Awards: Kelly Ramey

Program: Dr. Marjorie Rothschild

Program App: Charlotte Cantkier, Gant Patteson

Webmaster: Sharon Mendonsa

**Conference Sessions Information**

**Type of Presentation Friday Sessions Times**

D Demonstration Session 1 8:00-9:00

H Hands-on Session 2 9:30-10:30

L Lecture Session 3 1:00-2:00

P Panel Session 4 2:30-3:30

Session 5 4:00-5:00

**STRANDS**

Implementing 3Dimensional Learning **Saturday Sessions Time\_\_\_\_\_\_\_\_\_\_\_\_\_**

Integrating Literacy, Science & Math Session 6 7:450-8:45

Building on Science for Effective STEM Learning Session 7 9:00-10:00

Session 8 10:15-11:

Session 1 pages

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 1 | **Session 1** | **OAKLEIGH A [HMH}** | | **H** |
| **Strand(s): Building on Science** | | | **Level: K-8** | |
| Damon Smerchek [HMH] | | | | |
| **Amazing Video-Based Projects for Grades 3-8** | | | | |
| Participants will go through a design process that is introduced in a video-based project to see who can build the tallest structure. There will be no shortage of thinking in this challenging, hands-on, STEM based workshop! | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 6 | **Session 1** | **OAKLEIGH B** | | **D, H** |
| **Strand(s): Building on Science** | | | **Level: K-12** | |
| Margie Hawkins | | | | |
| **How to Borrow Robots to Teach Standards-Based Curriculum** | | | | |
| Learn about a robot loan program that lends up to 40 robots to schools for up to 8 weeks. Learn how to use robots to teach standards-based curriculum. Hands on demonstration. | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 11 | **Session 1** | **OAKLEIGH C** | | **H, L** |
| **Strand(s): Building on Science** | | | **Level: 6-8** | |
| Liz Malugen [ EVERFI] | | | | |
| **EVERFI – Make STEM Concepts Accessible & Exciting Through Digital [FREE] Resources** | | | | |
| EVERFI digital resources utilize simulation-based activities and assessments to engage students with STEM concepts in an exciting and fresh way. EVERFI partners with forward-leaning organizations to provide interactive, scenario-based, self-assessing resources at **no cost**. In Future Goas – hockey Scholar (sponsored by the Nashville Preds), each lesson enables students to explore real-life applications of fundamental STEM concept through the fast-paced game of hockey. Designed to peak interest in STEM careers, Endeavor helps students explore fields such as mechanical engineering, digital product designer, and graphic design. You’ll walk away from the session with an EVERFI teacher account, offline supplemental materials, standards-alignment guides, and access to two exciting digital learning resources. Come learn more. | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 16 | **Session 1** | **CAMBRIDGE A [McGRAW HILL]** | | **D, H** |
| **Strand(s):** | | | **Level: 6-8** | |
| McGraw Hill Curriculum Specialists | | | | |
| **Workshop on the New TN Science Standards, “3D in Tennessee”** | | | | |
| **Description** | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 21 | **Session 1** | **CAMBRIDGE B** | | **H** |
| **Strand(s): Integrating LS&M** | | | **Level: K-12** | |
| Emily Stein [Great Smokey Mtn Institute] | | | | |
| **Speaking of Science: Using Language to Encourage Inquiry and Discussion** | | | | |
| The language we use to teach science greatly influences not only a student’s understanding, but also their learning process. In this session, we will explore questioning and discussion strategies for inquiry-based learning through an investigation of our own. | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 26 | **Session 1** | **BROADLANDS A [PEARSON]** | | **Type** |
| **Strand(s): 3-D Learning, Building on Science** | | | **Level: 6-12** | |
| Scott Skene, Jackie Orgain | | | | |
| **DCI, SEP CCC and Tennessee** | | | | |
| As we approach a new era in Tennessee Science educational instruction, this workshop will help Tennessee Middle and High School teachers understand how the Disciplinary Core Ideas, Science and Engineering Practices and Crosscutting Concepts all work together at the same time to drive classroom instruction and deepen student understanding. Each of these areas (DCI, SEP and CCC) will be looked at individually and then pulled together to show how all three work simultaneously to allow three-dimensional learning to occur in the Science classroom. | | | | |

Session 1 pages

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 31 | **Session 1** | **BROADLANDS B** | | **H** |
| **Strand(s): Building on Science** | | | **Level: K-12, Supervision** | |
| Rhys Lutsky [STEMscopes] | | | | |
| **Science Teacher/ STEM Teacher; What’s the Difference?** | | | | |
| Distinguishing between science and STEM is important as teachers integrate STEM in their practice. Join us to discuss the unique nature of STEM, the research-based instructional strategies necessary to support its outcomes, and a STEM certification pathway that encourages self-reflection and growth in STEM teaching. | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 36 | **Session 1** | **MIRABELLA A [PASCO]** | | **H** |
| **Strand(s): Building on Science, Integrating LS&M** | | | **Level: 9-12** | |
| Bruce Davison | | | | |
| **Wireless Sensors for High School** | | | | |
| PASCO Wireless Sensors represent the next leap forward in probeware technology. Powerful, yet easy to use, these affordable sensors provide opportunities that transfer students into science investigators and problem solvers. | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 41 | **Session 1** | **MIRABELLA B** | | **D, H** |
| **Strand(s): 3-D Learning, Building on Science** | | | **Level: 6-12** | |
| Faunne Brown | | | | |
| **CPO’s Link Chemistry Models Learning Module: Fun with Atom Building Games and the Periodic Table** | | | | |
| CPO’s Link Chemistry Models module is a STEM and NGSS based approach that lets students experience innovative activities to learn atomic structure and the periodic table. We’ll use an inquiry-based learning environment with hands-on equipment to study bonding, isotopes, sub-atomic particles, ions, balancing equations, energy levels, and periodicity. | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 46 | **Session 1** | **MIRABELLA C [DISCOVERY ED]** | | **H** |
| **Strand(s): 3-D Learning** | | | **Level: K-12** | |
| Brad Fountain | | | | |
| **Using Phenomena to Engage Students in Science** | | | | |
| What are Phenomena and what makes it engaging? By centering science education on phenomena that students are motivated to explain, the focus of learning shifts from learning about a topic to figuring out why or how something happens and connects that learning to the natural world. Explore examples phenomena based lessons as we share resources to get you started on building your own phenomena based science lessons. | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 51 | **Session 1** | **MIRABELLA D [TSTA CADRE]** | | **L** |
| **Strand(s): Integrating LS&M** | | | **Level: K-5** | |
| Kristin Rearden | | | | |
| **Using the Stories of Scientists to Bring Science to Life** | | | | |
| Biographies and accounts of scientists’ endeavors provide concrete examples of scientific and engineering practices in action, expose readers to core disciplinary ideas, and demonstrate the power of making connections across contexts. In this session, participants will engage with exemplary books, and brainstorm strategies for utilizing the stories of scientists and their research to support both science and ELA standards. | | | | |

Session 1 pages

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 56 | **Session 1** | **MIRABELLA G** | | **D** |
| **Strand(s): Building on Science** | | | **Level: K-12** | |
| Monica Farmer, Alysee Daniels [Boxlight/Mimio] | | | | |
| **How to Get Hands-On with STEM: Have STEM. Will Travel. Create Inquiry-Based STEM Learning Anywhere** | | | | |
| Students learn most effectively when teaching reflects the real world. Using science to solve everyday challenges helps students gain a deeper understanding. With the Labdisc portable lab, it’s easy to incorporate inquiry-based science in daily learning. The Labdisc portable lab opens the door to inquiry-based learning in a variety of science fields, including biology, chemistry, physics, environmental science, and geography. There’s a wireless, compact Labdisc data logger for every science domain, with up to 15 built-in sensors, and it fits in the palm of a student’s hand. | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 61 | **Session 1** | **MIRABELLA H** | | **H** |
| **Strand(s): Integrating LS&M, Building on Science** | | | **Level: K-5** | |
| Lorrie Graves, Melissa Walker | | | | |
| **Come on, Baby, Let’s Do the Twist 3D learning Style** | | | | |
| This session will allow participants to leave with a chubby set of ideas for integrating science, literacy, and math. The session will feature literacy, math, and S.T.E.M. resources to help you dance your way through the new science framework! | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 66 | **Session 1** | **MIRABELLA I [TEAMS]** | | **H** |
| **Strand(s): 3-D Learning** | | | **Level: 6-8** | |
| Mary Margaret Ulderich | | | | |
| **Water ….. Good to the Last Drop** | | | | |
| Hands-on activities and lesson plans galore!! Why is water important? Discover new activities to teach ocean currents, tides, sea floor spreading, beach erosion, and water conservation. Take home lesson plans ready to use in your classroom. Door prizes! | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 101 | **Session 1** | **MIRABELLA J** | | **D, H** |
| **Strand(s): Building on Science, 3-D Learning** | | | **Level: K-5** | |
| Andrea Berry, Katie Nash | | | | |
| **Elementary Engineering made Easy and Engaging** | | | | |
| Engineering is fun and engaging and in our state science standards. Join us as we explore exciting STEM lessons to engage science and engineering practices in an easy engaging way. We will use the engineering and design process to dive into solving problems systematically and have lots of fun! If you are a beginner to advanced engineering teacher there will be new lessons for you to use in your classroom next week. | | | | |

Session 2 pages

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 2 | **Session 2** | **OAKLEIGH A [HMH}** | | **H** |
| **Strand(s):** **3-D Learning, Building on Science** | | | **Level: 6-8** | |
| Michael DeSpezio | | | | |
| **Pedagogy and Process for 21st Century 3D Science Classroom** | | | | |
| Join Michael for a lively and informative workshop in which you will learn about the changes and challenges to implementing a 3D approach to science as you participate in an assortment of motivating activities. | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 7 | **Session 2** | **OAKLEIGH B** | | **D, L** |
| **Strand(s): Building on Science** | | | **Level: K-12** | |
| John W. Overcash | | | | |
| **The UT Martin STEM Center: What We Do and What We’ve Learned** | | | | |
| The STEM Center for Teaching and Learning is part of a five year, $3.3 million U.S. Department of Education Teacher Quality Partnership grant to the University of Tennessee at Martin. The center designs and delivers professional development workshops for K-12 mathematics and science teachers, provides loans of teaching equipment for classroom use, and emphasizes the importance of STEM education through visits to schools and civic organizations. This talk will discuss the goals of the center, exhibit equipment available for loan, share sample lessons from the workshops, and share lessons learned from two years during which the center led more than fifty workshops. | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 12 | **Session 2** | **OAKLEIGH C** | | **D** |
| **Strand(s): Integrating LS&M** | | | **Level: 6-12** | |
| Amy Harris, Janice Brown | | | | |
| **Secondary Considerations: The IRIS Center’s Online Resources for High School Educators** | | | | |
| Headquartered at Vanderbilt University’s celebrated Peabody College, the IRIS Center creates online learning resources on a wide variety of topics important to educators in today’s classrooms. Join us for an exploration and discussion of our IRIS Modules on secondary reading instruction in the content areas, Universal Design for Learning (UDL), differentiated instruction, accommodations, assistive technology, and classroom behavior management. Note: To get the most out of this session, those taking part should bring along their phones, tablets, laptops, or other online-enabled devices. | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 17 | **Session 2** | **CAMBRIDGE A [McGRAW HILL]** | | **D, H** |
| **Strand(s): Integrating LS&M** | | | **Level: 6-8** | |
| Joyce Tugel | | | | |
| **Formative Assessment for Middle School** | | | | |
| Join us as we learn how to use formative assessment to uncover and analyze student thinking about key science concepts; practice formative assessment strategies that inform teaching and deepen students’ understanding of science content; and apply techniques that integrate assessment with the NGSS Science and Engineering Practices and CCSS Literacy Capacities. | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 22 | **Session 2** | **CAMBRIDGE B** | | **D, H** |
| **Strand(s): ALL** | | | **Level: K-12** | |
| Jennie McGuigan [Great Smokey Mtn Institute] | | | | |
| **Designing Authentic Schoolyard Investigations that Assess for Understanding: Create meaningful, student driven investigations in the schoolyard using UbD backwards design unit planning approach**. | | | | |
| In this session participants will practice creating meaningful, student-driven science investigations designed for the schoolyard by using the UbD educational planning approach (Understanding by Design). With this example of backwards design, educators focus first on outcomes in order to design curriculum units, perform assessments and classroom instruction methods with student understanding as an embedded part of the design process. With this practice, participants will have the opportunity to workshop some of their own lessons, practice a few easy hands-on learning routines that can be used across the curriculum, take home guiding materials and have some productive discussions with other educators about ways they can apply this learning to their classroom. | | | | |

Session 2 pages

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 27 | **Session 2** | **BROADLANDS A [PEARSON]** | | **D, L** |
| **Strand(s): 3-D Learning, Building on Science** | | | **Level: 6-8** | |
| Scott Skene, Jackie Orgain | | | | |
| **Formative Assessment and Personalized Learning in the AP, Honors and Electives Science Classroom** | | | | |
| By the end of this session, AP, Honors and Electives Science teachers will be able to demonstrate a deeper understanding of: 1) How they can seamlessly incorporate real-time formative assessment into their daily teaching, whether as an exit ticket to end class, or throughout the class to gauge student understanding on important skills or concepts. 2) How research based personalized learning can be built into every AP, Honors or Electives Science homework assignment for students who struggle with identified concepts or objectives. In this session teachers will be introduced to Pearson’s Learning Catalytics and will learn about Pearson’s Knewton Adaptive Learning. | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 32 | **Session 2** | **BROADLANDS B** | | **H** |
| **Strand(s): Integrating LS&M** | | | **Level: 3-12** | |
| Rhys Lutsky [STEMscopes] | | | | |
| **Claim-Evidence-Reasoning: Writing Scientific about Phenomenon** | | | | |
| CER is a way for students to explain observed phenomenon in a scientific way and how observations and data from an investigation are connected to science knowledge. This acclaimed and highly successful instructional strategy is changing how lab instructions are conducted and making science investigations meaningful for students. ELD strategies will be shared and modeled for an equitable learning environment. | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 37 | **Session 2** | **MIRABELLA A [PASCO]** | | **Type** |
| **Strand(s): Building on Science, Integrating LS&M** | | | **Level: 9-12** | |
| Dr. Tom Hsu | | | | |
| **Essential Physics** | | | | |
| The complete classroom solution that includes a print and digital textbook, plus world class lab equipment all in the same program. | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 42 | **Session 2** | **MIRABELLA B** | | **D, H** |
| **Strand(s): 3-D Learning, Building on Science** | | | **Level: 6-12** | |
| Faunne Brown | | | | |
| **Genetics: Crazy Traits and CPO’s Link Learning Module** | | | | |
| CPO’s Crazy Traits Link learning module uses STEM and NGSS strategies in a real-time tablet based learning environment to learn genetics. Concepts like traits, alleles, phenotypes, genotypes, and heredity will come alive as you create crazy creatures with a unique kit and study probability, adaptation, dominance, and recession... | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 47 | **Session 2** | **MIRABELLA C [DISCOVERY ED]** | | **H** |
| **Strand(s): 3-D Learning** | | | **Level: K-12** | |
| Brad Fountain | | | | |
| **Argue This!** | | | | |
| The work of Scientists comprises planning and carrying out investigations, collaborating with other scientists, and communicating results through peer reviewed articles. Scientific argumentation and even argument driven inquiry mimic the work of scientists and provides an additional level of rigor and relevance in addressing the Science & Engineering Practices with our students. Practically speaking, how do we add these components to our Science classrooms? Come explore some methodologies for adding Claim-Evidence-Reasoning and Scientific Argumentation! | | | | |

Session 2 pages

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 52 | **Session 2** | **MIRABELLA D [TSTA CADRE]** | | **H** |
| **Strand(s): 3-D Learning** | | | **Level: 6-12** | |
| Kelly Moore, Leslie Suters | | | | |
| **3-D Learning with Phenomena, Questions and Models** | | | | |
| Learn how to implement 3-D learning using phenomena to anchor your lessons. What is a phenomenon? How is it different from a “hook” or attention getter? We will answer these questions and work through an example phenomenon-based lesson with you! Questioning, modeling, and the 3 dimensions will also be discussed and demonstrated. | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 57 | **Session 2** | **MIRABELLA G** | | **H** |
| **Strand(s): Integrating LS&M** | | | **Level: K-12** | |
| Alysee Daniels, Monica Farmer [Boxlight/Mimio] | | | | |
| **Interactive Content Make-Over: Literacy, Math & Science** | | | | |
| Make Your Existing Literacy, Science and Math content new again. Learn how to bring your literacy, science, and math content to life. | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 62 | **Session 2** | **MIRABELLA H** | | **D** |
| **Strand(s): 3-D Learning, Building on Science** | | | **Level: 3-8** | |
| Perriman Fidan, Dr. Stephanie Wendt | | | | |
| **3-D Printer Pens for the Elementary & Middle School Classroom** | | | | |
| Developing and using models is identified as an important NGSS science and engineering practice. In this session, the presenters will demonstrate how 3D pens can be used in 3rd-8th grade classrooms. Participants will receive ideas on how to turn their current science lessons into STEAM lessons by incorporating 3-D pen technology! Participants will be given an opportunity to use the 3D pens during this session and have time to discuss with one another their ideas for incorporating the pens into their current lessons. | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 67 | **Session 2** | **MIRABELLA I [TEAMS]** | | **H** |
| **Strand(s): Integrating LS&M** | | | **Level: 3-8** | |
| Leeann Wampler, Beth Dycus | | | | |
| **(TEAMS) Teaming Up to Tackle the New Science Standards Integrating Common core Math and ELA** | | | | |
| Team up with Tennessee Educators of Aquatic and Marine Science (TEAMS) teachers for a day of sifting through the new TN Science Standards. Participates will receive interactive activities and lessons ready to use in their classroom that integrate literacy, science and math. | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 102 | **Session 2** | **MIRABELLA J** | | **L** |
| **Strand(s):** | | | **Level: K-5** | |
| Andrea Henrie, Sarah Button, Sophia Krysa | | | | |
| **Using Anchoring Events to Ambitiously Teach Science** | | | | |
| The new standards and the Framework for K12 science require teachers of science to have students explore and explain the natural world using the 3 dimensions: scientific practices, disciplinary core ideas, and crosscutting concepts. This session will share how pre-service teachers planned for 3D learning by anchoring science instruction around an anchoring event. | | | | |

Session 3 pages

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 3 | **SESSION 3** | **OAKLEIGH A [HMH}** | | **H** |
| **Strand(s): 3-D Learning** | | | **Level: K-12** | |
| Margo Dye [HMH] | | | | |
| **Engage All Learners with HMH Virtual field Trips, powered by Google Expeditions** | | | | |
| Come explore Natural Bridge Caverns, The Great Barrier Reef and Engineering in the Everglades with HMH Field Trips powered by Google Expeditions! You’ll participate in this classroom experience that takes full advantage of Google’s VR technology and HMH’s instructional support, allowing teachers to take students on virtual trips to interesting locations that they would not normally be able to visit. Enhance learning…Engage students…Experience science! | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 8 | **Session 3** | **OAKLEIGH B** | | **H, L** |
| **Strand(s): Building on Science** | | | **Level: K-12** | |
| Dr. Scott Eddins, Nikolas McGehee | | | | |
| **Mobile STEM Learning in Rural Tennessee: the TTU STEMmobile** | | | | |
| Rural areas often lack access to high quality STEM instructional materials and curricula, so what can be done to help alleviate this barrier that prevents some of our brightest minds in rural areas from getting access to exciting learning opportunities they need to succeed in our ever-changing STEM-based world? Learn about the STEMmobile: a mobile laboratory program that serves the Upper Cumberland area of TN in order to provide students with rich, hands-on, STEM learning experiences they would otherwise not have access to. | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 13 | **Session 3** | **OAKLEIGH C** | | **D, L** |
| **Strand(s): ALL** | | | **Level: 3-12** | |
| Rachel Miller [LearnEd Notebooks] | | | | |
| **Science Notebooking: Finding What Works** | | | | |
| Notebooking in the science classroom can be a valuable tool for both you and your students. You can easily differentiate lessons and promote student organization with interactive notebooks, but even a good notebooking system presents certain challenges. Learn how to overcome these obstacles with a truly unique solution from LearnEd Notebooks. We offer programs for 5th-8th grade science and biology that seek to engage every science learner while simplifying instructional methods for teachers. Join us for many free resources, lesson plans, and class set giveaways! | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 18 | **Session 3** | **CAMBRIDGE A [McGRAW HILL]** | | **D, H** |
| **Strand(s):** | | | **Level: 6-8** | |
| McGraw Hill Curriculum Specialists | | | | |
| **Workshop on the New TN Science Standards, “3D in Tennessee”** | | | | |
| Learn ways to teach using the new standards. | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 23 | **Session 3** | **CAMBRIDGE B** | | **He** |
| **Strand(s): 3-D Learning** | | | **Level: 6-12, HigherED** | |
| Tamica Stubbs [BioRad] | | | | |
| **1 Class period + 1 Model System + 2 Cellular Processes = Success 4 Students** | | | | |
| Come and discover how to utilize encapsulated algae as ecological models to spark unique inquiry based investigations in your classrooms as students explore the beneficially cyclic relationships between photosynthesis and cellular respiration. They only need one CO2 tracking colorimetric solution & one class period to bring two cellular processes alive! | | | | |

Session 3 pages

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 28 | **Session 3** | **BROADLANDS A [PEARSON]** | | **D, L** |
| **Strand(s): 3-D Learning, Building on Science** | | | **Level: 9-12** | |
| Scott Skene, Jackie Orgain | | | | |
| **UnBEElievable** | | | | |
| Biology teachers will participate in a real-world case study where they will investigate and learn about Colony Collapse Disorder with bees. Teachers will group together and simulate a bee colony that is being forced to meet many of today’s challenges (increasing usage of pesticides, fungicides and growing numbers of parasites). Participants will learn why large numbers of bees choose to leave the hive and never return. Finally, teachers will learn about global impacts of declining bee colonies on agriculture, environments and world economies. | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 33 | **Session 3** | **BROADLANDS B** | | **H** |
| **Strand(s): 3-D Learning** | | | **Level: 3-8** | |
| Rhys Lutsky [STEMscopes] | | | | |
| **Demystifying STEM – Earthquake Proof Towers and Engineering Design** | | | | |
| While investigating the phenomenon of Waves we will use three models to design and build earthquake proof towers that can withstand the devastating horizontal S waves. Through this hands-on investigation, using models, simulations, and tower engineering we will demystify the 3D NGSS Standards for Waves, the practices of engineering design, and how best to teach them through STEM. | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 38 | **Session 3** | **MIRABELLA A [PASCO]** | | **H** |
| **Strand(s): Building on Science, Integrating LS&M** | | | **Level: 9-12** | |
| Dr. Tom Hsu | | | | |
| **Essential Physics: The Fully Integrated Equipment and Curriculum in One Package** | | | | |
| The complete classroom solution that includes a print and digital textbook, plus world class lab equipment all in the same program. | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 43 | **Session 3** | **MIRABELLA B [TSTA CADRE]** | | **H, L** |
| **Strand(s): 3-D Learning** | | | **Level: K-12** | |
| Jeffrey Cicero | | | | |
| **Using Phenomenon to Guide 3-Dimensional Learning** | | | | |
| A cornerstone of the K-12 Science Framework is the recognition that students are born investigators. In this session, participants will experience a sample of a five-day investigation that seeks to explain a phenomenon and engage students by challenging existing mental models. Phenomena, Questions, and Models will be interwoven throughout the investigation. Techniques for purposeful reading, meaningful writing, and productive dialogue will also be explored. | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 48 | **Session 3** | **MIRABELLA C [DISCOVERY ED]** | | **H** |
| **Strand(s): 3-D Learning** | | | **Level: 3-12, Supervision** | |
| Sara Harville | | | | |
| **Exploring the Depths if Inquiry** | | | | |
| Come explore different levels of inquiry through both hands-on and virtual lab activities, and learn strategies for moving students towards open inquiry experiences. | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 53 | **Session 3** | **MIRABELLA D [TSTA CADRE]** | | **L** |
| **Strand(s): 3-D Learning** | | | **Level: 6-8** | |
| Andy Hebert | | | | |
| **Inside the New Middle School Science Standards** | | | | |
| Come explore the instructional shifts behind our new middle school science standards. Obtain a deeper understanding of our new middle school standards by examining rationale and cross cutting concepts, while unpacking big ideas into multiple learning outcomes. Implement new science and engineering practices with our middle school content to develop your curriculum. | | | | |

Session 3 pages

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 58 | **Session 3** | **MIRABELLA G** | | **H, L** |
| **Strand(s): Building on Science** | | | **Level: 9-12** | |
| Jonathon Ownby, Kevin Nolten [Cyber Innovation Center] | | | | |
| **Exploring the Engineering Design Process to Engage Students in STEM** | | | | |
| The next generation learners thrive in environments where teachers use project-driven, hands-on resources to drive engagement in the classroom. During this session, participants will be empowered to integrate 21st century learning resources into the classroom through a cyber-context by blending robotics, programming, electricity, and elements of liberal arts. | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 83 | **Session 3** | **MIRABELLA H** | | **L, P** |
| **Strand(s): Integrating LS&M** | | | **Level: 6-8** | |
| Shelli Henry | | | | |
| **Current Event Data Analysis in the Middle School Science Classroom** | | | | |
| Come discover how one teacher integrates current events, science literacy and data analysis into the classroom every day. Group discussion and brainstorming of ideas will be encouraged. If you need a fresh idea for your curriculum, this is the session for you! | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 68 | **Session 3** | **MIRABELLA I [TEAMS]** | | **H** |
| **Strand(s): Integrating LS&M** | | | **Level: 6-8** | |
| Leeann Wampler | | | | |
| **Writing through Science Content** | | | | |
| An easy productive way to integrate the informational writing process into your science classroom. This approach to writing through science content will make an easy transition for your students to answering constructive response questions for science. This session will guide you through a simple process to teach grades 3-8 to RACE, restate, answer, cite and explain answers to questions. | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 103 | **Session 3** | **MIRABELLA J** | | **D** |
| **Strand(s): 3-D Learning** | | | **Level: 6-8** | |
| Presenter(s): Nicole King, Karen Burke [eScience 3000] | | | | |
| **A Differentiated Environment that Guarantees Repeated Exposure to Crosscutting Concepts and STEAM Opportunities—Focus: Life Science** | | | | |
| eScience3000 is the only differentiated core middle school science program that gives students equity of access to disciplinary core ideas while integrating crosscutting concepts and STEAM opportunities in every lesson. Through its patented model of differentiation, students are precisely matched to the level of text complexity that meets their needs without compromising their understanding of concepts in Life Science. With its connections to real-world applications of science and technology, eScience3000 is the ideal environment for students to develop the practices most needed to apply scientific and technological concepts and process skills in a rapidly changing world and workplace. Experience the power of a single differentiated lesson and its relationship to the independent and collaborative exploration and investigation that it can promote**.** | | | | |

Session 4 pages

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 4 | **Session 4** | **OAKLEIGH A [HMH}** | | **H** |
| **Strand(s): Building on Science** | | | **Level: 3-8** | |
| Damon Smerchek | | | | |
| **Amazing Video-Based Projects for Grades 9-12** | | | | |
| Participants will go through a design process that is introduced in a video-based project to see who can build the tallest structure. There will be no shortage of thinking in this challenging, hands-on, STEM based workshop! | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 9 | **Session 4** | **OAKLEIGH B** | | **P** |
| **Strand(s): Building on Science** | | | **Level: 6-8** | |
| Leslie Suters, Lisa Tackett, Sandra Billings, Donna Cheek, Delvin Marcum, Kelly Johnston, Stacey Meritt, Tracy Anderson | | | | |
| **Engineering Challenges with 3D Printing** | | | | |
| Come learn about ways that teachers have used 3D printing to help solve engineering challenges as part of an Improving Teacher Quality professional development grant and how they are transitioning to using 3D printing in their own classroom. | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 14 | **Session 4** | **OAKLEIGH C** | | **H** |
| **Strand(s): Integrating LS&M** | | | **Level: 3-8** | |
| Amy Harris, Janice Brown | | | | |
| **It’s Elementary: The IRIS Center’s Online resources for Elementary School Educators** | | | | |
| Since 2001, the IRIS Center has created powerful online resources and tools on evidence-based instructional practices to help improve the education of all children, particularly struggling learners and students with disabilities. Join our U.S. Department of Education-funded Center to learn how our resources can help you improve science instruction for these students. Our team will introduce you to IRIS Modules about literacy instruction in the content areas, Universal Design for Learning (UDL), differentiated instruction, accommodations, and assistive technology. Note: Participants are strongly encouraged to come equipped with their phones, tablets, laptops, or other online-enabled devices. | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 19 | **Session 4** | **CAMBRIDGE A [McGRAW HILL]** | | **D, H** |
| **Strand(s): Integrating LS&M** | | | **Level: 9-12** | |
| Joyce Tugel | | | | |
| **Formative Assessment for High School** | | | | |
| Join us as we learn how to use formative assessment to uncover and analyze student thinking about key science concepts; practice formative assessment strategies that inform teaching and deepen students’ understanding of science content; and apply techniques that integrate assessment with the NGSS Science and Engineering Practices and CCSS Literacy Capacities. | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 24 | **Session 4** | **CAMBRIDGE B** | | **H** |
| **Strand(s):** **3-D Learning, Building on Science** | | | **Level: 6-12, HigherED** | |
| Tamica Stubbs [BioRad] | | | | |
| **The Science Classroom Magic of the Multifaceted ELISA Assay!** | | | | |
| Come & discover how data can be elucidated and analyzed using the ELISA (Enzyme linked Immunosorbent Assay) biotechnological technique to create instructional opportunities in your classrooms to build interesting narratives around a variety of topics such as animal conservation efforts, climate change, GMO’s, drug testing (forensics) and the clinical testing for infectious agents (even fictional zombie viruses). | | | | |

Session 4 pages

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 29 | **Session 4** | **BROADLANDS A [PEARSON]** | | **D, L** |
| **Strand(s): 3-D Learning, Building on Science** | | | **Level: 6-8** | |
| Scott Skene, Jackie Orgain | | | | |
| Many teachers in Tennessee have stated they want to have a deeper understanding of what a science classroom looks like where students are expected to cite evidence to support their scientific claims. This session will help teachers gain a clearer understanding through the usage of the Claim, Evidence and Reasoning model to help students engage in Evidence Based Arguments in the Middle School Science classroom. Teachers will also develop an understanding of the connection of Science and Engineering Practices to support written and verbal communication skills in a science classroom environment. | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 34 | **Session 4** | **BROADLANDS B** | | **H** |
| **Strand(s): Building on Science** | | | **Level: 3-8** | |
| Rhys Lutsky [STEMscopes] | | | | |
| **DIVE-In Engineering: Making Sense of the Maker Movement** | | | | |
| STEMscopes has done it! We have bridged the gap between the traditional engineering kits of today’s classrooms where students are simply told to build a standard product and lead students into a true makerspace where they experience a more flexible degree of freedom through the DIVE method. Deconstruct, Imitate, Vary and Explore. Join us and see what it is all about! | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 39 | **Session 4** | **MIRABELLA A [PASCO]** | | **H** |
| **Strand(s): Building on Science, Integrating LS&M** | | | **Level: 9-12** | |
| Dr. Tom Hsu | | | | |
| **Essential Chemistry** | | | | |
| Essential Chemistry is a complete and affordable chemistry solution that includes Textbook, e-book, Digital Teacher Edition and Equipment that covers 100% of the Tennessee state standards. The rigorous yet accessible design features interactive simulations and lessons that follow the 5E design. The chemical equation solver and 3D molecular modeling works seamlessly with your LMS and Google Classroom and with the multiplatform design, Essential Chemistry works on iOS, Android, Chrome, Windows, PC, and Mac. Participants in the workshop will be participating in actual lessons using PASCO’s award winning equipment and access to 6 month free trial of Digital Essential Chemistry. | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 44 | **Session 4** | **MIRABELLA B** | | **H** |
| **Strand(s): 3-D Learning** | | | **Level: 6-8** | |
| Autumn Hillis | | | | |
| **Implementing Three Dimensional Learning: Dimension One – Scientific Explorative** | | | | |
| Attendees will explore strategies to incorporate multiple scientific and engineering practices through several hands-on activities linked to the new science standards for general middle school science. This session seeks to present new ways to approach scientific exploration outside the linear path of the scientific method with the use of Scientific and Engineering Practices. | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 49 | **Session 4** | **MIRABELLA C [DISCOVERY ED]** | | **H** |
| **Strand(s): Building on Science** | | | **Level: K-12** | |
| Sara Harville | | | | |
| **Creative Ways to Activate the 4C’s with Your Content** | | | | |
| Gather easy to implement ideas for making concrete connections between what students need to know and what they need to be able to do. We'll show you how to make the four C's come to life by helping students make authentic connections to the content they are studying. | | | | |

Session 4 pages

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 54 | **Session 4** | **MIRABELLA D [TSTA CADRE]** | | **L** |
| **Strand(s): 3-D Learning** | | | **Level: 9-12** | |
| Jeannie Cuervo | | | | |
| **Inside the New TN High School (9-12) Science Standards** | | | | |
| In this session, we will examine our new high school science standards and the Framework on which they are based. The session includes an in-depth focus on Disciplinary Core Ideas, Scientific and Engineering Practices, and Crosscutting Concepts. Participants will examine standards for their science discipline and receive support to design curriculum for their classroom. | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 59 | **Session 4** | **MIRABELLA G** | | **D** |
| **Strand(s): Building on Science** | | | **Level: K-12, Supervision** | |
| Jonathon Ownby, Kevin Nolten [Cyber Innovation Center] | | | | |
| **Educating I Cyberspace: Prepare Students for the Jobs of Tomorrow** | | | | |
| Cyber is all around. Learn how educators can build a build a strong cyber foundation among students and learn about the opportunities, threats, responsibilities, and legal constraints associated with operating in cyberspace. Prepare your students for the jobs of tomorrow! | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 64 | **Session 4** | **MIRABELLA H** | | **D, H** |
| **Strand(s): ALL** | | | **Level: 6-8** | |
| Joshua Sneideman [Learning Blade] | | | | |
| **Interdisciplinary STEM Engagement** | | | | |
| Learn how Learning Blade (Free for schools) is utilizing an interdisciplinary approach to integrate science literacy, information text and mathematics to enhance STEM Career awareness. We will discuss the 3D NGSS thinking integrated into Learning Blade as well as the rich science literacy content herein. | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 69 | **Session 4** | **MIRABELLA I [TEAMS]** | | **H** |
| **Strand(s): Integrating LS&M** | | | **Level: 3-5** | |
| Beth Dycus, Candace Sanders | | | | |
| **Linking Literacy** | | | | |
| Hands on science lessons and activities that are guaranteed to create an environment that promotes rigorous and engaged learners. Lessons and activities will incorporate cooperative learning, questioning, and problem solving with literature to teach Science standards.  Door prizes will be given. | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 104 | **Session 4** | **MIRABELLA J** | | **D** |
| **Strand(s): 3-D Learning** | | | **Level: 6-8** | |
| Presenter(s): Nicole King, Karen Burke [eScience3000] | | | | |
| **A Differentiated Environment that Guarantees Repeated Exposure to Crosscutting Concepts and STEAM Opportunities—Focus: Earth and Space Science** | | | | |
| eScience3000 is the only differentiated core middle school science program that gives students equity of access to disciplinary core ideas while integrating crosscutting concepts and STEAM opportunities in every lesson. Through its patented model of differentiation, students are precisely matched to the level of text complexity that meets their needs without compromising their understanding of concepts in Earth and Space Sciences. With its connections to real-world applications of science and technology, eScience3000 is the ideal environment for students to develop the practices most needed to apply scientific and technological concepts and process skills in a rapidly changing world and workplace. Experience the power of a single differentiated lesson and its relationship to the independent and collaborative exploration and investigation that it can promote**.** | | | | |

Session 5 pages

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 5 | **Session 5** | **OAKLEIGH A [HMH}** | | **H** |
| **Strand(s): 3-D Learning, Building on Science** | | | **Level: 6-8** | |
| Michael DeSpezio | | | | |
| **Engineering! Construct a 3D Understanding as you Engineer a Prop-driven Vehicle** | | | | |
| Join Michael for a lively and informative workshop in which you will learn about the tenets and 3D approach to engineering as you design, test, and rethink the construction of a propeller-driven vehicle. | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 10 | **Session 5** | **OAKLEIGH B** | | **D, H** |
| **Strand(s): 3-D Learning , Building on Science** | | | **Level: 6-12** | |
| Faunne Brown [CPO] | | | | |
| **CPO’s Link Wind Turbine Learning Module – A STEM Approach to Engineering and Design** | | | | |
| CPO’s Link Wind Turbine learning module lets students learn in a tablet based learning environment and engineer a wind turbine. Students build, test, and revise their designs. Link uses STEM activities and an NGSS approach giving students an understanding of how to apply the Engineering Cycle in science class. | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 15 | **Session 5** | **OAKLEIGH C** | | **H, D** |
| **Strand(s): 3-D Learning** | | | **Level: K-12** | |
| Kimberly O’Dell, Michaela O’Dell | | | | |
| **Developing and Using Models** | | | | |
| Explore the 8 cross-cutting concepts of the NGSS, while creating a variety of conceptual, mathematical, and physical models that you will be able to use immediately in your classroom as you prepare to teach the NGSS practice of developing and using models. | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 20. | **Session 5** | **CAMBRIDGE A [McGRAW HILL]** | | **D, H** |
| **Strand(s): 3-D Learning** | | | **Level: 6-8** | |
| McGraw Hill Curriculum Specialists | | | | |
| **Workshop on the New TN Science Standards, “3D in Tennessee”** | | | | |
| **Description** | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 25 | **Session 5** | **CAMBRIDGE B** | | **H** |
| **Strand(s): Building on Science** | | | **Level: K-12** | |
| Kashina Hickson, Gale Stanley, Kathy DeWein [Biology in a Box] | | | | |
| **Biology in a Box Unit 11, Biomechanics Reveals STEM** | | | | |
| Biology in a Box is a fun way for entire school systems to enhance life science curriculum at all grade levels, and to encourage student interest in STEM disciplines. In this unit, you will learn about a number of physical principles, while also thinking about them in a biological context. You will play the role of an engineer, while using the principles of biomimetics to draw from biological examples to inspire your designs. Exploring this unit will allow your students to play with exciting concepts such as: design from nature, skeletons to bridges, jaws as levers, projectile motion, aerodynamic properties and bioacoustics. Come join us, as learning is as easy as play with Biology in a Box | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 30 | **Session 5** | **BROADLANDS A [PEARSON]** | | **D, L** |
| **Strand(s): 3-D Learning, Building on Science** | | | **Level: 6-12** | |
| Scott Skene, Jackie Orgain | | | | |
| **DCI, SEP CCC and Tennessee** | | | | |
| As we approach a new era in Tennessee Science educational instruction, this workshop will help Tennessee Middle and High School teachers understand how the Disciplinary Core Ideas, Science and Engineering Practices and Crosscutting Concepts all work together at the same time to drive classroom instruction and deepen student understanding. Each of these areas (DCI, SEP and CCC) will be looked at individually and then pulled together to show how all three work simultaneously to allow three-dimensional learning to occur in the Science classroom. | | | | |

Session 5 pages

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 35 | **Session 5** | **BROADLANDS B** | | **H** |
| **Strand(s): Building on Science** | | | **Level: 6-8** | |
| Lt. Colonel Dave Garner | | | | |
| **Free STEM Resources and Science Teaching Resources from the Civil Air Patrol** | | | | |
| The USAF Civil Air Patrol has free STEM kits and science resource material available K-12. | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 40 | **Session 5** | **MIRABELLA A [PASCO]** | | **H** |
| **Strand(s): Building on Science, Integrating LS&M** | | | **Level: 6-8** | |
| Bruce Davison | | | | |
| **Wireless Sensors for Middle School** | | | | |
| PASCO Wireless Sensors represent the next leap forward in probeware technology. Powerful, yet easy to use, these affordable sensors provide opportunities that transfer students into science investigators and problem solvers. | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 45 | **Session 6** | **MIRABELLA B** | | **H** |
| **Strand(s): 3-D Learning, Building on Science** | | | **Level: 3-5** | |
| Karla West, Andy Howe | | | | |
| **Using Pendulums to Study Patterns** | | | | |
| In this session, teachers will learn a hands-on lesson used to teach some of our new physics standards in 5th grade science: TN Science Standards- 5.PS2: Motion and Stability: Forces and Interactions. This will include the following processes. How to test the effects of balanced and unbalanced forces on the speed and direction of motion of objects. How to make observations and measurements of an object’s motion to provide evidence that a pattern can be used to predict future motion. How to use evidence to support that the gravitational force exerted by Earth on objects is directed toward the Earth’s center. How to explain the cause and effect relationship of two factors (mass and distance) that affect gravity. How to explain how forces can create patterns within a system (moving in one direction, shifting back and forth, or moving in cycles), and describe conditions that affect how fast or slowly these patterns occur. | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 50 | **Session 5** | **MIRABELLA C [DISCOVERY ED]** | | **H** |
| **Strand(s): Building on Science** | | | **Level: K-12** | |
| Jessica Vasquez | | | | |
| **STEM Career Challenges Made Easy** | | | | |
| In this session, teachers from all grade bands will learn about the free STEM career challenges from Discovery Education! Each STEM career has a description, facts, and then a correlating challenge that any teacher can pull out in their class to help students understand new careers and the creative and collaborative skills needed excel in them | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 55 | **Session 5** | **MIRABELLA D [TSTA CADRE]** | | **L** |
| **Strand(s): 3-D Learning** | | | **Level: K-5** | |
| Andrea Berry | | | | |
| **Inside the New TN Elementary School (K-5) Science Standards** | | | | |
| Come explore the instructional shifts behind our new elementary school science standards. Obtain a deeper understanding of our new science standards by examining rationale and cross cutting concepts, while unpacking big ideas into multiple learning outcomes. Implement new science and engineering practices with our middle school content to develop your curriculum. | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 60 | **Session 5** | **MIRABELLA G** | | **H** |
| **Strand(s): Building on Science** | | | **Level: 9-12** | |
| Jonathon Ownby, Kevin Nolten [Cyber Innovation Center | | | | |
| **Project-Driven Learning in Cyber e** | | | | |
| The next generation learners thrive in environments where teachers use project-driven, hands-on resources to drive engagement in the classroom. During this session, participants will be empowered to integrate 21st century learning resources into the classroom through a cyber-context by blending robotics, programming, electricity, and elements of liberal arts. | | | | |

Session 5 pages

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 65 | **Session 5** | **MIRABELLA H** | | **Type** |
| **Strand(s): Integrating LS&M** | | | **Level: 6-8** | |
| Jamie Price, Laura Robertson | | | | |
| **Project Based Learning in the Middle School Classroom – An Integration of Science, Math, and Literacy Aligned to State Standards** | | | | |
| For this session, we will highlight project-based learning (PBL) as a method for integrating science, math, and literacy while addressing state curriculum standards for each subject area. PBLs prompt students to interact with science, math, and literacy in a way that enhances the connection between all three subject areas and provides a real-world context for learning. In this session, we will provide ideas and strategies to begin developing PBLs for your classroom and share example PBLs that integrate math, science, and literacy at the middle school level. | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 70 | **Session 5** | **MIRABELLA I [TEAMS]** | | **H** |
| **Strand(s): Integrating LS&M** | | | **Level: K-12** | |
| Leeann Ampler, Beth Dycus, Donna Tompkins, David Wehunt, Mary Margaret Ulderich | | | | |
| **TEAMS Shar-a-thon** | | | | |
| Tennessee Educators of Aquatic and Marine Science (TEAMS) formal and informal educators sharing resources and lesson plans. This event includes sharing resources that bring the marine and aquatic environment into the classroom. Items to share include freshwater and salt water shells, sand samples (bring a small bag or container), and new science standards based interactive lessons which integrate literacy, science, and math. | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 105 | **Session 5** | **MIRABELLA J** | | **D** |
| **Strand(s):3-D Learning** | | | **Level: 6-8** | |
| Presenter(s): Nicole King, Karen Burke | | | | |
| **A Differentiated Environment that Guarantees Repeated Exposure to Crosscutting Concepts and STEAM Opportunities—Focus: Physical Science** | | | | |
| eScience3000 is the only differentiated core middle school science program that gives students equity of access to disciplinary core ideas while integrating crosscutting concepts and STEAM opportunities in every lesson. Through its patented model of differentiation, students are precisely matched to the level of text complexity that meets their needs without compromising their understanding of concepts in Physical Science. With its connections to real-world applications of science and technology, eScience3000 is the ideal environment for students to develop the practices most needed to apply scientific and technological concepts and process skills in a rapidly changing world and workplace. Experience the power of a single differentiated lesson and its relationship to the independent and collaborative exploration and investigation that it can promote. | | | | |

Session 6 pages

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 71 | **Session 6** | **CAMBRIDGE AB [MCGRAW HILL]** | | **H** |
| **Strand(s): Integrating LS&M** | | | **Level: K-6** | |
| Joyce Tugel | | | | |
| **Uncovering Elementary Student Thinking in Science Through Formative Assessment** | | | | |
| Join us as we learn how to use formative assessment to uncover and analyze student thinking about key science concepts; practice formative assessment strategies that inform teaching and deepen students’ understanding of science content; and apply techniques that integrate assessment with the NGSS Science and Engineering Practices and CCSS Literacy Capacities. | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 74 | **Session 6** | **BROADLANDS AB** | | **D, H** |
| **Strand(s): Integrating LS&M** | | | **Level: K-12** | |
| Velta Napoleaon-Fanis, Cindi Smith-Waters , Zachary T. Grimes | | | | |
| **Novel assessment Ideas: Supporting K-12 Science, Mathematics and Literacy** | | | | |
| Looking for ‘new’ ways to assess student learning? Need ideas for including science in language arts or math -or vice-versa? We have some powerful ideas for you including student developed ABC Books and Plickers. Both teach and reinforce scientific knowledge as well as conceptual understanding when students make meaningful connections between concepts. ABC Books can be a cumulative technique while Plickers are a low-tech formative method. You’ll see and participate in these great strategies and more if time allows. | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **77** | **Session 6** | **OAKLEIGH A** | | **H** |
| **Strand(s): 3-D Learning** | | | **Level: 6-12, Higher ED** | |
| Tina B. Carter, Alicja Lanfear | | | | |
| **Can Science Be Trusted?** | | | | |
| What does a CRISPR-Cas9 genome editing kit, a pencil, and a bottle of moonshine have in common? Join us for an engaging activity that will challenge your students’ thinking about scientific knowledge, objectivity, and the concept of ethics as it relates to societal decisions. Come join presenters that are members of the newly formed Tennessee Association of Biology Teachers to explore this question together. Door prizes and freebies for participants, complements of HHMI Biointeractive | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 80 | **Session 6** | **OAKLEIGH B** | | **D, H** |
| **Strand(s): 3-D Learning, Integrating LS&M** | | | **Level: 6-12, HigherED** | |
| Jackson Reimers, Joshua West | | | | |
| **Augmented reality in the Secondary STEM Classroom** | | | | |
| The Augmented Reality Kinematics Mirror (ARK) is a novel teaching tool developed for use in secondary classrooms across the STEM spectrum. Utilizing the Microsoft Kinect and a Windows 10 PC, this is a technology that extends and augments classroom data collection capabilities for less than the cost of mainstream classroom lab equipment. The ARK’s features include real-time human body tracking, dynamic visualization of vector quantities such as position, velocity, acceleration, and momentum, and robust data collection of kinematics quantities in 3 dimensions. Come to play with our cool new toy, hear about its pilot implementations, give feedback for future improvements, and discuss its potential for Tennessee and US STEM education. | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 83 | **Session 6** | **MIRABELLA A** | | **H** |
| **Strand(s): Building on Science** | | | **Level: K-8** | |
| Laura Palkoner | | | | |
| **STEM 101** | | | | |
| How can I incorporate STEM into my science curriculum on little money? This can be done and be effective through a variety of ways. Participants will gain insight on how to build a STEM curriculum inside their classroom to enhance problem based learning for 21st Century skills. Participants will also do several small STEM activities to see how these ideas can work throughout several grade levels and walk away with a small packet of activities for k-8. | | | | |

Session 6 pages

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 86 | **Session 6** | **MIRABELLA B** | | **H** |
| **Strand(s): Building on Science** | | | **Level: 3-12** | |
| Tina Alhashimi, Jennifer Vandiver | | | | |
| **Ready, Set, Code!** | | | | |
| Explore STEM concepts and develop engineering skills by designing and coding using the Innovator Hub with the TI LaunchPad™ Board. | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 89 | **Session 6** | **MIRABELLA C** | | **D, H** |
| **Strand(s): Integrating LS&M** | | | **Level: K-5** | |
| Erin Castellano, Dr. Tiffany Farmer [Adventure Science Center] | | | | |
| **Powerful Pollinators** | | | | |
| Do your students love to be outside? Join us to learn how to take your learning outdoors! This session will focus on methods to teach your students about different types of pollinators, what flowers different pollinators are attracted to, the important role pollinator’s play, and the symbiotic relationships and development of plants and their pollinators. Techniques for incorporating process skills and literacy will also be addressed. | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 92 | **Session 6** | **MIRABELLA D** | | **H** |
| **Strand(s): 3-D Learning, Building on Science** | | | **Level: 3-5** | |
| Karla West, Andy Howe | | | | |
| **Using Pendulums to Study Patterns** | | | | |
| In this session, teachers will learn a hands-on lesson used to teach some of our new physics standards in 5th grade science: Testing effects of balanced and unbalanced forces on the speed and direction of motion of objects. How to make observations and measurements of an object’s motion to provide evidence that a pattern can be used to predict future motion. Using evidence to support that the gravitational force exerted by Earth on objects is directed toward the Earth’s center. Explaining cause-effect relationship of two factors (mass and distance) that affect gravity. Explaining how forces can create patterns within a system (moving in one direction, shifting back and forth, or moving in cycles), and describe conditions that affect how fast or slowly these patterns occur. | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 95 | **Session 6** | **MIRABELLA G** | | **D, H** |
| **Strand(s): Integrating LS&M** | | | **Level: K-5** | |
| Presenter(s): Donna Tompkins, Jane Mattie, Elaine Wilburn, Dana Kitts | | | | |
| **Integrating Hands-on STEM Activities with Reading and Writing. Grade level K-5** | | | | |
| Who doesn’t love a good book, wind-up toys robots, lovable dolphins, and floating boats? Join us as we show you how to engage and motivate your students using Picture Perfect STEM lessons. (Texts: Clink, Winter’s Tail, the Toy Boat, Ida Twist Scientist) We will provide Hands-on activities for students to conduct investigations, problem solve, create, communicate and integrate quality STEM education with reading and writing standards. You will come away with a variety of activities that you can implement immediately. Prizes will be given. | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 98 | **Session 6** | **MIRABELLA H** | | **D, H** |
| **Strand(s): 3-D Learning, Building on Science** | | | **Level: 6-12** | |
| Dr. Louis C. Glover, Clifford D. Jones, Kelly Johnson, Alleyah Allen, Kindall Bell, name | | | | |
| **What to do? I have to teach science but don’t have a science budget? Terrific STEM activities for teachers** | | | | |
| How to use inexpensive, common items to teach excellent STEM activities. Participants will be provided with activities suitable for grades 3-12 students. | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 106 | **Session 6** | **MIRABELLA I [TSTA CADRE]** | | **L** |
| **Strand(s): 3-D Learning** | | | **Level: K-12** | |
| Jeannie Cuervo | | | | |
| **SEP 3: Planning and Carrying Out Investigation K-12** | | | | |
| Want some ideas on how to engage your students in original scientific research? This session focuses on Scientific and Engineering Practice 3: Planning and Carrying Out Investigations. We will examine the research supporting the importance of engaging students in authentic science experiences. Guided by A Framework for K-12 Science Education, we will explore how we can engage our students in this practice at each grade level, K-12. | | | | |

Session 7 pages

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 72 | **Session 7** | **CAMBRIDGE AB [McGRAW HILL]** | | **H** |
| **Strand(s):** **Integrating LS&M** | | | **Level: 6-8** | |
| Joyce Tugel | | | | |
| **Uncovering Middle School Student Thinking in Science Through Formative Assessment** | | | | |
| Join us as we learn how to use formative assessment to uncover and analyze student thinking about key science concepts; practice formative assessment strategies that inform teaching and deepen students’ understanding of science content; and apply techniques that integrate assessment with the NGSS Science and Engineering Practices and CCSS Literacy Capacities. | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 75 | **Session 7** | **BROADLANDS AB** | | **H, L** |
| **Strand(s): Integrating LS&M** | | | **Level: K-12** | |
| Nikki Bumgardner, Laura Ashbury, Adam Hunley | | | | |
| **Now That’s Infotainment – Using Infographics in the Classroom** | | | | |
| This session will address research while incorporating Math, Literacy and Science. Learn how to use infographics to report, inform, and entertain the masses! Incorporate math using charts, graphs, and percentages. Incorporate literacy with research methods and annotations. This can be used in any and all subjects!!!!! Only limited by your students’ imaginations! | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **78** | **Session 7** | **OAKLEIGH A** | | **D, H** |
| **Strand(s): Building on Science** | | | **Level: 3-12** | |
| Chris Fleming, Kristy Chastine [Ag in the Classroom] | | | | |
| **Growing the STEM, the CORE and the Mind** | | | | |
| Agriculture provides the context for all strands of science. A practical way of engaging students in science is to have them design / build a growing system to produce food. Our garden grant program makes this more affordable for all schools. | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 81 | **Session 7** | **OAKLEIGH B** | | **H** |
| **Strand(s): 3-D Learning** | | | **Level: 6-12** | |
| Tami Russel | | | | |
| **Argumentation Made EASY! Incorporating the Science Practices in Ways Students Will LOVE!** | | | | |
| How to easily plan and integrate inquiry and argumentation from evidence in secondary science classes--you CAN do it! We will show you how! Attendees will learn about inexpensive and highly effective use of large, group whiteboards and how to give students practice constructing explanations and then engaging in argument from the scientific evidence they and their classmates have collected. Attendees will get the opportunity to take a look at argumentation from a student’s point of view and have a little fun while doing it! | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **84** | **Session 7** | **MIRABELLA A** | | **H** |
| **Strand(s): Building on Science** | | | **Level: 3-8, HigherED** | |
| Dr. Aimee L. Govett, Scott Cole, Kendra Disney | | | | |
| **Life Elevated: The Science of Flight** | | | | |
| This is a PBL segment. We will cover the basic concepts of flight and the underlying scientific principles that support aerodynamics. This session will be built around “hands on projects” with paper airplanes and other fun stuff. | | | | |

Session 7 pages

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **87** | **Session 7** | **MIRABELLA B** | | **H** |
| **Strand(s): Integrating LS&M** | | | **Level: 6-8** | |
| Cassandra Bates | | | | |
| **Interdisciplinary Learning for a Changing Planet** | | | | |
| Science literacy and data literacy are critical in helping us make everyday decisions that affect our environment and our global society. Participate in innovative, hands-on activities that apply math, science and social studies skills to tackle major global challenges, including human population pressures, finite natural resources and climate change. Engage in simulations, modeling and group problem-solving. Receive lesson plans matched to state standards for several disciplines. | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **90** | **Session 7** | **MIRABELLA C** | | **D, L** |
| **Strand(s): Integrating LS&M** | | | **Level: K-5** | |
| Amber Spears, Jane Baker | | | | |
| **Using Mentor Texts to Teach Writing and Critical Thinking in Elementary science Classrooms** | | | | |
| To prepare children to enter life after high school, teachers must begin working with elementary children to think critically across disciplines. Beyond scientific content, elementary teachers are responsible for teaching students to write arguments, back up claims with evidence, and communicate clearly. Incorporating the ELA standards into science instruction is necessary to facilitate students’ critical thinking. Integrating high-quality literature including picture books, novels, poetry, and informational texts into the science curriculum can foster engagement, increase comprehension, and connect science with literacy. Through participation in modeled writing mini-lessons, K-5th grade teachers will discover how age-appropriate children’s literature can be used to effectively incorporate writing into science instruction. | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **93** | **Session 7** | **MIRABELLA D** | | **H, L** |
| **Strand(s): Integrating LS&M** | | | **Level: K-8** | |
| Katherine Anna Mangione | | | | |
| **The Synergistic Impact of Teaching Reading in the Science Content Classroom: Strategies and Research to promote Scientific Literacy** | | | | |
| Participants will explore content area reading strategies they can immediately implement in their science classrooms. | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **96** | **Session 7** | **MIRABELLA G** | | **H** |
| **Strand(s): -3D Learning** | | | **Level: 6-8** | |
| Diana O’Neal, Bryan Weems, Jennifer Hill | | | | |
| **Title** **Implementing Crosscutting Concepts Enhanced with Literacy Integration** | | | | |
| Teachers want to be active and engaged too! Three-dimensional learning is designed to give students tangible evidence of science in the real world. Participant will become the students as they apply the crosscutting concepts with a focus on patterns and models. Science is enhanced with integration of reading, wrong, listening, and speaking skills practiced in the science classroom or in collaboration with ELA. Examples of literacy materials and best practices will be demonstrated along with crosscutting concepts. | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **99** | **Session 7** | **MIRABELLA H** | | **D, H** |
| **Strand(s): 3-D Learning, Building on Science** | | | **Level: 6-12** | |
| Dr. Louis C. Glover, Clifford D. Jones, Kelly Johnson, Aliyah Allen, Kindall Bell, name | | | | |
| **What to do? I have to teach science but don’t have a science budget? Terrific STEM activities for teachers** | | | | |
| How to use inexpensive, common items to teach excellent STEM activities. Participants will be provided with activities suitable for grades 3-12 students. | | | | |

Session 7 pages

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 107 | **Session 7** | **MIRABELLA I [TSTA CADRE]** | | **H** |
| **Strand(s): 3-D Learning, Integrating LS&M** | | | **Level: K-12** | |
| Leslie Suters, Kelly Moore | | | | |
| **How Strong is Air? Develop Argumentation Skills Based on Evidence** | | | | |
| Participants will explore a sample lesson on properties of gases as a means to implement 3-Dimensional learning with the use of the Sense-making and Literacy Framework. This Framework focuses on the use of phenomena, questions, and models in the context of purposeful reading, productive dialogue, and meaningful writing. | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 109 | **Session 7** | **MIRABELLA J** | | **D, L** |
| **Strand(s): Building on Science** | | | **Level: 9-12** | |
| Presenter(s): David C. Wehunt | | | | |
| **Resource Management using a Marine Environment** | | | | |
| Students are required to work in groups, using computers, to manage a fishery that is harvested by 6 real countries. Students are required to determine how many fish to harvest annually for a 10-year period without letting the fish population go below or above set limits. At the same time they determine the size of their fleet and catch. | | | | |

Session 8 pages

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 73 | **Session 8** | **CAMBRIDGE AB [MCGRAW HILL]** | | **H** |
| **Strand(s): Integrating LS&M** | | | **Level: 9-12** | |
| Joyce Tugel | | | | |
| **Uncovering High School Student Thinking in Science Through Formative Assessment** | | | | |
| Join us as we learn how to use formative assessment to uncover and analyze student thinking about key science concepts; practice formative assessment strategies that inform teaching and deepen students’ understanding of science content; and apply techniques that integrate assessment with the NGSS Science and Engineering Practices and CCSS Literacy Capacities. | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 76 | **Session 8** | **BROADLANDS AB** | | **L** |
| **Strand(s): ALL** | | | **Level: K-12, HigherED, Supervision** | |
| Dr. Philip C. Short, Sarah Meegan | | | | |
| **Time, Why Do You Punish Me? Best Practices for Science in the Age of edTPA, TEAM Evaluations and Prescribe Curricula** | | | | |
| A MAT student teacher of middle grades science and a university science educator teaching Residency I candidates examine a crosswalk between the edTPA assessment, TEAM Evaluation model, and 3D Science Education. The realities of time constraints and prescribed curricula found in many school districts are discussed with regard to implementing student-centered, inquiry learning that allows for correcting experimental error and following emergent questions from students. Suggestions for resolving the apparent conflicts through IBL/PBL approaches grounded in science-related, social issue investigations will be offered for practitioners, EPPs, and school administrators alike. A plenary discussion and solicitation of experiences, questions, and suggestions will engage participants in a search for policy-level recommendations. | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **79** | **Session 8** | **OAKLEIGH A** | | **D, H** |
| **Strand(s): Building on Science** | | | **Level: 6-12** | |
| Loretta Williams, Susan Coffey, Tonya Pemberton, Brandy Rogers, Devlin Marcum, Kelly Scoggins, Dan Storey, Dan Terry | | | | |
| **How to Host a Successful STEM Night (grades 6-12)** | | | | |
| Hints and strategies for increasing parent/student involvement in your school. Ideas for STEM nights; some themed and some not. We will have (low cost) hands on challenges and ideas for you to take back to your school | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **82** | **Session 8** | **OAKLEIGH B** | | **L** |
| **Strand(s): ALL** | | | **Level: 6-12, HigherED** | |
| Peggy Bertrand | | | | |
| **Let’s Get Physical! Teaching Math Through the Lens of Physics** | | | | |
| Physics teachers are accustomed to using mathematics to help in the understanding of physical principles. Is it possible for mathematics teachers to do the reverse; to use physics to advance engagement and conceptual understanding in their discipline? This question was explored during a weeklong workshop at the University of Tennessee this past July in which middle- and high-school mathematics teachers engaged in inquiry-based physics laboratories specifically designed to enhance the earning of the underlying mathematics. The laboratories provided a strong STEM emphasis through the use of probeware and video analysis, and went well beyond the use of mathematics as merely a tool to support science. This session will report on the results of that workshop, and will give attendees specific examples of how Tennessee’s Science and Mathematics Standards can be integrated to create cross-disciplinary lesson plans that work synergistically to enhance understanding in bot mathematics and physics. An Improving Teacher Quality (ITQ) grant from the Tennessee Higher Education Commission (THEC) funded the workshop. | | | | |

Session 8 pages

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **85** | **Session 8** | **MIRABELLA A** | | **H** |
| **Strand(s): 3-D Learning** | | | **Level: 9-12** | |
| Sarah B. Elliott, Jason Colby | | | | |
| **Teach STEM Like a Mountain Biker** | | | | |
| New standards explained through the eyes of a mountain biker from East Tennessee | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **88** | **Session 8** | **MIRABELLA B** | | **H** |
| **Strand(s): 3-D Learning** | | | **Level: K-8** | |
| Angela Google, Candice Quinn, Dr. Cindi Smith-Walters | | | | |
| **Hide & Seek! Connecting Science & Math through the Predator-Prey Relationship** | | | | |
| Need more ways to connect science and math in your classroom? This session is a hands-on activity that examines the quantitative nature of a life science concept using the 5E instructional model (engage, explore, explain, elaborate, and evaluate). We will explore adaptations of organisms such as camouflage using mathematical concepts (i.e. whole-number quotients & scaled bar graphs). Teachers will be able to leave the session with an idea of how to modify and use this activity in their classrooms. | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **91** | **Session 8** | **MIRABELLA C** | | **D** |
| **Strand(s): Integrating LS&M** | | | **Level: 3-5** | |
| Laura Robertson, Andrea Lowery | | | | |
| **Interactive Notebooks & 5E Learning Cycles Aligned to the New TNSES for Grades 3-5** | | | | |
| Our session will focus on using interactive notebooks and the 5Es to teach elementary science. We will model interactive notebook structure, and we have over 15 interactive notebook units to share aligned to the new 3rd-5th Grade TN Science Education Standards. These resources were developed out of collaboration with classroom teachers, pre-service teachers, and higher education faculty. Special emphasis was placed on potentially difficult to teach standards. Each interactive notebook unit includes lab data sheets, Claim-Evidence-Reasoning student prompts, answer keys, and lines of evidence. | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **94** | **Session 8** | **MIRABELLA D** | | **D, L** |
| **Strand(s): Integrating LS&M** | | | **Level: 3-8** | |
| Dr. Alexandra Valdes, Jodi Sheffield | | | | |
| **Integrating English Language Learners (ELL) Instruction into the Science Classroom using the 5E: Engage, Explore, Explain, Elaborate and Evaluate** | | | | |
| In this session, we will model and discuss various strategies to instruct ELL in the middle school (5-8) science classroom with an emphasis on language knowledge and application. We will be demonstrating hands-on activities that incorporate scientific vocabulary as well as engage and explore components of a science lesson based on the 5E Instructional Model (i.e. Engage, Explore,  Explain, Elaborate, and Evaluate). We will be sharing resources to instruct ELL that are data-driven. | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 108 | **Session 8** | **MIRABELLA I [TSTA CADRE]** | | **H** |
| **Strand(s): Building on Science** | | | **Level: K-12** | |
| Margie Hawkins, Linda Jordan | | | | |
| **PAEMST – Know a Teacher Who Deserves $10,000?** | | | | |
| Come and find out more information about the highest honor a teacher can earn in this country, the Presidential Award for Excellence in Math and Science Teaching (PAEMST) which comes with a $10,000 prize, a trip to the White House and a myriad of professional opportunities! Tips from a former application reviewer and a former PAEMST winner on how to create a super competitive application. | | | | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **110** | **Session 8** | **MIRABELLA J** | |  |
| **TEAMS annual meeting (**Mary Margaret Ulderich) | | | **Level: K-8** | |
| TEAMS 2017 annual meeting. Open to all elementary and middle school instructors interested in teaching about water ecology and water environments. | | | | |

FOR YOUR INFORMATION

**How in the world am I supposed to find these rooms?** On page 9 of this program booklet you will find a map of the rooms we use.

**Where are some places to eat outside of the hotel restaurant?** Within walking distance of the hotel, is *The Avenue*, which is the state's largest outdoor shopping mall. It has over 90 shops and restaurants, and the Embassy Suites offers complimentary shuttle service to and from. A few close restaurants include a Chili's Bar and Grill, Longhorn Steakhouse, Macaroni Grill, and Fulin's Asian Cuisine. For more information on what's located in *The Avenue*, visit http://murfreesboro.shoptheavenue.com .

**Where can I find a bathroom?** The map of the rooms also shows the approximate location of the restrooms – they are marked “M” and “W.”

**Are you selling any souvenirs?** Yes, we have a variety of items for sale with the TSTA logo. You should find these items set up close to the TSTA Registration Booth.

**Can I get proof that I attended the conference to take back to my school system? Can I get a receipt?** If you need a receipt you can ask for one at the registration desk. If you need more extensive proof that you attended, you will find a form behind the Embassy Suites room map that you may use to verify your attendance. If you have special needs, please stop by the registration desk.

**Are there any evening events planned?** YES! Thursday night, November 6, there is a reception scheduled at the Embassy Suites from 6:30 - 8:00 p.m. in Mirabella F (in the exhibits area.)

**TSTA 2017 PROFESSIONAL DEVELOPMENT CONFERENCE**

Embassy Suites – Murfreesboro, TN

**November 8-10, 2017**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Date | Time | Session Name | Presenter | Number of Hours |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

Total Number of Clock Hours\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Linda Jordan, TSTA, President

**PLANNING CHART**

**for**

**Friday, November 9, 2017**

**Time Session Title Room**

\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**11:15 a.m.-12:45 p.m.** **Friday Keynote Lecture & Luncheon Mirabella E**

***Lunch is included with general registration***

\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Saturday, November 10, 2017**

**Time Session Title Room**

\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Closing Session Oakleigh C**

***In compliance with the Tennessee Fire Safety Code, TSTA asks that you please observe***

***the capacity limits set for each room by the Fire Marshall***

**Conference Notes Page**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**[](http://www.pearsoned.com/)**

## Welcome to Pearson

Learning isn’t a destination, starting and stopping at the classroom door. It's a never-ending road of discovery and wonder that has the power to transform lives. Each learning moment builds character, shapes dreams, guides futures, and strengthens communities.

We are devoted to creating tools that provide boundless opportunities for learners at every stage of the journey. Because wherever learning flourishes, so do people.

Pearson K-12 Education Sponsored Sessions

All presented by Dr. Scott Skene and Jackie Orgain

26 & 30: DCI, SEP, CCC and Tennessee

27: Formative Assessment ad Personalized Learning in the AP, Honors ad Electives Science Classroom

28: UnBEElievable

29: Where’s Your Evidence?

[](http://www.hmhco.com/) 



HMH Science Dimensions™ NGSS\* Science Curriculum Grades K–12 - See more at: <http://www.hmhco.com/shop/education-curriculum/science/science-dimensions#sthash.xoY1CCNJ.dpuf>

HMH Sponsored Sessions

Pre-Conference:

Engaging Learners in 3\_Dimensional an Effective STEM Learning with Virtual Field Trips, Amazing Design Lab, and Video-Based Projects

1: Amazing Video-based Projects for Grades 3-8

2: Pedagogy and Process for the 21st Century 3D Science Classroom

3: Engage All Learners with HMH Virtual Field trips powered by Google Expeditions

4: Amazing Video-based Projects for Grades 9-12

5: Engineering! Construct a 3D Understanding as you Engineer a Prop-driven Vehicle

C:\Users\Administrator\AppData\Local\Microsoft\Windows\INetCache\Content.Word\de-logo.png

Discovery Education is the global leader in standards-based digital content for K-12, transforming teaching and learning with award-winning digital textbooks, multimedia content, professional development, and the largest professional learning community of its kind. Serving 4.5 million educators and over 50 million students, Discovery Education's services are in half of U.S. classrooms, 50 percent of all primary schools in the U.K., and more than 50 countries.

Discovery ED Sponsored Sessions

46: Using Phenomena to Engage Students in Science

47: Argue This!

48: Exploring the Depths of Inquiry

49: Creative Ways to Activate the 4C’s with Your Content

50: STEM Career Challenges Made Easy

### [http://www.tsta.wildapricot.org/resources/Pictures/Marketing%20Logo.jpg](http://mheducation.com/)PreK-12

We are empowering PreK-12 educators and learners with programs, tools, and services that make the science of learning serve the art of teaching, through: Purposeful Technology, Differentiated Pedagogical Instruction and Unmatched Professional Development.

Because Learning Changes Everything.TM

McGraw Hill Sponsored Sessions

Pre-Conference:

Joyce Tugel, Formative Assessment

Conference

17, 19, 71-73: Joyce Tugel, Formative assessment

16, 18, 20: Workshop on the New TN Science Standards, “3D in Tennessee”



The PASCO Mission

"Providing educators worldwide with innovative technology and solutions for teaching science and our full support of those solutions in schools."

PASCO sponsored sessions”

36: Wireless Sensors for High School

37, 38: Essential Physics: Textbook and ebook

39: Essential Chemistry

40: Wireless Sensors for Middle School

[](http://www.pasco.com/)