

Conference Information

Registration Hours

The registration area will be open during the following times to pick up your registration materials. Please save time and money and preregister!

Wednesday, November 29, 2017

7:00 p.m. -9:00 p.m.

Thursday, November 30, 2017

7:30 a.m. – 3:00 p.m.

Friday, December 1, 2017

7:30 a.m. – 12:00 p.m.

Meeting Rooms

All sessions will be held at the Penn Stater Center. Meeting Rooms are found on the Main Level and the Upper Level. Maps are provided for your convenience. Conference attendees are asked to utilize the maps provided throughout the hotel and conference center or ask any of the volunteers at the conference for directions.

Session Times

Sessions may run between fifty (50) minutes and three hours depending on the request of the presenter. Session times can be found in the session section of this booklet. Some sessions have a limited number of seats at the request of the presenter.

Exhibit Hall

Part of the PSTA Conference features an exhibit hall representing vendors of science education materials. Under one roof, you will have the opportunity to view textbooks, audiovisual equipment, software scientific equipment, and other science classroom materials. This is also the location of the NSTA Science Store. The Exhibit Hall is open Thursday November 30, 2017 beginning at 4:30 pm through 6:00 pm. It will reopen on Friday December 1, 2016 from 8:00 am through 3:00 pm.

Information Booth

An Information and Troubleshooting Booth is located at the Registration Area and provided for your convenience. General convention questions can be answered at this location.

Meal Functions

Lunch is provided for all attendees as part of the registration fee.

PSTA Silent Auction

*It's new! It's great! This year PSTA will be holding a silent auction during the conference. Many unique items and theme baskets will be available on which to place your bid. The auction will take place one day only, on Thursday from 8:00 AM-4:00 PM near the conference registration area. All proceeds will go directly into a newly created science teacher professional development fund. **The highest bidder on each item will be notified by phone Thursday afternoon. Pick-up with payment can be made between the hours of 4:00-6:00 PM on Thursday. Items not claimed by this time will go to the next highest bidder.***

In addition, conference attendees will have the opportunity to make an on-site donation to the professional development fund. Each \$1.00 donated will entitle the donor's name to be entered into a drawing to receive a science teacher professional development award. As this is our initial attempt, the number and amount of each award will be determined by the gross receipts from the raffle and all donations. We hope to make the fund grow over time and be able to increase the number and amount of the awards. The winner(s) will be drawn at noon on Friday in the Exhibit Hall. The stipend will be sent directly to the school superintendent or college dean of the awardee. It may be used by the winner to attend a specific science or STEM related conference or workshop or to help defray the cost of a science professional development activity at your school.

Business Meetings and Functions

Thursday, November 30, 2017

6:00 pm – 7:00 pm

PSTA Board of Directors Meeting

Room 109

Presiding: Kathy Jones, PSTA President

The convention business meeting of the governing body, as are all PSTA Board Meetings, is open to any member wishing to attend. If you have considered running for a position but would like to see this body in action first, this may be a great opportunity. This will be a working board meeting and will address any business that would normally be handled at a Board meeting

Friday, December 1, 2017

8:00 am – 8:50 am

Room 218

PSTA General Membership Meeting

Presiding: Kathy Jones, PSTA President

As designated in the PSTA Constitution, each year one General Membership Meeting is to be held and presided over by the President. The purpose of this meeting is to gather input from the membership at large, summarize activities of the organization for the year, and act on any business requiring action of the membership. Your attendance and input are encouraged.

NSTA Science Store

The NSTA Science Store is back this year to provide literature and resources to help our Pennsylvania Science Teachers to stay on the cutting edge. Covering all aspects of science as well as pedagogy, the NSTA store is a valuable resource for you so take some time to browse the resources we have to offer. We hope you will come by and see us in the Exhibit Hall during your stay at the PSTA Conference. Books will be available for review and ordering. **Sorry no purchase orders can be accepted at the NSTA Science Store. Cash, credit cards, and personal checks will be accepted for your convenience.**

Act 48 Credit at the PSTA Conference

Act 48 attendance verification will once again be available at the PSTA Conference. PSTA is not an approved Act 48 provider and thus cannot offer official Act 48 credit. PSTA will, however, provide you with verification of attendance at conference sessions. If you intend to use your attendance at the conference for Act 48 credits, it is your responsibility to make sure your district accepts your conference attendance as part of their approved program.

You will find an Act 48 verification record page in your convention program. This page will consist of a grid where you can place session attendance verification labels. At the end of each breakout session, PSTA personnel will distribute a self-adhesive label which must be applied to this verification form. The labels will only be distributed to those persons who have attended the entire session and are present at the end of the session. If you enter the session late or leave early, you will not receive verification. Verification labels will only be available at the session location. **Lost verification sheets cannot be reconstructed by convention officials.**

Thursday Sessions

Thursday 8:00 am – 8:50 am

53 AMS The Maury Project: El Niño – El Niña

Room 112

Hands-On – 6-12 –Earth & Space

Presenter(s): David W. Curry, Council Rock School District

If you find yourself having difficulty answering questions from your ms/hs students about El Niño and La Niña, then this interactive session is for you!

#28 Phenomena-Driven Inquiry: A Strategy to Explore and Explain Phenomena Using the POQIE Model

Room 211

Demonstration – 4-12 – Biology, Chemistry, Physics, Physical Science, Scientific Practices

Presenter(s): Dr. Vince Mancuso, Twelve Corners Middle School

Phenomena-driven Inquiry is a unique strategy guiding students towards making sense of natural phenomena through the inquiry-based approach. Discover how phenomena can drive the lesson!

#15 Teaching genetics and neuroscience – New in-class activities using Drosophila

Room 218

Demonstration – 4-8 – STEM/STEAM

Presenter(s): Dr. David Garbe, PSBR

Come learn about our new program using *Drosophila melanogaster* (the fruit fly) as the model organism to teach life science concepts surrounding genetics, animal behavior, neuroscience, and experimental design.

#2 STEM Behind Hollywood

Room 203

Hands-On – 9-12 – Biology, Chemistry, Physics, Earth Science, Physical Science, STEM, Environmental & Ecology

Presenter(s): Dana F. Morse, Texas Instrument

Exploring math and science has never been more entertaining. Some of Hollywood's most popular genres set the stage for fun, unusual activities that engage students in the STEM concepts behind the showbiz magic

#58 Take the Leap Into the Frog-Friendly Lab

Room 204

Hands-On – 9-12 – Biology

Presenter(s): Nicole Green, Animalearn

Forget about dissection specimens. Join Animalearn as we explore the latest non-animal methods. Workshop provides hands-on experience with alternatives! One attendee will win a prize valued at \$299!

Thursday, 9:00 am – 9:50 am

#38 Ramp it up! Strategies to Get Your Elementary Scientists and Engineers Writing

Room 112

Hands-On – PK-3 – STEM/STEAM

Presenter(s): Carissa Madeira Noel, Muhlenberg School District

Picture your students clutching their science notebooks and groaning when directed to put their pencils down! Learn and develop writing habits in Elementary STEM.

#27 Practical STEM Mini-Lessons

Room 211

Hands-On – 4-12 – STEM/STEAM

Presenter(s): Alyssa Mahramus, Allen Prendergast, EVERFI

Using EVERFI's no cost digital resources, students independently work through real-world application of STEM concepts. Teachers facilitate mini-lessons from the classroom and afar while collecting pre and post assessment data to improve learning.

#13 Teaching Evolution in Middle School

Room 203

Hands-On – 4-8 – Biology, Environment & Ecology, Scientific Practices, Cross Cuttingting Concepts

Presenter(s): Robert A. Cooper, Pennsbury High School

The Teachers Institute for Evolutionary Science offers information and activities teachers can use to confidently teach evolution. Activities integrate core concepts, practices, and crosscutting concepts.

#69 Using Twitter in a General Chemistry Class

Room 204

Poster Session – College -- Chemistry

Presenter(s): Susan Barrows, Joann Monko, Kutztown University

Results with experimenting using Twitter to foster student interest in chemistry, improve student-teacher communication, increase time out of class with material will be presented.

#67 Bringing the Maker Movement to the High School Engineering Classroom

Room 218

Lecture – 9-12 – STEM/STEAM

Presenter(s): Alison Earnhart, Juniata College

This talk provides a how-to for teaching engineering in the high school classroom, and fostering creative student-centered learning through the values of the Maker movement.

Thursday, 10:00 am – 10:50 am

42 The World of Google in Science

Room 112

Demonstration – 4-12 – Research

Presenter(s): Ben Smith, Lincoln Intermediate Unit

Just when you thought you knew everything about Google. Come and learn the hidden gems that are found using Google to improve science education.

#30 Chromebook and Google Apps for the Science Classroom

Room 211

Lecture – 4-12 – Crosscutting Concepts

Presenter(s) Mike Reynolds, Titusville Middle School

This presentation will explore the basic Google Apps and Chromebooks in the science classroom and how you can organize, share and create with your students.

#8 Using Google Slides to Document the Engineering and Design Process

Room 218

Hands-On – 4-12 –STEM, Scientific Process

Presenter(s) Lauren Beal, Lancaster-Lebanon IU 13

During this session, participants will take off their “teacher hats” and assume the role of a student as they take part in a collaborative STEM learning experience. “Students” will work together to complete a STEM design challenge and document the process using Google Slides.

#17 Reebops-Imaginary Creatures, Real Genetics

Room 203

Hands-On – 4-8 – Biology

Presenter(s): Kent Brusstar, Lancaster County Christian School

Students receive chromosomes from mom and pop Reebop, simulate meiosis and fertilization, and determine the traits of their baby Reebop. Using marshmallows, toothpicks, pipe cleaners and thumbtacks they create this offspring following the genetics “instructions”. Lots of fun and “aha” moments!

#59 Oldies But Goodies – Still Working After All These Years

Room 204

Hands-On – Middle School – Scientific Process

Presenter(s): Doug Brandt, Chambersburg Area Middle School

Join us as we re-visit some tried and true activities from past PSTA newsletters. Attendees will be able to take copies as well as making a model of the activity

#70 Biology: See Life in a Whole New Way

Room 205

Hands-On – 9-12 – Biology

Presenter(s): Jocelyn McRae, Pearson

Ignite curiosity: Authentic case studies and laboratory investigations drive inquiry-based learning. Students directly interact with science phenomena. They engage in real-world problem solving, science and engineering practices, and data analysis.

Thursday, 11:00 am – 11:50 am

#43 Creating a Makerspace to Hack the Classroom

Room 112

Lecture – K-12 – STEM/STEAM

Presenter(s): Ben Smith, Lincoln Intermediate Unit

Learn how to transform your learning space into a true maker ecosystem that promotes student inquiry, problem-based learning, and solution driven work. From the space to the equipment to schedule: it is all important to consider. Whether you are just starting or already have a space, come learn how to hack your way to a better learning environment.

#35 Shifting to the 5 Innovations: How Do We Transform Instruction

Room 211

Hands-On – 4-8 – NGSS 3D Learning

Presenter(s) James Smoyer, Carolina Curriculum

Experience 5 Innovations using Smithsonian's STC/MS "Matter – Its Innovations enhance science teaching. Receive checklists – CCConcepts/SEPractices

#19 Storytime STEM-packs™: Intergrating Science, Math, and Engineering Activities into Children's Literature

Room 218

Hands-On – PK-3 –STEM/STEAM

Presenter(s): Gabriela Rose, Allegheny Intermediate Unit Math & Science Collaborative

Storytime STEM-packs™ integrates science, mathematics, and engineering activities into children's literature, engaging children in making sense of real world phenomena through three-dimensional learning.

#16 Atomsmith® Classroom Online: Interactive, Dynamic and Physically Accurate Models & Activities with Atoms and Molecules

Room 203

Hands-On – 9-12 – Chemistry

Presenter(s): David Doherty, Bitwixt Software Systems

Bring your laptop/Chromebook or iPad and explore 3D models of atomic structure, bonding, reactions, polarity, IMFs & more and visually "discover" concepts in Chemistry

#61 NSF Noyce Grants – Scholarship Monies for Your Students

Room 204

Panel/Discussion – College – Other

Presenter(s): Kathleen "Kathy" Jones, Juniata College

The Robert C. Noyce grant administered through the National Science Foundation is a great way to encourage future STEM teachers with scholarship monies. Join me to find out about our project at Juniata College.

#72 Inertia Around the Curve

Room 205

Hands-On – 4-8 Physical Science, STEM, Scientific Practice, Crosscutting Concepts

Presenter(s): Bill Cline, Lab-Aids

MISCONCEPTIONS ABOUT INERTIA? In this activity participants investigate the forces needed to change the motion of moving spheres of different mass along a circular track.

Thursday, 1:40 pm – 2:30 pm

#49 Using Science Matters and NSTA Learning Center

Room 112

Hands-On – PK-College – Research, Science Practices, Crosscutting Concepts

Presenter(s); Dr. G. Kip Bollinger, Consultant

Participants will learn the networking possibilities of Science Matters and the resources of NSTA's Learning Center. Both are no cost methods to improve communication and teaching.

#34 Illuminating Classroom Experiences with Genetic Transformations Investigations

Room 211

Hands-On – 9-College – Biology

Presenter(s): Tamica Stubbs, Bio-Rad Laboratories

Come and discover how to inspire your students to generate and design laboratory investigations using green fluorescent protein genes and transformation techniques utilized by scientists.

#5 Tech-Enhanced Assessment Techniques to Facilitate Inquiry and Engagement in High School STEM Courses

Room 218

Hands-On – 9-12 –STEM

Presenter(s): Elizabeth Kirman, Lower Dauphin High School/Texas Tech University; Aaron Sams, St. Vincent College/Texas Tech University

Choose your own adventure! Participants will shape the nature of the presentation by engaging with tech-enabled assessment tools and techniques. You lead, we follow.

#6 Light, Color & Spectroscopy for Kids

Room 203

Hands-On – 4 – 8 – Physical Science

Presenter(s): John Varine, Spectroscopy Society of Pittsburgh

Teachers will receive materials to present many concepts about light, color and spectroscopy in interesting & informative ways for elementary/middle school students.

#56 NGSS in Action

Room 204

Lecture – 4-8 – Scientific Process

Presenter(s): Laura Micco & Hilary Buttenfield, The Environmental Charter School

In this session, learn about how the Next Generation Science Standards were implemented successfully for the past five years in a Middle School near Pittsburgh. We will explore how we arranged the standards, share our successes and failures and highlight a few NGSS practices and how we use them in the classroom to engage students

Thursday, 2:40 pm – 3:30 pm

#50 Using Pennsylvania Land Choices

Room 112

Hands-On – 4-12 –Earth Science, Environmental & Ecology, Crosscutting Concepts

Presenter(s): Dr. G. Kip Bollinger, Consultant

Participants will learn mapping, comparison methodologies and resources that provide critical information regarding Pennsylvania's future for earth and environmental science teachers.

#32 1 Class Period + 1 Model System + 2 Cellular Processes = Success 4 Students

Room 211

Hands-On – 9-12 – Biology

Presenter(s): Tamica Stubbs, Bio-Rad Laboratories

Learn how encapsulated algae can be used to investigate photosynthesis and cellular respiration within one period using one CO₂ colorimetric tracking solution. Bring inquiry alive.

#20 Pre-Service Teacher Education and the Maker Space

Room 218

Lecture – PK-3 – STEM/STEAM

Presenter(s): Krista Varano, Kutztown University; Samantha Bolles, Governor Mifflin SD; Anthony Gabriele, Great Valley SD

Come see how Pre-Service Teachers are learning to incorporate 21st Century Skills into their lessons through virtual field trips to a school district in Maker Space.

#76 Deepen Three-Dimensional Learning through Argumentation

Room 203

Hands-On – 4-8 – Biology

Presenter(s): Jennifer Slavick, Delta Education, FOSS

During this active learning workshop, we will focus on strategies for argumentation in the science classroom. Argumentation involves the interplay of different positions. Good arguments are based on evidence based on data, as well as sound reasoning. Ideally, these data come from student firsthand experiences, with additional information from teacher input and associated media. Sometimes the students question the relevance or validity of evidence as a result of argumentation, requiring clarification or improvement of data collection methods or analysis. A handout with easy-to-use strategies will be provided!

#63 A Focus on Modeling in the Phenomenon-Based Classroom

Room 204

Hands-On – 4-8 –Scientific Practices

Presenter(s): Wendy Johnson, Activate Learning

As one of scientific practices embedded in the NGSS, developing and using models allow our students to imagine the unseen, make predictions, ask questions and develop further investigations. Taken from Investigating and Questioning our World through Science and Technology (IQWST®), participants will experience an anchoring phenomenon and draw a model explaining how it works. Models are then shared, critiqued, and participants are guided to develop a consensus model.

#73 Biomes and Invasive Species

Room 205

Hands-On – 9-12 – Biology

Presenter(s): Bill Cline, Lab-Aids

Explore Biomes and Invasive Species! Participants match organism cards to corresponding climate/biome cards, then use literacy strategies to consider the impact of invasive species.

Thursday, 3:40 pm – 4:30 pm

#54 Addressing the Disconnect Between the PA Standards and the PA Assessments

Room 112

Lecture – 4-8 – Science & Math

Presenter(s): Robert Cohen, East Stroudsburg University

Help brainstorm ways to better align PA assessments with the PA eligible content and the spirit of the standards.

#37 Google Classroom for the Science Classroom

Room 211

Hands-On – 7-12 – Crosscutting Concepts

Presenter(s): Andrew Walton, Upper Moreland High School

How to use google classroom to enhance your science learning community. Computers are needed by attendees.

#22 Using Aquaponics to Teach Science Concepts

Room 218

Lecture – K-12 – STEM/STEAM

Presenter(s): Nicole Koller, Steelton- Highspire Jr./Sr. High School

This workshop will provide basic background on workings of an aquaponics system. Participants will learn about both large and small scale aquaponics systems and how to use aquaponics to teach Keystone anchors, NGSS concepts and PA Standards. Sample lesson plans and STEM incorporation possibilities will be discussed. Suitable for all grades K-12.

#41 Safer Chemistry: Green Chemistry Replacement Labs

Room 203

Hands-On – 9-12 – Chemistry

Presenter(s): Lurea Doody, West Greene High School

Explore safer, inexpensive green chemistry alternatives to traditional labs and walk away with free resources for your classroom.

#64 A Focus on Constructing Written Explanations in the Phenomenon-Based Classroom

Room 204

Hands-On – 4-8 – Scientific Practices

Presenter(s): Wendy Johnson, Activate Learning

As one of the scientific practices embedded in the NGSS, constructing explanations and designing solutions is the ultimate goal of science and engineering, respectively. Engaging students in writing formal scientific explanations requires scaffolding, however. Taken from Investigating and Questioning our World through Science and Technology (IQWST®), participants will learn how to implement the Claim-Evidence-Reasoning (CER) framework to help their students know how to write scientifically.

Friday Sessions

Friday, 8:00 am – 10:50 am

#12 Computer Software for Chemistry and Physics Teachers

Room 205

Demonstration – 9-12 – Chemistry, Physics, Physical Science

Presenter(s): Hubert MacDonald, John Varine, Robert Paysen, Society for Analytical Chemists of Pittsburgh (SACP)

Explore web-based chemistry software from the Journal of Chemical Ed Digital Library. Introduction to Vernier's Graphical Analysis and Logger Pro. Take home this software package. Introduction to web based Chemistry and Physics Applications and Simulations. Follow along on your own laptop.

Friday, 8:00 AM – 8:50 am

#48 Community Engagement: Making Local Citizen Science Connections

Room 112

Lecture – Other – Scientific Practices

Presenter(s): Holly Travis, Indiana University of Pennsylvania

This session will discuss community engagement projects, how to identify appropriate organizations and activities, and ways to assess the impact of community-based science projects.

#36 Coding with First Graders? The Smithsonian Says YES!

Room 211

Hands-On – PK-3 – Physical Science

Presenter(s): James Smoyer, Carolina Curriculum (Smithsonian Science Program)

Hands-On workshop, teaching young children coding. Smithsonian's New "Science for the Classroom", Sending Message Using Sound. Uses NGSS practices, makes standards come alive. Rigorous science.

#7 PSTA General Membership

Room 218

As designated in the PSTA Constitution, each year one General Membership Meeting is to be held and presided over by the President. The purpose of the meeting is to gather input from the membership at large, summarize activities of the organization for the year, and act on any business requiring action of the membership. Your attendance and input are encouraged.

#14 What can PSBR Do for You?

Room 203

Lecture – 9-12 – STEM/STEAM

Presenter(s): David Grabe, PSBR

PSBR provides in-class projects, workshops, speakers, and hands-on experiences for students from kindergarten through college. Learn about how you can benefit from our programs!

#60 Renewable Resources Field Trip Based on "CLUE"

Room 109

Panel/Discussion – 4-8 – Environmental/Ecology, Crosscutting Concepts

Presenter(s): Stephanie Ringer, Juniata College

Join us for a junior high school field trip experience based on a Clue inspired adventure, to catch a culprit using knowledge of renewable resources. Lesson ideas will be shared.

#74 Modeling the Introduction of a New Species

Room 204

Hands-On – 4-8 – STEM, Environmental & Ecology, Scientific Practice, Crosscutting Concepts

Presenter(s) Bill Cline, Lab-Aids

New Species in the Ecosystem? This card-sort activity models the introduction of a new species with special attention to the effects on the existing predators and producers.

Friday, 9:00 am – 9:50 am

#40 Drop the Puck – Teaching STEM Skills and Careers Through Sports

Room 112

Hands-On – 4-8 – STEM/STEAM

Presenter(s) Alyssa Mahramus, EVERFI

Striking a balance between Technology integration and engagement can be challenging. By using online lessons, Hockey Scholar brings STEM concepts to life by leveraging the fast-paced game of Hockey.

#68 Organs, Genetics, Diseases Oh My! Science and Health Resources for Middle/High School

Room 211

Lecture – 6-12 – Environmental Health, Genetics, Biology and General Health

Presenter(s): Linda N. Collins, National Network of Libraries, Medicine, Middle Atlantic Region (NNLM MAR)

Come and learn about the free, engaging and reliable science and health resources from the National Library of Medicine for middle and high school students.

#9 Study Your Local Watershed with the NSF Teaching Environmental Sustainability – Model My Watershed Resources

Room 218

Hands-On – 9-12 – Environment and Ecology

Presenter(s): Steve Kerlin, Stroud Water Research Center; Dr. Nanette Marcum-Dietrich, Millersville University;

Milessa Hess, Milton Hershey School; Carolyn Staudt, Concord Consortium; Melinda Daniels, Stroud Water Research Center; David Reider, Education Design

Learn about scientific watershed GIS modeling software, a simulated storm model, TI Sensor Tag for schoolyard data, and curriculum resources for middle and high school.

#4 The Lady Tasting Tea and the Student's t-Test

Room 203

Hands-On – 9-12 – Scientific Process

Presenter(s): Robert A Cooper, Pennsbury High School

Guide students through the analysis of data using t-test. Students compare the averages of two data sets. A computer is needed during the workshop.

#55 Green Chemistry and the Next Generation Science Standards

Room 109

Hands-On – 9-12 – Chemistry

Presenter(s): Lurea Doody, West Greene High School

Participants will perform an extraction of the essential oil d-Limonene from lemon using super-critical carbon dioxide. The 12 Principles of Green Chemistry will be explored as they relate to the d-Limonene lab and the NGSS

#66 Flipping Your Classroom

Room 204

Hands-On – Middle or High School – Technology

Presenter(s): Andy Walton, Upper Moreland High School

Flipped classroom is a type of blended learning that reverses the traditional learning environment by delivering instructional content, often online, outside the classroom. Come see how to do it! Computers are helpful

Friday, 10:00 am – 10:50 am

#44 Employ Design Thinking with 3D Printing

Room 112

Lecture – K-12 – STEM/STEAM

Presenter(s): Ben Smith, Lincoln Intermediate Unit

3D printers open up a learning path that allows students to design, build, communicate, and share their very own solutions to real world problems through the lens and application of content standards. When combined with design thinking, it makes a powerful learning tool for students.

#39 Meeting Science Standards with Wireless Data Collection and Analysis with PASCO Technology

Room 211

Hands-On – 9-12 –STEM/STEAM

Presenter(s): Christopher Wilhelm, PASCO Scientific

Enable more robust scientific investigations by incorporating wireless sensors into your lab activities. Get hands-on experience with wireless sensors that can be incorporated into your Life, Earth, or Physical Science Labs.

#3 But I'm Not a Reading Teacher: Strategies for Disciplinary Literacy in Science

Room 218

Lecture, -- 4-8 – Crosscutting Concepts

Presenter(s): Lauren Beal, Lancaster-Lebanon IU 13

How is disciplinary literacy different than content area literacy? How do we teach disciplinary literacy skills? Explore the unique characteristics of literacy in science and the specific skills students need to make meaning in this discipline.

#26 Engineering Endeavors: Engaging Young Students with the Engineering Design Process

Room 203

Hands-On – PK-3 – STEM/STEAM

Presenter(s): Dr. Donna Kowalczyk, University of Pittsburgh at Johnstown

Engineering design activities present creative thinking and problem solving opportunities for young students. This session actively explores the engineering design process and basic strategies used to incorporate it with science instruction.

#51 PA Science Curriculum Framework

Room 109

Lecture – PK College – All Areas

Presenter(s): Dave Bauman, PDE

The session will focus on the PA Science Framework which was released this year. It will deal with similarities/differenced to NGSS, 2002 Standards, and the voluntary standards on SAS.

#71 Bring Three-Dimensional Learning to Life through Sense-Making in Middle

Room 204

Hands-On – 4-8 – Physics

Presenter(s): Jennifer Slavick, , FOSS

Join FOSS trainers to apply principles of three-dimensional learning within the context of active investigation and collaboration in the middle school science classroom. Participants will begin by engaging in a hands-on investigation. Through the experience, we will collect, analyze, and interpret data, and collaboratively develop visual representations and conceptual models. By constructing meaningful explanations through science-talk and vocabulary acquisition strategies, a process of “sense-making” to deepen student learning of the three dimensions will be revealed.

Friday, 11:00 am – 11:50 am

#45 Building a Complete STEM Program

Room 112

Hands-On – K-12 – STEM/STEAM

Presenter(s): Ben Smith, Lincoln Intermediate Unit

STEM programs should include a balance of activities to provide students the best opportunities to explore their passions. Come learn how to build a program that meet the 4 strands of STEM: Build, Code, Create & Design. You will engage in mini-activities for each strand.

#25 Citizen Science: What’s the Buzz and How Can I Get My Students Involved?

Room 211

Hands-On – K-12 – Crosscutting Concepts

Presenter(s): Valerie Stone, Lesa Bird, Advancing Science at Gettysburg College

This session will cover the basic principles and educational benefits of citizen science. Several sample projects from a variety of scientific domains will be introduced; you’ll be sure to find a project that supports your existing curriculum!

#11 Using Science Literature to Guide Science Inquiry K-5

Room 218

Demonstration – PK -8 – STEM, Crosscutting Concepts

Presenter(s): Kim Stillwell, Cynthia Holcomb, NSTA

Never before has it been so easy to interest students in reading and science. Picture-Perfect Science combines the appeal of children's picture books with science

#18 Ecology of HHMI BioInteractive: Modeling Ecological Relationships

Room 203

Hands-On – 9-12 – Environmental and Ecology

Presenter(s): Karen Kucci, Hopewell Valley Central High School

Come explore free resources using real data that addresses ecological concepts such as food webs and niche partitioning using observations, arguing from evidence and modeling.

#57 Totally Rad – Nuclear Science Activities

Room 109

Demonstration – 9-12 – Earth & Space Science

Presenter(s): Candace Davison, Penn State University

Radiation is a part of our natural world – learn about basic radiation concepts and applications of nuclear science through activities.

#77 Look What I Learned! Science Notebooks in the Elementary School Classroom

Room 204

Hands-On – PK-3 – Science Practices

Presenter(s): Amy Hamacher, Jen Slavick, FOSS

The science notebook is a powerful learning tool for both students and teachers. Learn how to incorporate science writing to benefit your k-5 classroom.

Friday, 1:40 pm – 2:30 pm

#46 Going Beyond Data Collection: Sharing a Science Classroom

Room 112

Hands-On – 6-12 – Physical Science

Presenter(s): Ben Smith, Lincoln Intermediate Unit

This model lesson will demonstrate how students can collect and share data and produce a digital report. Bring your own device to participate as a student or come observe all the action.

#31 DIY Green STEM Technologies to Monitor Watersheds

Room 211

Hands-On – 9-12 – STEM/STEAM

Presenter(s): Tara Muenz, Stroud Water Research Center

Stroud Water Research Center presents information and a hands-on demo of new low-cost DIY environmental sensors capable of monitoring water quality and soils

#10 Merging Students, Science, and Streamside Forest Monitoring

Room 218

Lecture, Demo, Hands-On – 4-12 – Biology, STEM Environmental and Ecology, Research, Scientific Practices

Presenter(s): Jennifer Totoro, Tara Muenz, Dr. Steve Kerlin, Stroud Water Research Center

Stroud Water Research Center educators will share case studies, models, and curriculum developed to encourage youth in restoring streamside forests and in watershed restoration monitoring.

#23 Dissecting Animals? Frog-get About It!

Room 203

Hands-On – 9-12 – Biology

Presenter(s): Samantha Suiter, TeachKind

Get hands-on experience with dissection software programs, covering educational efficacy, economic benefits, and current law/policies regarding the use of animals in science. Participants are asked to bring laptops.

#62 Student Teachers and Job Seekers: Preparing for the Interview

Room 109

Panel/Discussion – College – Other

Presenter(s): Kathleen “Kathy” Jones, Juniata University

Keys to success for the interview. Do ‘s and don’ts for the actual interview day and prepping for potential questions.

#75 Prospecting for Mineral Oil

Room 204

Hands-On – 9-12 – Earth & Space Science

Presenter(s): Bill Cline, Lab-Aids

How do geologists look for mineral oil? Participants search for a layer of rock that contains a valuable mineral, molybdenum, by testing sediments collected

Friday, 2:40 pm – 3:30 pm

#52 PDE Kawfee Klatch

Room 112

Panel/Discussion – PK – College – All Areas

Presenter(s): Dave Bauman, PDE

This will be an informal Q&A time to talk about your questions and issues. Items may include ESSA, changes in PSSA, curriculum, etc. Participants will determine the agenda.

#33 The Science Classroom Magic of the Multifaceted ELISA Assay!

Room 211

Hands-On – 6-College – Life Science and Environmental Science

Presenter(s): Tamica Stubbs, Bio-Rad Laboratories

Come and discover how data for conservation efforts, climate change, GMO’s, drug and infectious agents (even zombie viruses) can be elucidated using the ELISA technique.

#24 Teaching the Mechanism Behind Plate Tectonics

Room 218

Lecture – 4-8 – Earth & Space Science

Presenter(s): Kathryn M. Bateman, The Pennsylvania State University

Teaching plate tectonics to middle grades is a challenging endeavor. We present a three-part lesson to help students grasp the mechanism behind plate motion.

#65 Google Apps for PSTA Board Members

Room 109

Hands-On – PSTA Board – Crosscutting Concepts

Presenter(s): Galen Kreiser, 21st Century Cyber Charter School

Learn how to use Google apps (Gmail, Google Drive, etc.) to maximize communication and cooperation in our organization.

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“Light, Color & Spectroscopy for Kids” (ES/MS Teachers)

Session #31 – Thursday, 1:45 pm – Room 203

“Computer Software for Chemistry/Physics Teachers”

Session #12 – Friday, 8:00 – 10:50 AM – Room 205

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