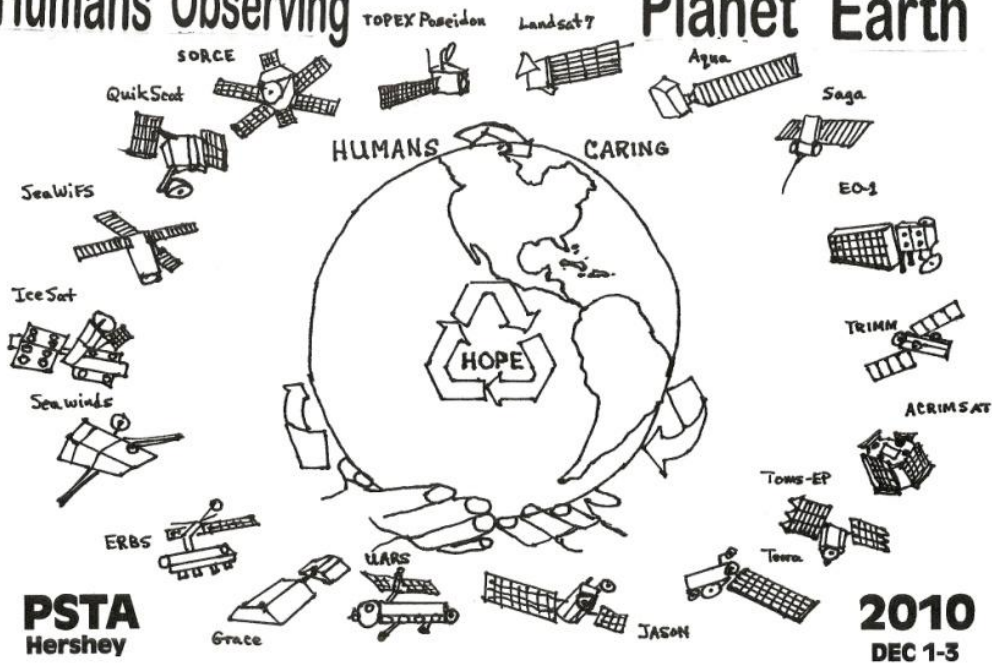


# Humans Observing Planet Earth



The PSTA Annual Convention  
December 1-3, 2010  
Hershey Lodge and Convention Center  
Hershey, PA



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# *Welcome*

Welcome back to Hershey for the annual PSTA convention.

I hope you had attended and enjoyed the NSTA convention in Philadelphia this past March. I hope this convention will be just as exciting and informative. Wishing you hope is the theme for this year's PSTA conference; that is **HOPE: Humans Observing & Protecting Earth**. As a biology teacher starting his 35<sup>th</sup> year with the East Penn School District, I have always used this theme in my teaching to encourage students to see the importance and relevancy of science to their daily lives and the impact their lives have on the environment. I encourage them to see the big picture, "think globally", by observing the details and interactions of life on this planet; to appreciate the beauty of our world; then, we can "act locally" through creative and innovative problem solving to protect our natural resources and all life on this planet. Together, individuals can make a difference, for this is our home; spaceship Earth. If you share this philosophy with me, then there is HOPE in our future!

At this convention you will find many presenter sessions developing this theme. Come, listen and hear their message, and share their HOPE with your students. Visit the exhibit hall and stroll down the environmental alley and see what state agencies and vendors are sharing this HOPE. Join us Thursday evening for the Awards Banquet and hear the message of HOPE that Kevin Butler, aerospace engineer, and Capt. Ken Ham, astronaut, bring us from NASA's Johnson Space Center. Truly, I hope you will find something of interest and value to share HOPE with your students, our future!

Sincerely filled with HOPE,  
Keith Butler, Convention Chairman

## ***Convention Committee***

Bill Ayers .....	Troubleshooting Registration/Financial
Helen Ayers .....	Troubleshooting Registration/Financial
Kathy Blouch .....	Science Leadership Dinner
Doug Brandt.....	Audio Visual
Keith Butler.....	PSTA President Elect Conference Chairperson Troubleshooting
Kathleen Conn .....	Hospitality/VIPs
Patty McGinnis .....	Act 48
Herb Crawford .....	Non-PSTA Awards On-site Registration
Mike Cullin .....	Exhibits
Ambra Hook.....	Evaluations
Kathy Jones.....	Science Store
Don Keys .....	Treasurer
Don Kline.....	Program Contract Negotiations
Kathy Massey.....	Awards Banquet
Ed Owens .....	Registration/Credentialing
Debbie Johnson.....	Volunteers
Bob Penrose .....	PSTA Awards Past President
Christine Royce.....	Executive Secretary Program Contract Negotiations Marketing/Publicity
Ruth Ruud .....	Recording Secretary Corporate Sponsorship Awards Banquet/Meals
Steve Sexsmith.....	On-site Registration
Cathy Stephenson.....	Field Courses
Patti Vathis.....	PDE
Carli Yeager-Hall.....	PSTA President Onsite Registration

# ***Conference Information***

## ***Registration Hours***

The registration area will be open during the following times to pick up your registration materials.

Wednesday, December 1, 2010

7:00 p.m. -10:00 p.m.

Thursday, December 2, 2010

7:30 a.m. – 3:00 p.m.

Friday, December 3, 2010

7:30 a.m. – 12:00 p.m.

## ***Meeting Rooms***

All sessions will be held at the Hershey Lodge and Convention Center. Meeting rooms are found on the Main Level, Lower Level, and Tower 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 one and three hours depending upon 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 Convention features an exhibit hall representing over 60 vendors of science education materials. Under one roof, you will have the opportunity to view the latest in textbooks, audiovisual equipment, software, scientific equipment, and other science classroom materials. This is also the location of the NSTA Science Store in a Box. The Exhibit Hall is open on Thursday, December 2, 2010 beginning at 9:00 a.m. through 5:00 p.m. There will be a Grand Opening of the Exhibit Hall at 9:00 a.m. on Thursday. It is open again on Friday, December 3, 2010 from 9:00 a.m. through 3:00 p.m.

## ***Information Booth***

An Information and Trouble Shooting Booth is provided for your convenience. General convention questions can be answered. This booth is located across from the Blue Room Section of the Exhibit Hall.

## ***Meal Functions***

The Science Leadership Dinner and Awards Banquet have tickets available for purchase at the Registration Booth.

# Floor Layout/Map of Hershey Lodge

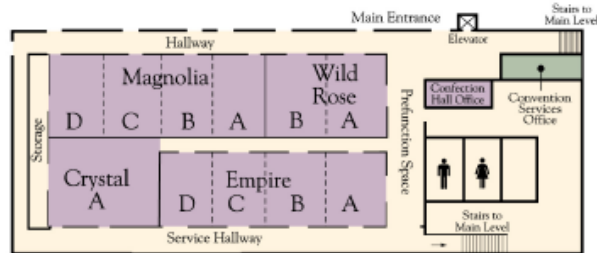
## Tower Level



## Main Level



## Confection Hall Level



# ***Business Meetings and Functions***

**Thursday, December 2, 2010**

**3:30 -4:30 p.m.**

**#1- Empire A**

**PSTA Board of Directors Meeting**

Panel/Discussion – All Levels – Other

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. Brief reports will be presented by committee chairs as well as association business that needs to be addressed will be handled at this meeting.

**Friday, December 3, 2010**

**12:45-1:45 p.m.**

**#2- Crystal A**

**PSTA General Membership Meeting**

Panel/ Discussion – All Levels – Other

Presenter: Carli Yeager Hall, 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.

**Friday, December 3, 2010**

**7:00 – 8:00 a.m.**

**Past President's and Fellows Breakfast**

All past presidents and PSTA Fellows are encouraged to join their colleagues at this breakfast meeting. Come spend some time discussing the past, sharing stories, and looking toward the future.

## ***NSTA Science Store in a Box***

The NSTA Science Store in a Box will be back at the PSTA Convention this year to provide literature and resources to help our Pennsylvania Science Teachers stay on the cutting edge. Covering all aspects of science as well as pedagogy, the NSTA store is a valuable resource for you. Also with the NSTA Science Store in a Box will be the Author Strand books and signings. 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 Convention. 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 Convention***

Act 48 attendance verification will once again be available at the PSTA Convention. 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 convention for Act 48 credits, it is your responsibility to make sure your district accepts your convention 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.

# ***Science Leadership Dinner***

*Twelfth Annual Leadership Dinner and Roundtable Discussion*

Wednesday, December 1, 2010—Nigerian/Trinidad Room

5:30 – 9:30 p.m.



## **If Not Now, When? Susan Kovalik**

With the launch of Sputnik on October 4, 1957, the United States began to see the sciences with a sense of urgency. Over the ensuing 53 years we have continued to look for science/environmental curriculum and instruction that would encourage and direct our students to be well grounded in the big ideas that lead to innovation, creativity and problem solving. Today, we have the opportunity to enhance all the sciences with our deep understanding of how the brain learns. Thirty years of neuroscience has unveiled for us opportunities to orchestrate learning in new and meaningful ways. If Not Now, When?

- |         |   |
|---------|---|
| 5:15 pm | Registration (ACT 48 hours – make sure you have your ID#)               |
| 5:30 pm | Meet and Greet  |
| 5:45 pm | Welcome and Introductions: Dr. Kathy Blouch                             |
| 6:00 pm | Dr. Patricia Vathis, Environment and Ecology and Acting Science Advisor |
| 6:15 pm | Dinner Served   |
| 7:00 pm | Keynote Speaker - Susan Kovalik -- “If Not Now, When”?                  |
| 8:00 pm | Move to Breakout Sessions   |

Sample of session:

- Addressing the technology and engineering of STEM
- A Look at the New Environment and Ecology Standards
- Biology Keystone Exam Curriculum Framework
- Using a science evaluation protocol with the Danielson Model for Teacher Evaluation
- Science Funded Initiatives in PA

***Sponsored by  
Office of Environment and Ecology, PDE, Delta Education and  
Continental Press.***

# ***Annual Banquet and Awards Recognition***

*Thursday, December 2, 2010 – 6:00pm – 8:30pm – Aztec/Nigerian Ballroom*



**Kevin Butler**

Kevin joined the Shuttle Ascent Team, Johnson Space Center in 1999 working on guidance of main shuttle engines, emergency landing areas, and training astronauts in the flight guidance simulator, eventually becoming the team leader. He spent a year on the ISS guidance system team, before his current position of Systems Engineer for L-3 Communications Corporation, Spacecraft Software Engineering Branch at NASA's Johnson Space Center supporting design and development of the Orion Crew Exploration Vehicle. B.S. Aerospace Engineering, Minor in Space Studies, Embry-Riddle Aeronautical University, 1999 Master of Engineering in Space Operations, Mission Design, Planning, and Systems Engineering, University of Colorado at Colorado Springs. 2003



**Capt. Ken Ham**

Captain Ham has flown several times in space with the most recent being as part of the STS-132 crew. STS-132 Atlantis (May 14-26, 2010) was the 132nd Space Shuttle flight, and the 32nd Shuttle flight to the International Space Station. STS-132 was launched from the Kennedy Space Center, Florida, and docked with the International Space Station on May 16 to deliver a Russian-built Mini Research Module (MRM1) to the International Space Station. B.S. Aerospace Engineering, US Naval Academy, 1987 M.S. Aeronautical Engineering, Naval Postgraduate School, 1996 Distinguished Graduate U.S. Naval Test Pilot School Astronaut Candidate Training, 1998

## ***Our NASA Experience at Johnson Space Center and Beyond By Kevin Butler and Capt. Ken Ham***

The following will be recognized:

PSTA Awardees  
Dr. Patricia Vathis  
Mr. Charles Howard  
Ms. Kaja Spaseff

PAEMST Elementary State Finalists  
Mrs. Jessica Whetstone  
Mrs. Phyllis (Penny) Glackman

## Field Courses

All field course money is NON-REFUNDABLE unless the course is cancelled by PSTA. PSTA has made efforts to run field courses this year by reducing the number of people required. As long as the minimum number of registrations is received, the field course will run.

**Biomedical Research Workshop**  
**Min 9/Max 12**

**Thursday, December 2, 2010**

**8:30-11:00 AM**  
**Price: \$20.00**

Receive the latest information and teaching material on biomedical topics, meet with scientists and tour a research facility. Content is appropriate for upper middle and high school teachers. The workshop is sponsored by the Pennsylvania Society for Biomedical Research (PSBR) a private, non-profit science education organization, and addresses current topics in biomedical research and testing. The workshop will be at the Hershey Medical Center, Penn State University College of Medicine, Hershey, PA. Teachers will learn about the process, benefits and relevance of biomedical research and about the role and care of animals in research. A tour of the research facility and presentations by staff about animal welfare is included during the action filled workshop. Scientists from the Penn State College of Medicine will present information about their latest research, their own career paths and opportunities for young people in science. Participants will be given instructional laboratory tours and also receive supplemental materials to take back to the classroom.

**Whitaker Center**  
**Min 6/Max 12**

**Thursday, December 2, 2010**

**8:15AM-12:00PM**  
**Price: \$35.00**

With three floors of imaginative, engaging exhibits, the Science Center is an irresistible invitation to explore the sciences, perform experiments, and discover more about the world around us. From *Kids Place*- a kid-sized cityscape designed just for children under 5- to *Forces of Nature*- a mind-blowing look at how weather and geology affect our earth- there's something to challenge curious minds of all ages. Something new and especially "cool" being offered to PSTA visitors this year is the opportunity to witness "*Surgery Live*". During your visit, you may elect to view a real time gastric by-pass or laparoscopic hysterectomy being performed during this two hour program. Age appropriate teaching activities will be shared for middle and high school teachers. Staff personnel from the Center will also share information about science overnights, educator programs, and fee-based workshops for students and families.

**Indian Echo Caverns**  
**Min 10/ Max 12**

**Thursday, December 2, 2010**

**1:15-3:30 PM**  
**Price: \$25.00**

Join other PSTA adventurers and explore a great place for learning, Indian Echo Caverns. You'll be amazed by the multitude and variety of beautiful limestone formations in the caverns. A professionally trained interpretive guide will explain the cavern's geology, history, and unique formations. The tour will be about 45 minutes in length. The temperature inside is a constant 52 degrees, which will feel almost tropical on an early December day! Cameras with flash and camcorders are permitted.

**Nanotechnology Workshop-Harrisburg U.**  
**Min 10 /Max 30**

**Friday, December 3, 2010**

**8:30 AM-12:00**  
**Price: \$20.00**

Nanotechnology can be summarized as control of matter at the level of atoms. It is a *scale* of technology- not a type. It can be used to create new materials, devices and systems using nanomaterials that have novel properties and structure. With respect to the various applications for medicine, agriculture, environment and alternative energy, this new technology is offering promise where conventional technologies have been limited in detecting, treating, and remediating. More recently applications of nanotechnology in alternative energy sectors have been emerging and hold a lot of promise. With the focus from the federal and state government on energy-independence, environmental nanotechnology has gained a new perspective and significant momentum. Since the field of nanotechnology is a rapidly developing, but a relatively new field, the high-school syllabi are yet to include it in their curriculum. With the rapid advancement in this field, it is obvious that knowledge of

nanotechnology will soon be an important skill for work-oriented education. This workshop aims at creating awareness among educators and their students about this fast-growing field and its applications and implications. Offering this workshop aligns well with the state-wide need to offer work-force oriented education and PDE's focus on STEM education. The topic also aligns appropriately with the Science standards by PDE. The workshop will enable teachers to take back with them a classroom ready lesson plan that they can include in their class room activity without the need for any sophisticated instrumentation/equipment. This is an ACT 48 eligible activity and is sponsored by Harrisburg University of Science and Technology through the Capital Area Biotechnology Partnership grant.

**The State Museum and Planetarium**  
**Min 9/Max 12**

**Friday, December 3, 2010**

**9:00-12:00 AM**  
**Price: \$25.00**

The State Museum of PA offers visitors four floors of exhibits and activities presenting Pennsylvania's story, from earth's beginning to the present. You can also find archaeological artifacts, minerals, paintings, and decorative arts, animal dioramas, industrial and technological innovations and military objects representing the Commonwealth's heritage. The museum also houses a multi-media planetarium, which allows visitors to learn about and explore the stars and planets. Included in the trip will be a 25 minute show in the digital planetarium entitled **Ice Worlds**. Audiences will explore the critical relationship between ice and life. Narrated by Emily Watson, the show will take viewers to the Arctic and Antarctic regions, to examine the ecosystems that live and thrive there and show how their survival is connected to our own. Beyond earth, viewers will see how the existence of ice shapes the landscape and natural systems on other planets and moons in our solar system. Teacher resources offered by the museum will be shared with visitors.

## **Open House on the Pitt Mobile Science Lab**

**Thursday, December 2, 2010 – 9:00 a.m. – 12:00 p.m.**

**Friday, December 3, 2010 –9:00 a.m. – 12:00 p.m.**

Climb aboard the *Pitt Mobile Science Lab*, our 53-foot traveling classroom, any time this morning and discover how *PittBioOutreach* programs encourage young scientists and support their teachers. Learn about our mobile lab, summer workshops, *Gene Team* on-campus research, *PittKits* modules, and more!

# *Thursday Sessions*

## **Thursday, December 2, 2010 – 8:00-9:00 a.m.**

#46 Tour PCEE's New Outdoor Classroom Resource Guide!

Empire D

Demonstration-Other-Environmental

Presenter: Melissa Reynolds, PA Center for Environmental Education, Slippery Rock, Slippery Rock, PA

Do you want an outdoor classroom at your school, but don't know where to start? Look no further than PCEE's Outdoor Classroom Resource Guide! This presentation will provide an exciting first look and in-depth tour of the online resource.

#23 A New Look at Radioactivity

Crystal A

Hands-on-11-12-Physics

Presenter: Jack Sipe, Gettysburg College-Advancing Science Program, Gettysburg, PA

Safety Information: Participants will use small, known radioactive sources of less than 0.1 micro curie. Various unknowns will also be used. Tongs and forceps will be provided for safe handling.

Participants will use radiation detectors and lab interfaces to explore randomness and spontaneity of background radiation. Learn to answer common student questions with your own experimental data.

#33 FOSS: The Progressive Arrangement of Thinking. From Primary Grades through Middle School

Empire C

Hands-on-5-8-Inquiry

Presenter: Bill Metz, Science Consultant, Fort Washington, PA

The FOSS curriculum has delineated the process skills along developmental lines while matching appropriate subject content in meaningful ways. Join us for this hands-on workshop and experience the conceptual flow of FOSS from the primary years of middle school.

#9 Student Science Research Projects for Middle School and High School

Empire B

Lecture-Other-Other

Presenter: Dr. Laura Fisanick, Cambria Heights Middle School, Patton, PA

Student-conducted research projects do not need to be a negative experience for students or teachers. The curriculum I will share will show teachers how to provide students with positive science fair experiences related to curriculum, pedagogy, and assessment. Handouts will be provided.

#60 Newton's Law

Magnolia A

Demonstration-5-8-Physics

Presenter: Jeffery Wetherhold, Parkland High School, Allentown, PA

A Newton's Laws demonstration show with thorough explanations. This presentation is geared for middle school teachers interested in better understanding Newton's Three Laws.

#63 High School Bio and Chemistry meets Hershey College of Medicine

Magnolia B

Panel/Discussion – 9-10 – Other

Presenter: Dr. Kathleen M. Jones, Juniata College, Huntingdon, PA; Dr. Judy Zaenglein, Dr. Judith Witmer; Penn State Harrisburg, Harrisburg, PA

What happens when you select 45 plus enthusiastic and energetic rising high school sophomores and juniors to spend a week at Hershey College of Medicine along with their teachers? Come find out about the NIH support SE+\_CREST program sponsored by the College of Medicine and Penn State.

#75 NOAA's Teacher At Sea

Wild Rose A

Lecture – K-4 – Earth Science

Presenter: Kristin Joivell, Juniata Valley Elementary School, Alexandria, PA

Learn about the opportunity of a lifetime! In this workshop, you will learn about how you can become a NOAA Teacher At Sea, my experiences in Alaska as a Teacher At Sea in 2009, and how I incorporated the experience into my classroom teaching.

#87 Using Technology to Meet the Needs of All Learners

Magnolia C

Lecture

Patty McGinnis, Arcola Intermediate School, Eagleville, PA

Participants will learn how Web 2.0 applications address individual learning style, are differentiated for individual learner needs, and teach 21<sup>st</sup> Century Skills. Participants will engage in a hands-on activity suitable for all grade levels and disciplines.

#95 Connecting the Dots: Fun, Fascinating, & Functional Integration of Science, Technology, and Literacy

Magnolia D

Lecture--Grades 5 – 8-- Environmental

Presenter: Elizabeth Cullin, Park Forest Elementary School, State College, PA; Jennifer Cody and Lisa LaDriere-Konan

The Zine project engages students in authentic, purposeful science writing while maximizing instructional time by integrating science, technology, and literacy. Utilizing our schoolyard as a motivating, relevant context, students researched self-chosen topics and published zines and a schoolyard field guide.

#101 Discover the Solar System and Beyond

Cocoa 6

Hands-on--Grades 3 – 8;-- Earth Science

Presenter: Gina Wofford, Carolina Consultant

The universe is as vast and wide as the topics a teacher needs to teach space science. However, meeting space science educational standards with the classroom time allotted can be challenging. GEMSA Space Science Sequences allow you to teach exactly what you need to cover in a timely manner.

#6 Seeing the Invisible

Empire A

Hands-On—7-10—Earth Science/Physical Science

Presenter: Christine Anne Royce, Shippensburg University, Shippensburg, PA

How do we "see" something that exists but is not visible? This workshop will allow participants to explore the properties of waves - from radio to ultraviolet - in an effort to answer this question.

### **Thursday, December 2, 2010 – 9:00a.m. -12:00 p.m.**

#80 110 Perplexing Problems, Conundrums, Paradoxes and Tantalizing Teasers for the Classroom and Dinner Blend of Hands-on, Demonstrations, Discussion, Group Work, and Narrative

Wild Rose B

Grades 4 – University; General interest, inquiry, problem solving, mental calisthenics

Dr. Mitch Batoff, Professor Emeritus, New Jersey City University

In this newly revised version of a popular workshop we will explore a sampling of interesting, mind-stretching perplexities. Only attend this session if you don't mind having your head boggled! If you enjoy this sort of activity you will love this workshop. There will be many challenges that you can use tomorrow, either with your students or at the dinner table. Useful handouts. Neat door prizes for the first 24 to show up.

**Thursday, December 2, 2010 – 10:00-11:00 a.m.**

#66 Environmental Education in the 21<sup>st</sup> Century Classroom

Crystal A

Lecture – 5-8 – STS

Presenter: Mr. David Kline, Montgomery School, Chester Springs, PA

Learn how Montgomery School's Programs for Environmental Awareness & Sustainability (PEAS) develops 21<sup>st</sup> Century skills, cultivates forward-thinking environmental problem solvers, and encourages behavior changes in students, and the community, to help everyone live in a more sustainable manner.

#65 Preparing for the PA Chemistry Keystone Assessments

Empire A

Lecture – Other – Chemistry

Presenter: Drue Feilmeier, Lancaster-Lebanon IU 13, Lititz, PA

Participants in this session will explore a process using tools from the PA SAS Portal to strengthen their Chemistry curriculum alignment and prioritization for ALL students.

#10 Scientific Methods Using Bubble-ology Techniques in the Chemistry of Soap

Empire B

Hands-on-9-10-Physical Science

Presenter: Joyce Hubert-Theriot, Rustin High School, West Chester, PA; and Judith Jones, Rustin High School, West Chester, PA

Investigate successful strategies employed in an inquiry based, chemistry of soap project. Examine a successful online collaboration between 2 districts where high school students brainstormed ideas, questions and procedures with elementary students. Perform the innovative plating technique that can be used K-12 to allow for the best bubble analysis.

#21 Become An Environmental Investigator

Empire C

Demonstration-K-4-Environmental

Presenter: Ruth Ruud, Educational Consultant, Fairview, PA

Come; participate in a journey through trade books that lead you and your students to understanding environmental stewardship. Investigate environmental issues using hands on interdisciplinary activities. Walk out with a unit that can be used throughout the school year.

#24 Science in Motion Drives Discovery

Empire D

Lecture-11-12-Integrated

Presenter: Wendy K. Griest, Elizabethtown College, Elizabethtown, PA; Karen Spuck, Clarion University, Clarion, PA; Sharon Conaway, Juniata College, Huntingdon, PA; and Jack Sipe, Gettysburg College, Gettysburg, PA

The Science in Motion program, supported by state funding and overseen by the Pennsylvania Department of Education, delivers state-of-the-art science equipment, teaching assistance and support, and professional development to high school teachers throughout Pennsylvania.

#25 Is a Picture Worth 1000 Words?

Magnolia A

Lecture-5-12-Pedagogy

Presenter: Patricia Waller, Educational Consultant, Allentown, PA

Images surround the students in science classrooms: posters, displays, video and computer images and textbooks. Students have difficulty using images to learn science. This presentation will offer strategies for helping students utilize these images to learn science concepts.

#56 Here Comes the Sun

Magnolia B

Hands-on-5-8-Earth Science

Presenter: Leigh Ashbrook, and Kathleen Geist, Green Woods Charter School, Philadelphia, PA

Do you have a pre-Copernican classroom full of students with misconceptions about the Earth-Moon unit, the reason for seasons, the solar system and why the Sun is the ultimate source of energy and power? We can help!

#82 Introducing Classroom Electrophoresis that Can Be Completed in 30 Minutes

Wild Rose A

Hands-on--Grades 9 – College-- Biology, Inquiry

Khuyen Mai and Karen Graf, Edvotek Inc., Bethesda, MD

EDVOTEK Dye Molecular Biology experiments include DNA fingerprinting, paternity determination, gene sizing, and are designed for ANY age group. Using colorful dyes makes results easy to understand and no staining is needed. Our QuickStrips conveniently eliminate the need for PreLab.

#92 Standard Units: Connecting Math, Science and Technology

Magnolia D

Lecture--Grades K – 4-- Physical Science

Presenter: William Banko, MD, Kid Knowledge Inc., Armonk, NY

We use three basic tools to form our understanding of the world and the universe – math, science and technology.

Knowing the inter-relationship among these tools is essential for all teachers in order to clearly communicate to their students how mathematics is applied to science and how technology facilitates scientific research and knowledge.

#97 Bridge Building – Encouraging Engineering Career Exploration

Cocoa 6

Lecture--Grades 9 – 12

Presenter: Donald Kieffer, Retired, South Abington Twp, PA

This student centered activity is designed to develop enthusiasm to encourage youth to consider careers in Science, Mathematics, Engineering and Technology. Students will visualize real life applications of theoretical inter-relationships studied in the classroom/laboratory.

#122 Easy DNA Removal

Magnolia C

Hands-On—5-8—Biology

Presenter: Stephanie Dunda, Science Leadership Academy, Philadelphia, PA

Are labs under \$10 more sweet than Hershey's chocolate? Of course! In this hands-on demonstration, teachers will learn how to extract DNA from their favorite fruit, using simple materials. Some strategies to turn this step-by-step lab into an inquiry based lab will also be discussed.

### **Thursday, December 2, 2010 – 11:15 a.m. -12:15 p.m.**

#48 Tough Topics in Biology: Cell Biology

Cocoa 6

Hands-on-9-10-Biology

Presenter: Carla Johnson, PASCO Scientific, Roseville, CA

In this hands-on workshop, you will participate in a lab activity from PASCO's new biology lab manuals. Be one of the first to see how the SPARK science will enhance your teaching practice and improve student understanding of your core topic.

#67 Building & Implementing a School Garden

Crystal A

Demonstration – STS

Presenter: Mr. David Kline, Montgomery School, Chester Springs, PA; Yvonne Post, Cooking for Real, Downingtown, PA; Denise Sheehan, Cooking for Real, Downingtown, PA

Learn how Montgomery School created an Organic Garden to develop healthy eating habits and food awareness, increase the use of outdoor classroom spaces, cultivate an appreciation for sustainable agriculture and responsible land use, and promote community service through gleaning.

#26 GeoWall: Stereo 3D Projection in the Classroom

Empire A

Demonstration-Technology

Presenter: Chuck Anderson, Penn State University, University Park, PA

GeoWall is an affordable stereo 3D projection system assembled from off-the-shelf hardware. Content for chemistry, biology, earth science, geography and art exists, and creating new content is possible. Presentation will cover assembling a GeoWall and highlight content for classroom use.

#12 Innovations in Nanotechnology Applications for High School Science Teachers

Empire B

Hands-on-9-10-Chemistry

Presenter: Joyce Hubert-Theriot M.S., Rustin High School, West Chester, PA; Dr. Barry Stein, Grant Director; and Dr. James Murray, Immaculata University

Participate in a Nanotechnology Grant that offers labs, materials, and university support to easily thread appropriate inquiry-based investigations into your science classes. Investigate recent nanotechnology educational developments. Explore properties of colloidal metals and review nano-grant specifications. Handouts and some prize giveaways.

#31 Science Note booking: A Window into Student Misconceptions and Student Understanding

Empire C

Hands-on-K-4-Pedagogy

Presenter: Bill Metz, Science Consultant, Fort Washington, PA

This Delta Education workshop has been designed for those 2-6 grade teachers interested in learning how to implement science notebooks as an instructional enhancement and formative assessment strategy. Teacher resource materials will be provided for attendees.

#34 Web 2.0 Technology Tools in the Science Classroom

Empire D

Demonstration-5-8-Other

Presenter: Kathleen M. Jones, PhD, Juniata College, Huntingdon, PA

Using Web 2.0 tools in the science classroom is happening now. It is time to get on board and find out what you can do. This presentation will include introduction to an open source and free course management system (Moodle).

#61 POGIL – Process Oriented Guided Inquiry Learning

Magnolia A

Hands-on – 9-12 – Biology/Chemistry

Presenter: R. Leigh Foy, York Suburban High School, York, PA

An instructional strategy that provides opportunities to teach both content and key social skills (critical thinking and problem solving) simultaneously. Learn more about how to implement biology and chemistry POGIL activities and how to write your own activities.

#83 Come and Learn How to Fingerprint Your Own DNA/Classroom PCR that Works

Wild Rose A

Hands – on--Grades 9 – College-- Biology, Inquiry

Khuyen Mai and Karen Graf, Edvotek Inc., Bethesda, MD

Participants prepare their own DNA for fingerprinting, and learn how these procedures are integrated into classroom experiments utilizing Polymerase Chain Reaction and electrophoresis. The presentation demonstrates gel staining with InstaStain, a safe, non-liquid method that also reduces time and mass.

#84 Come into the Wild: Resources for Teaching EE Concepts to the Young Child

Magnolia B

Demonstration--Grades K – 4

Kathleen K. Blouch, Elizabethtown College, Elizabethtown, PA

It's never too early to teach about our environment! This session will introduce you to the "Into the Wild" Early Childhood resource materials from the PA Game Commission. Examples of PA Standards aligned mini-units using this resource will be given.

#90 Making a Magic String to Teach Observation and Inference  
Magnolia C

Demonstration--Grade 5 – 8-- Pedagogy

Presenter: Dr. Todd Hoover, Bloomsburg University of Pennsylvania, Bloomsburg, PA

As described in his article in the October edition of Science and Children, the presenter will lead a discussion of how to incorporate the "Magic String" discrepant event into a lesson to teach students about making observations and inferences. At the conclusion, attendees will make their own "Magic String" device. (Limited to available supplies)

#96 Keeping Things in Motion Using NASA Science to Teach Newton's Laws  
Magnolia D

Hands – on--Grades K – 4-- Space Science

Presenter: Linda Smith, Billingsport and Loudenslager Elementary Schools, Paulsboro, NJ

Use NASA Space Science to spice up your classes, excite your students and teach about Newton's Laws of motion at the same time. Inspire your students with these inquiry based activities and information from NASA's Swift mission along the way.

### **Thursday, December 2, 2010 – 1:00-2:00 p.m.**

#49 Discovery Based Science Learning: SPARK Science for K-8  
Cocoa 6

Hands-on-5-8-Other

Presenter: Carla Johnson, PASCO Scientific, Roseville, CA

This session explores PASCO's state-of-the-art science teaching solutions to address the toughest aspects of Elementary and Middle School science investigations. In this hands-on workshop, you will experience standards-based SPARK lab activities from PASCO's new SPARK interface.

#70 Teaching Forensics on the Mobile Learning Lab  
Crystal A

Hands-on – 5-8 – Forensics

Presenter: Justin Mixon, Science Teacher and Sharlene Roberson, Project Director, Educational Advancement Alliance, Philadelphia, PA

Teachers will participate in a hands-on activity showcasing a forensic science technique for analysis of criminal evidence. Participants will learn how to distinguish and identify fingerprints left at a crime scene and solve the crime.

#57 EcoExpress: More Than Just a Web Based Tool for Educators on Ecology and the Environment  
Empire A

Lecture-5-8-STS

Presenter: Brie Knight, GreenTreks Network, EcoExpress Program, Philadelphia, PA

EcoExpress uses local and personal short, age appropriate videos tied to the PSSA for ecology and the environment. The unique learning pod provides information on community based service learning projects, group and self-directed classroom activities, teacher guide, and other resources.

#58 Teachers' Instructional Style and Preparing Students for the 8<sup>th</sup> Grade PSSA  
Empire B

Panel/Discussion-5-8-Pedagogy

Presenter: Jarrett Chapman, Shenago Area Jr.-Sr. High School, New Castle, PA, and Mark Twiest, Indiana University of Pennsylvania, Indiana, PA

"Charlie Constructivist" and "David Didactic" will discuss how they choose to prepare their students for the 8<sup>th</sup> grade PSSA. Some participants will be invited to participate in a research study that examines the difference between didactic and constructivist teachers.

#32 Delta Education: FOSS Middle School Course on Chemical Interactions

Empire C

Hands-on-5-8-Chemistry

Presenter: Bill Metz, Science Consultant, Fort Washington, PA

Substances to solutions and elements to reactions are just some of the investigations found in the FOSS Chemical Interactions Module. This workshop will provide attendees with an overview and several hands-on investigations from this FOSS Middle School Course.

#36 Inquiry Project Lesson Plan: Steps in Doing a Science Research Project

Empire D

Lecture/Hands-on-5-12-Research/Pedagogy

Presenter: Barbra Lorenzon, Richard Close, and William Rissinger, Delaware Valley Science Fairs, Inc., Philadelphia, PA

Teachers will be taken through the process of using inquiry to design a lesson plan for students to complete a science research project.

#85 Using Inquiry Based Science Programs to Meet Multiple Standards. Yes it Can be Done!

Wild Rose A

Demonstration

Grades K – 4-- Pedagogy

Kathleen K. Blouch and Preservice Teachers Elizabethtown College, Elizabethtown, PA

There are too many standards to teach! How do we meet the many expectations in communication arts and still have time for our inquiry science program? This session will give you examples of ways it can be done using FOSS.

#98 Stoich After Mid-Terms: Rethinking the Chemistry Curriculum

Magnolia C

Lecture--Chemistry

Presenter: Lawrence McAfoos, Lower Merion High School, Ardmore, PA

Too often, chemistry books and classes rush to get to “real” chemistry and ignore how students actually learn. This presentation will discuss re-ordering chemistry so that it is presented in an order that works with rather than against student learning.

#104 Pennsylvania’s Biodiversity

Magnolia D

Lecture—5-10—Biology/Environmental

Presenter: Theresa Alberici, PA Game Commission, Harrisburg, PA

Biodiversity is vital to the health of people, wildlife, and the environment. Through hands-on activities, participants will explore biodiversity at a genetic, species, and ecosystem level, address critical concepts and standards and receive the Pennsylvania biodiversity guide.

### **Thursday, December 2, 2010 – 1:00-3:30 p.m.**

#54 Light, Color and Spectroscopy for Kids

Magnolia B

5-8—Physical Science

Presenter: John Varine and Hubert MacDonald, Spectroscopy Society of Pittsburgh, Pittsburgh, PA

Teachers will receive instructions and the necessary materials to perform a variety of fun-filled, intellectually stimulating, exciting lecture/demonstrations in the fundamentals of light, color and spectroscopy. Workshop aligned with PA Standards. Limited to 20 teachers.

### **Thursday, December 2, 2010 – 1:00-4:00 p.m.**

#113 Burden of Proof: A DNA Forensics Case and Pitt Kit PCR Lab Activity

Pitt Mobile Science Lab (Outside of Conference Center Doors)

Hands-On—11-12—Biology

Presenter: Dr. Rick Hershberger, Pitt Bio Outreach, University of Pittsburgh, Biological Sciences Outreach, Pittsburgh, PA

Come outside to Pitt's Mobile Science Lab and investigate DNA evidence that could exonerate an innocent man. Purify and PCR your own and forensic DNAs, then watch DNAs migrate live on FlashGels! (Pitt Bio Outreach serves western PA schools).

**Thursday, December 2, 2010 – 1:00-4:30 p.m.**

#52 If Starfish Can Grow a New Arm, Why Can't I? Making Research Come Alive in the Classroom  
Magnolia A

Hands-On—5-8—Biology

Presenter: Deborah Spencer, Jeff Polonoli, Stephanie Rakowski, and Joan Schanck, ASSET, Inc., Pittsburg, PA

This session will provide an ASSET, Inc., overview and sample labs from a two day inquiry-based professional development session created through an innovative partnership between educators, scientists, and science centers. The objective of the overall PD is for teachers to develop confidence with the content and concepts associated with tissue engineering and regenerative medicine.

**Thursday, December 2, 2010 – 2:15 p.m. -3:15 p.m.**

#50 Discovery Based Science Learning: SPARK Science for High School Classrooms  
Cocoa 6

Hands-on-11-12-Other

Presenter: Carla Johnson, PASCO Scientific, Roseville, CA

This session explores PASCO's state-of-the-art science teaching solutions to address the toughest aspects of High School science investigations. In this hands-on workshop, you will experience standards-based SPARK lab activities from PASCO's new SPARK interface.

#8 Geologists Meet Society with Dillsburg Earthquake Swarm  
Crystal A

Lecture- 9-10-Earth Science

Presenter: Jeri Jones, Dr. Charles Scharnberger, Millersville University, Millersville, PA; Dr. William Kreiger, York College of Pennsylvania, York, PA; and Jason Kreiger, York College of Pennsylvania, York, PA

Since October, 2008, the Dillsburg earthquake swarm has generated well over 1,000 tremors in northern York County. Residents have reacted in various ways, from fear to comical. Several community and neighborhood meetings addressed concerns and answered questions from local residents.

#15 Inquiry-Based Lesson Plans for Radiation Topics  
Empire B

Hands-on-5-8-Physical Science

Presenter: John Luetzelschwab, Dickinson College, Carlisle, PA

With expanding nuclear technology, students need to know about such career opportunities. Participants will do hands-on work with simple radiation monitors to experience what students can learn about basics of radiation. Lesson plans are available for elementary gifted and middle school physical science and gifted.

#45 Playing to Learn: Using Games and Simulation in the Classroom  
Empire A

Demonstration-Other-Pedagogy

Presenter: Andy Petroski, Harrisburg University of Science and Technology, Harrisburg, PA

Promote active learning and improve motivation and learning with games and simulations. Technology-based games enable increased interaction, an expanded audience and captured results. The session provided an overview of games and simulations for the classroom: learning impact, opportunities and considerations.

#35 Removing the Mask of Inquiry

Empire D

Lecture/Hands-on-5-12-Inquiry

Presenter: Barbra Lorenzon, Richard Close, and William Rissinger, Delaware Valley Science Fairs, Inc., Philadelphia, PA

Teachers attending this workshop will experience science through inquiry discussion and hands on experiments to see and evaluate what true inquiry in the classroom is like.

#37 Busting Myth-conceptions in Physics

Empire C

Demonstration-11-12-Physics

Presenter: Dr. Michael Cullin, Lock Haven University, Lock Haven, PA; and Dr. Stephen Van Hook, Penn State University, University Park, PA

We've modeled some introductory physics labs after the popular Discovery Channel TV show "Mythbusters." In this session, we'll describe some of the labs and engage participants in busting some "myth-conceptions" related to projectile motion and buoyancy.

#108 The Standards Aligned System I Pennsylvania

Magnolia C

Lecture—All Levels—All Disciplines

Presenter: Dr. Patricia Vathis, Environment and Ecology Curriculum Advisor, Pennsylvania Department of Education, Harrisburg, PA

Session will provide an overview of the Pennsylvania Standards Aligned System (SAS) which was developed to increase student achievement and to assist schools in the implementation of the standards. The SAS is a collaborative product of research and good practice that identifies six distinct elements which, if utilized together, will provide schools and districts a common framework for district enhancement and improvement. The six elements are: Clear Standards, Fair Assessments, Curriculum Framework, Instruction, Materials and Resources, and Interventions.

#115 Astronomy Simulations

Magnolia D

Demonstration—5-8—Earth Science

Presenter: Jason Petula, Penn State Harrisburg, Middletown, PA

Teaching Astronomy through inquiry is a challenge due to limited access to the night sky. Astronomy software allows teachers to present remarkable simulations of the night sky that facilitate learning concepts about space and time. Sample lessons will be provided.

**Thursday, December 2, 2010 – 2:15 p.m. -4:15 p.m.**

#109 Formative Assessment Strategies in the FOSS Grades 3-6 Program

Wild Rose B

Hands-On

Presenter: Helen Weber, FOSS Consultant

Teaching is a linear progression, but learning is not. The FOSS ASK (Assessing Science Knowledge) Project developed everyday formative embedded assessments that are used on a daily basis. Participants will work through the embedded assessment process as students and reflect on authentic student work samples.

**Thursday, December 2, 2010 – 3:30 p.m. -4:30 p.m.**

#13 Environmental Science in a World of 7 Billion

Cocoa 6

Hands-on-9-10-Environmental

Presenter: Ruth Stas, Population Connection, Washington, DC

Discover timely, interdisciplinary, hands-on activities to help students understand the connections between human population growth and a host of environmental challenges. Receive curriculum on CD-ROM linked to the Pennsylvania Academic Standards.

#1 PSTA Board of Directors Meeting

Empire A

Panel/Discussion – All Levels – Other

Presenter: Carli Yeager Hall, 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. Brief reports will be presented by committee chairs as well as association business that needs to be addressed will be handled at this meeting.

#53 What Type of Mentor are You?

Empire D

Lecture-5-8-Research

Presenter: Angela Hoover, Millersville University, Millersville, PA

Elementary pre-service teachers have commonly exhibited anxiety towards science teaching. How will you, as a teacher mentor help them overcome these fears? This session focuses on defining and identifying your personal mentoring style and its influence on preservice teachers.

#62 Song Birds of PA

Empire C

Panel/Discussion – 5-8 – Biology

Presenter: Mr. Blake Colaianne, Ms. Samantha Smith, Mr. Shane Thomas, Mr. Chris Hegland; Juniata College, Huntingdon, PA

“PA Song Birds? Is she crazy?” were the thoughts of four Juniata College science and math students when presented with the task of collaborating to present a one-day workshop for a group of eighth graders. Equipped with imagination, the expertise of an ornithologist, and a passion for teaching, the student teachers took on the challenge. Come see what they have to offer, including their own movie about “Birdman Benny.”

#105 Explore Environmental Crisis Issues: Obesity, Air quality, Water Quality, Climate Change: An Interdisciplinary Approach

Magnolia D

Hands-On—5-12—Environmental

Presenter: Jane Konrad, University of Pittsburgh, Pittsburgh, PA

Explore critical environmental issues through “Environment and Health” A Systems Approach” program, going beyond the usual “cycles” to a systems approach building a new mental model and connecting local to global inquiry-based lessons. Hands-on activities for classroom use.

#116 Virtual Field Trips in the Science Curriculum

Magnolia C

Lecture—5-8

Presenter: Dr. Michael F. Ruffini and Dr. Vi Supon, Bloomsburg University, Bloomsburg, PA

Virtual field trips have become one of the most popular K-12 internet integration activities for organizing Web resources on a particular topic. This presentation gives an overview of virtual field trips, design strategies, and VFT science resources.

#117 Gown (PSU Medicine) Meets Town (The Community): A Necessary Paradigm Shift in Science Education Outreach

Crystal A

Presenter: Dr. Michael Chorney, Departments of Microbiology and Immunology and Pediatrics, Penn State Hershey  
Many colleges of medicine remain wedded to a longstanding model related to the education of their students and the performance of research. The times now demand that science expertise traditionally contained within the walls of our medical schools become exported into our communities, particularly as it offers a positive impact on the underrepresented. Here is our set of experiences and remaining challenges.

**Thursday, December 2, 2010 – 4:30 p.m. -5:30 p.m.**

#59 PAESTA Kick-Off Reception

Empire B

Reception—5-12—Earth Science

Coordinators: Tanya Furman and Laura Guertin, Penn State University

Please join us for a kick-off reception to inaugurate the Pennsylvania chapter of the Earth Science Teachers Association. We welcome all interested teachers and administrators to join us and share ideas for how PAESTA can best represent and support you.

# *Friday Sessions:*

## **Friday, December 3, 2010 – 9:00-10:00 a.m.**

#16 Developing Student use of Multiple Process Skills through Discrepant Events

Crystal A

Demonstration-K-4-Inquiry

Presenter: Dr. Robert C. Snyder, Slippery Rock University, Slippery Rock, PA; NSTA-SRU, Slippery Rock University Student Chapter Members, Slippery Rock University, Slippery Rock, PA

The Slippery Rock University NSTA Student Chapter returns with a new set of discrepant event demonstrations that will get elementary students immersed in science process skills. A packet describing the demonstration along with the science background will be provided.

#11 The Effect of an 8<sup>th</sup> Grade Ecology Course on Environmental Attitudes

Empire B

Lecture-5-8-Environmental

Presenter: Dr. Holly Travis, Indiana University of Pennsylvania, Indiana, PA

Science courses should teach content and develop positive attitudes. This study measures the environmental attitude of students taking a newly developed ecology course designed to meet the PA Environmental and Ecology Standards. Results of this new curriculum will be discussed.

#18 Strengthening Your Standards Aligned System (SAS) for Science

Empire D

Panel/Discussion-Other-Other

Presenter: Drue Feilmeier, Lancaster-Lebanon IU 13, Lancaster, PA

Participants in this session will explore tools and strategies for strengthening the six components of their local, K-12 standards aligned education system for science.

#20 Anatomy in Clay (R) Systems

Empire C

Hands-on-11-12-Anatomy

Presenter: Douglas Cortese, Hands and Minds, Loveland, CO

Calling all Anatomy and Biology teachers. Come see a fun, innovative, and hands on way to teach the human body systems. Be ready to get your hands dirty, as we will be building anatomy in clay.

#38 Biological Organic Compounds That Make Scents

Magnolia A

Demonstration-11-12-Chemistry

Presenter: Ashlee Gerardi, Lock Haven University, Lock Haven, PA; Dr. Matin Maresch, Lock Haven University, Lock Haven, PA; and Dr. Michael Cullin, Lock Haven University, Lock Haven, PA

Find out how students can learn about molecular compounds through laboratory activities involving the production of small amounts of scented oils from everyday biological materials.

#47 Grow Green, Healthy and Smart With EarthBox Education

Empire A

Demonstration-5-8-Inquiry

Presenter: Molly Philbin and Carl Moore, Sargent Welch, Scranton, PA

Engage students in the study of the science behind plants, light, water, soil and nutrition. Introduce them to inquiry-based, hands on EarthBox Instructional School Gardens that use the EarthBox Container Garden System and its customized standards-based curriculum and garden guide to improve test scores and to teach children where their food comes from, how to grow it, and how to eat what they grow to build a healthy future.

#51 Analysis of a Megacryometeor

Magnolia C

Lecture-9-College-Research/Earth, Physical and Environmental Science

Presenter: Dr. Bill Kreiger, Jason Kreiger, Dr. David Singleton, and Rudy Alfano, York College of Pennsylvania, York, PA

This “cutting edge” scientific research and describes an initial physical, chemical and microbiological analysis of a 2Kg chunk of ice of unknown origin which impacted a York County, Pennsylvania, home 8 October 2008. The ice likely represents a megacryometeor of terrestrial origin.

#93 Gravity – The Force of Nature that Formed the Galaxies, Stars, Planets and Developed Life

Magnolia D

Lecture--Grades K – 4-- Physics

Presenter: William Banko, MD, Kid Knowledge Inc., Armonk, NY

Gravity literally affects everything. If we understand how gravity works, then we begin to understand the Universe. This program covers the basics of this fundamental force and explores how it can be experienced and taught in the classroom.

#103 Using a GIS to Observe and Protect the Earth

Magnolia B

Lecture—

Presenter: Dr. Janet Smith, Shippensburg University, Shippensburg, PA

GIS (Geographic Information Systems) technology allows our students to visualize and explore a variety of spatial relationships and to create maps to depict these connections. This session will demonstrate GIS applications in the sciences and provide materials to support a free web-based GIS for your classroom.

### **Friday, December 3, 2010 – 9:00-11:00 a.m.**

#110 New FOSS Benchmark Assessment for Grades 3-6

Cocoa 6

Hands-On

Presenter: Helen Weber, FOSS Consultant

Through the ASK (Assessing Science Knowledge) Project, (funded by NSF 2003-2008) FOSS has developed an assessment system that will be a prominent part of the next revision of the FOSS curriculum. Participants will work through the Benchmark Assessment process and reflect on authentic student work samples.

### **Friday, December 3, 2010 – 9:00-11:30 a.m.**

#55 Computer Software for Chemistry Teachers

Wild Rose B

Demonstration—11-12—Chemistry

Presenter: Dr. Hubert MacDonald and John Varine, Society for Analytical Chemists of Pittsburgh, Pittsburgh, PA

We will demonstrate and provide access to educational software for the teaching of chemistry from Project SERAPHIM, the Journal of Chemical Education, and the ChemEd Digital Library Project.

### **Friday, December 3, 2010 – 10:15-11:15 a.m.**

#7 Scale the Universe

Empire B

Hand-on – 9-10 – Earth Science

Presenter: Christine Royce, Shippensburg University, Shippensburg, PA

This cross-curricular activity will give participants a method by which to demonstrate to students orders of magnitude and how science deals with extremely large and extremely small numbers.

#81 Make-it, use-it, and take-it back to your classroom

Wild Rose A

Hands-on--Grade 4 through university; General Interest, inquiry, problem solving, measurement

Dr. Mitch Batoff, Professor Emeritus, New Jersey City University

In this hands-on workshop – one of my best – you will construct a Rockcastle-type balance, solve the banana and raisin problems, experience SIX SURPRISES, and learn about a procedure that pervades all instrumentation throughout science and technology (A BIG IDEA). Set of materials for the first 23 people. Get there early!

#17 Successful Science with Service-Learning: Science in Motion is Civically Engaged!

Empire A

Panel/Discussion-College-Other

Presenter: Wendy K. Griest, Nancy Valkenburg, Lorin Mellinger, and Dr. Kathy Blouch, Elizabethtown College, Elizabethtown, PA

Elizabethtown College's Office of Civic Engagement, Science in Motion and AmeriCorps Scholars incorporated service-learning to provide afterschool science enrichment to students in Harrisburg's Camp Curtin School. Inquiry and problem-based experiences enhanced student critical thinking and problem solving skills.

#4 Make & Take

Crystal A

Hands-on – Elementary – All Areas

Join teachers from across the state as they offer practical hands-on classroom activities that make elementary and middle level science exciting for kids. Come in any time during this workshop and get involved with making, taking, and experiencing some science activities that you can do with your class.

#14 Environmental Toxicology: Real Science in the Real World

Empire C

Demonstration-11-12-Biology

Presenter: R. Timothy Smith, Pennsylvania State University, University Park, PA; James Endres Howell, Pennsylvania State University, University Park, PA; and Tracy S. Hoover, Pennsylvania State University, University Park, PA

Explore new curriculum materials that engage students in authentic, inquiry-based, interdisciplinary STEM research about toxic substances. By exploring biochemical interactions at system, cellular, and molecular levels, students can make informed decisions about toxic risks to health and the environment.

#27 Outside My School Bus Window, Connecting Kids with Their Environment

Empire D

Lecture-K-4-Environmental

Presenter: Maria Hough, Perkasio, PA

This interactive program is for K-Second Grade Students. It shows educators how to use riding the school bus to support current curriculum standards for Science, Social Studies and Language Arts. Education builds appreciation which can lead to preservation of our natural resources.

#28 Inquiry Applications: Raising the Bar on Thinking

Magnolia A

Hands-on-5-8-Inquiry

Presenter: Bill Metz, Retired, Fort Washington, PA; and Julia Gooding, Hopewell High School, Aliquippa, PA

Challenge your students to go beyond the scripted nature of typical guided inquiry lessons through the use of design brief investigations. Samples available.

#42 Using Art to Teach Chemistry Concepts

Magnolia B

Lecture—11-12—Chemistry

Presenter: Talitha Jay and Dr. Michael Cullin, Lock Haven University, Lock Haven, PA

Lesson plans and materials based on two art-related contexts will be shared. Pottery glazes are used to teach percent-composition and Art Forgery and Neutron Activation Analysis are used to teach nuclear concepts such as isotopes, decay, and types of radiation.

#91 Gears: It's All in the Teeth

Magnolia C

Hands-on--Grades 9 – 10--Physics

Mark Atwood, Nazareth Area Intermediate School, Nazareth, PA

Explore the relationship between bicycle gears and distance traveled, gear ratio and energy applied.

#99 Inquiry-based Outdoor Education

Magnolia D

Lecture--Environmental

Presenter: Dr. Joseph Shane, Catherine Erne, Stephanie McVicker, Shippensburg University of Pennsylvania, Shippensburg, PA

Basic principles and specific examples of inquiry-based outdoor education activities will be presented. Participants are encouraged to bring their own examples to share during the discussion period.

**Friday, December 3, 2010 – 11:30 a.m. 12:30 p.m.**

#5 Workshop for Pre-service Teachers

Crystal A

Panel/Discussion – K-12 – All Areas

This panel will feature science education professors and science supervisors who will address topics of interest to the pre-service science teacher. Preparation of applications, resumes, portfolios, and interview tips will be shared in this workshop. This panel will share information that should be valuable to any student studying to enter this profession.

#22 Monitoring Plethodon cinereus

Empire B

Lecture-5-8-Environmental

Presenter: Patty McGinnis, Arcola Intermediate School, Eagleville, PA

Interested in learning how to incorporate the study of slippery salamanders into inquiry-based learning? This presentation focuses on how to monitor Pennsylvania's red-backed salamander. Can be adapted to grades 5-12.

#68 The "Green Lab"

Empire A

Hands-on – 6-12 – all sciences

Presenter: James Einsporn, The Penn State Electro-Optics Center, Freeport, PA

There are many ways to save energy in your home, and the simplest is to change lighting from hot incandescent bulbs to compact fluorescent lights or light emitting diodes. Do they really save energy? Find out for yourself hands-on.

#69 Can Cars: An Inquiry Into Physical Science Concepts

Empire D

Hands-on – 3-8 – Physical Science

Presenter: Lynn Astarita Gatto, Honeoye Falls, NY

Using a soda can and few inexpensive materials you students can create race cars for discovering kinetic and potential energy and inquiring into force and motion concepts. As students test their cars, they will ask their own questions which lead to controlled investigations for exploration of friction, simple machines, momentum, speed and velocity. Come build your own can car and experience their power for science learning.

#39 Trash or Treasure?

Empire C

Hands-on-K-4-Environmental

Presenter: Dr. Donna Kowalczyk, University of Pittsburgh at Johnstown, Johnstown, PA

Explore the effects of trash on animals, habitats, and the environment through reading and writing. Designed for the K-4 educator, this presentation features an integrated hands-on activity designed to stimulate creative thinking and encourage communication while utilizing science process skills.

#29 Connecting the Dots between Consumer Protection, Skepticism and Science

Magnolia A

Hands-on-5-8-Inquiry

Presenter: Bill Metz, Retired, Fort Washington, PA; and Julia Gooding, Hopewell High School, Aliquippa, PA

The clever manipulation of data is often used to sell common products. Attend this workshop and see how this applies to your science classroom.

#71 Photosynthesis and Respiration Shuffle

Magnolia B

Hands-on – 9-10 – Ecology

Presenter: Nathan Alfred, Parkersburg South High School, Parkersburg, WV

SGI Biology is the new high school course from SEPUP! Developed with NSF support, the course has five units—sustainability, ecology, cell biology, Genetics, and evolution—and provides full support for literacy, assessment, and technology. In this workshop from the ecology unit, participants will use a card sort activity to examine photosynthesis and respiration at the level of the cell and organism. Take home an activity to use in class next week.

#74 Earthwatch Fellowship Expeditions

Wild Rose A

Lecture – K-4 – Environmental

Presenter: Kristin Joivell, Juniata Valley Elementary School, Alexandria, PA

Learn about the opportunity of a lifetime! Hear about how you can earn an Earthwatch Fellowship and go on a science expedition. Get new ideas for environmental lessons and activities for your classroom and community.

#78 Darwin and the Courts: Defending Evolution

Magnolia C

Lecture – Biology

Presenter: Kathleen Conn, Neumann University, Aston, PA

Darwin's Origin of Species has engendered controversy since its publication in 1859. Creationists and proponents of Intelligent design have battled in court for equal time in US schools. This presentation will take you to those courtrooms, from the US Supreme Court to the District Court in Dover, PA.

#100 Areas of Confidence and Concerns for Pre-service Science Teachers

Magnolia D

Panel/Discussion—College-- Teacher Education

Presenter: Dr. Joseph Shane, Jacob Herring, Amanda Locke, Brielle Dalious, and Katelyn Moore, Shippensburg University of Pennsylvania, Shippensburg, PA

Pre-service science teachers from Shippensburg University will use NSTA's Standards for Science Teacher Preparation as a framework for addressing their preparedness for student teaching and beyond. Veteran teachers are invited to give some advice.

#107 Reading to Learn the Content through the Environment and Ecology Standards

Cocoa 6

Hands-on—K-4—Environmental

Presenter: Dr. Patricia Vathis, Environment and Ecology Curriculum Advisor, Pennsylvania Department of Education, Harrisburg, PA

This session will give an overview and sample of connecting non-fiction reading books, manipulatives, integration techniques, and hands-on inquiry based activities written for this program to address the environment and ecology, science and social studies standards for the K-4 students. Participants will expand their repertoire of instructional strategies to enhance the PSSA anchors. Sample materials will be provided at the session along with an opportunity to see the program in action.

**Friday, December 3, 2010 – 12:45-1:45 p.m.**

#2 PSTA General Membership Meeting

Crystal A

Panel/ Discussion – All Levels – Other

Presenter: Carli Yeager Hall, PSTA President, Towanda, PA

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.

#19 Explore the Next Generation of Instructional Technology on MyScienceOnline.com

Empire B

Demonstration-5-8-Technology

Presenter: Karlie Termotto, Pearson, Manalapan, NJ

Join Pearson presenter Karlie Termotto as she explores the dynamic digital components of the new k-8 Interactive Science collection, MyScienceOnline.com. This robust digital support includes a wealth of assets, such as complete online student and teacher's editions with audio and editable worksheets, interactive multimedia, games, and online assessments with remediation for a sophisticated classroom management system that offers a seamless transition from the textbook to engage today's digital generation.

#64 Preparing for the PA Biology Keystone Assessments

Empire D

Panel/Discussion – Other - Biology

Presenter: Drue Feilmeier, Lancaster-Lebanon IU 13, Lititz, PA

Participants in this session will explore a process using tools from the PA SAS Portal to strengthen their Biology curriculum alignment and prioritization for ALL students.

#72 Stem Cell Differentiation (SGI Genetics 14)

Magnolia B

Hands-on – 9-10 – Biology

Presenter: Nathan Alfred, Parkersburg South High School, Parkersburg, WV

SGI Biology is the new high school biology course from SEPUP! Developed with NSF support, the course has five units—sustainability, ecology, cell biology, Genetics, and evolution—and provides full support for literacy, assessment and technology. In this workshop from the cell biology unit, participants use a card sort to find out how stem cells produce specialized cells and the potential for using stem cells to cure diseases. Take home an activity to use in class next week!

#41 Thinking Critically in the Science Classroom: The Effects of Inquiry on Student Learning

Empire C

Lecture –9-10—Biology

Presenter: Jenelle Cannon, Indiana University of Pennsylvania, Indiana, PA

A look at how inquiry can enhance student's ability to analyze, retain and apply the information they have been taught. Teaching students to think critically while teaching them the material increases their understanding and their use of the information they are taught.

#86 New Certification Regulations: Where are the Elementary Middle Level Future Teachers?

Magnolia A

Presenter: Dr. Kathy Blouch, Elizabethtown College, Elizabethtown, PA

Come join us for a discussion about the elementary middle level certification. How can we get students to want to teach science at grades 4 – 8? What will institutions need to do to help the K – 4 teacher become qualified to teach at the upper grades?

#94 Sexting and Cyberbullying: What Does the Law Say? What Is Your Responsibility?

Magnolia C

Presenter: Kathleen Conn, Neumann University

Cyberbullying has become a pervasive problem in K – 16 schools, both in America and abroad. School districts have been named as defendants in several lawsuits brought by K – 12 students psychologically and/or physically impacted by cyber bullying. This presentation will review the signs that cyber bullying is a problem in your school, some recent allegations of school district liability, and the possible roles that teachers and administrators can and should take to keep students safe.

#102 Do They Get It? Assessment for an Inquiry Classroom

Empire A

Hands-on--Grades K – 4-- Inquiry

Presenter: Gina Wofford, Carolina Consultant

Learn to develop effective assessment strategies for you inquiry classroom. Using the STC Program and STCA assessment guides, participants devise a complete assessment program (including both pencil-and-paper tests and less traditional tools) that allows students to apply and restate their understandings about the world.

#106 Utilize the Power of PowerPoint

Magnolia D

Demonstration—Pedagogy

Presenter: Debbie Johnson, Tunkhannock Area Middle School, Tunkhannock, PA

This session is for beginning users to discover effective ways to use PowerPoint in the classroom for instruction. Presentation development, multiple intelligences, interactive techniques, integration with e-instruction tools, and multimedia uses are among topics of discussion. Applicable to all disciplines.

#111 Aquaculture in the Classroom

Wild Rose B

Demonstration—9-10—Biology

Presenter: Heidi Wood-Tucker, Cheyney University of Pennsylvania, Cheyney, PA

Gain hands-on knowledge of how to use Aquaculture across the curriculum in the classroom. Aquaculture can be used to teach Science, Math, Engineering Technology, Writing and Business Skills. Practical application will be emphasized.

#118 Science Education Partnership Award (SEPA) – K-12 STEM Resources for Teachers, Students and the Community

Cocoa 6

Presenter: L. Tony Beck, PHD, National Institutes of Health, Bethesda, MD

SEPA provides innovative, standards-based, hands-on and rigorously evaluated K-12 STEM resources and Teacher Professional Development for underserved students, teachers and the community to foster a diverse research pipeline and community health education.

#119 Training Future Scientists Through the Exposure to Plant Engineering

Wild Rose A

Presenter: Dr. Sairam Rudrabhatla, Penn State Harrisburg

### **Friday, December 3, 2010 – 1:00-3:00 p.m.**

# 112 Bioprospecting for Biofuel Enzymes: A Biotechnology Case and Pitt Kit Enzyme Lab Activity

Pitt Mobile Science Lab (Outside Conference Center Doors)

Hands-On—11-12—Biology

Presenter: Dr. Rick Hershberger, University of Pittsburgh, Department of Biological Sciences, Pittsburgh, PA

Come outside to Pitt's Mobile Science Lab and play a biotechnologist seeking new enzymes to use in biofuel production. Conduct assays on a cellulose-digesting enzyme, then test various sources for potentially useful enzymes. (Pitt Bio Outreach serves western PA schools).

### **Friday, December 3, 2010 – 2:00-3:00 p.m.**

#40 S.M.A.R.T: Where Science Meets ART

Empire A

Lecture-5-8-Multiple Disciplines

Presenter: Rebecca Tokarsky, Laura Zalewsky and Ashley Jones, Robert Morris University, Moon Township, PA

We will discuss how to incorporate art in the science classroom. Students are taught a concept. Then represent their concepts through art. Also discussed is the next step to continue this program for students in all grade levels.

#30 Seven Simple Strategies for Cultivating Classroom Inquiry

Magnolia A

Hands-on-5-8-Inquiry

Presenter: Bill Metz, Retired, Fort Washington, PA; and Julia Gooding, Hopewell High School, Aliquippa, PA

Teacher response tactics are at the heart of inquiry, irrespective of curriculum format. In this hands-on, STEM designed workshop, participants will experience seven simple strategies for turning the act of teaching into the art of inquiry.



## ***List of Exhibitors***

The Pennsylvania Science Teachers Association wishes to extend its sincere appreciation to the following for their support and sponsorship of the PSTA Convention.

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Pennsylvania Envirothon  
Pennsylvania Society for Biomedical Research

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Shaver’s Creek Environmental Center (PSU)  
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Society for Analytical Chemists of Pittsburgh/Spectroscopy Society of Pittsburgh  
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## **2010 PSTA Leadership**

<i>Carli Yeager Hall</i> .....	<i>President</i>
<i>Keith Butler</i> .....	<i>President Elect</i>
<i>Kathleen Conn</i> .....	<i>Vice President</i>
<i>Robert Penrose</i> .....	<i>Past President</i>
<i>William McIlwaine</i> .....	<i>Executive Secretary Emeritus</i>
<i>Christine Anne Royce</i> .....	<i>Executive Secretary</i>
<i>Don Keys</i> .....	<i>Treasurer</i>
<i>Ruth Ruud</i> .....	<i>Recording Secretary</i>

### *Regional Representatives*

<i>Susan Courson</i> .....	<i>Midwestern Region</i>
<i>Katy Wolfrom</i> .....	<i>Northwestern Region</i>
<i>Priscilla Pryor</i> .....	<i>Western Region</i>
<i>Andrea Redinger</i> .....	<i>Southwestern Region</i>
<i>Cathy Stephenson</i> .....	<i>Central Western Region</i>
<i>Kathleen Jones</i> .....	<i>Central Region</i>
<i>Cherylann Hollinger</i> .....	<i>Southern Region</i>
<i>Debbie Johnson</i> .....	<i>Northeastern Region</i>
<i>William Ayers</i> .....	<i>Eastern Region</i>
<i>Sr. John Ann Proach</i> .....	<i>Mideastern Region</i>
<i>Patty McGinnis</i> .....	<i>Southeastern Region</i>
<i>Michael Cullin</i> .....	<i>North Central Region</i>

### *College Representatives*

<i>Todd Hoover</i> .....	<i>Eastern Region</i>
<i>Donald Kline</i> .....	<i>Central Region</i>
<i>Matthew Maurer</i> .....	<i>Western Region</i>

### *Affiliate Representatives*

<i>Patti Vathis</i> .....	<i>PDE</i>
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### *Appointed Positions*

<i>Ruth Ruud</i> .....	<i>Nominations</i>
<i>Robert Penrose</i> .....	<i>Horizons Chair</i>
<i>Paula Clifford</i> .....	<i>Business Representative</i>
<i>Keith Butler</i> .....	<i>Membership Chair</i>
<i>Christine Anne Royce</i> .....	<i>Editor</i>
<i>Herb Crawford</i> .....	<i>Non PSTA Awards</i>
<i>Patti Maurer</i> .....	<i>Website</i>
<i>Joseph Shane</i> .....	<i>Legislative</i>

## *Past Presidents*

1951-1953	Orin Kaltriter
1954	Charles F. Beck
1955-1956	Herbert Reichard
1957	C. Richard Snyder
1958-1959	Charles Rutsky
1960	Charles Bickle
1961	John Heilman
1962-1963	Mary Gilmore
1964	G. William Donovan
1965	Charles F. Hensley
1966	David Ulmer
1967	Dorothy Alfke
1968	Sr. Mary William
1969	Joseph M. Joseph
1970	Hubert Snyder
1971	Donald Kramer
1972	Stephen Rituper, Jr.
1973	Clyde Dry
1974	Harrie Caldwell
1975	Stephen B. Lucas
1976	H. Seymour Fowler
1977	Roy Allison
1978	Wayne Mikach
1979	John Stankiewicz
1980	Mary Sweeney
1981	William McIlwaine
1982	Barry Barnhart
1983	Kenneth Mechling
1984	Rosemary T. Barbacci
1985	Donna Oliver
1986	Dennis Showers
1987	Robert Wyble
1988	Bruce Smith
1989	Thomas Arnold
1990	Anthony Lazzaro
1991	David A. Wiley
1992	Walter Placek
1993	Linda Whren
1994	Edward Zielinski
1995	Judi Hechtman
1996	Donald Kline
1997	Carl Brehmer/Judi Hechtman
1998	Judi Hechtman
1999	Donald Pratt
2000	Donald Kline
2001	David Bauman
2002	Christine Anne Royce
2003	William Ayers
2004	Ruth Ruud
2005	Catherine Stephenson
2006	Christine Anne Royce
2007	William Ayers
2008	Ruth Ruud
2009	Robert Penrose

## *Awardees*

### *PSTA Leadership in Science Education Award*

#### *Dr. Patricia Vathis*

Dr. Patricia Vathis has been one of the strongest voices in Pennsylvania for Science Education and in particular Environmental Education. Through her position at the Department of Education, Pennsylvania is the only state in the Union that has Environment and Ecology Standards. Patti was the driving force behind the Governor's Institute for Environment and Ecology that for ten years provided training and resources for teachers across the state. A dynamic workshop presenter, Patti takes the message of environmental education all across the state. Patti has also been influential in providing grant opportunities to cash strapped educators so that they can take advantage of Environment and Ecology educational opportunities.

As the liaison from the Department of Ed to the PSTA Board of Directors, Patti has been a great source of information as well as resources to the Board and Convention Committees. Patti's constant statement is, "How can I help?" Her help has brought many exhibitors, financial resources and statewide publicity to our convention. As her nominator states, "Patti is a dynamic personality who has a passion for everyone to love and care for the environment as she does. She has made a difference in Pennsylvania for students, educators and the general public. Thank you Patti for all you have done." Her nomination sent a flood of support letters to our nominations committee, which only reinforces the impact the Patti, has had across the state and how she has helped so many teachers in the classroom. PSTA is excited to award Patti the Science Leadership Award.

## *PSTA Leadership in Science Education Award*

### *Charles Howard*

Charles Howard has been associated with PSTA for nearly a decade. His relationship with PSTA started through his wife, Cathy Stephenson. Her role on the PSTA convention committee brought Charlie into contact with science education in a different way. As a willing volunteer, Charlie could be counted on to fill in wherever he has needed. No job was too small or unimportant. His expertise in financial matters has been invaluable to the PSTA Board of Directors. His tireless effort to help PSTA attempt to remedy and update several financial aspects of our operation showed his appreciation for the organization. Charlie is a constant resource for our Treasurer and Executive Secretary on matters of investments and monetary growth. He has also been an influence on companies, banks and corporations he has worked with to become supporters of PSTA advertising, conference speakers and initiatives.

As his nominator wrote, “Charlie Howard, in his quiet and consistent manner has done an outstanding job in furthering science education and supporting teachers and students throughout the Commonwealth. While his name may not be found in any program, listed as a member of the Board or committee, he is one of those people who through his dedication and thoughtfulness, offers others the ability to step to the forefront and be recognized.” Many of our current and past Board members owe Charlie a large thank-you for his behind the scenes work for PSTA and for science education in Pennsylvania.

## ***William B. McIlwaine Award for Science Teaching*** ***Kaja Spaseff***

Kaja Spaseff is currently concluding her student teaching experience and will be graduating this month from Shippensburg University with certifications in general science, earth and space science and environmental science as well as her teaching credentials. She has served as a Graduate Assistant in the Geography and Earth Sciences Department at Shippensburg University as well as working with students from middle school to adult learners at the Wildwood Nature Center. Kaja has been honored with many awards including, the Gamma Theta Upsilon Scholastic Achievement Award, 2008 Governor's Institute Scholarship, The Jack Ford Scholarship, the Dr. Craig W. Oyen Memorial Research Award, the Departmental Service Award, the George G. Winsor Scholarship Award and the National Science Foundation Robert Noyce Scholarship.

Her nominator writes, "Kaja's passion is evident – she is an outgoing, energetic woman who will be extremely motivating to students. Her own interest in science education will surely be that "spark" that will ignite all of the students she encounters." As Kaja notes, "My mission as a teacher is to create a stimulating, supportive, and safe environment where students can express and learn about themselves and the world around them. I feel that the teacher's role is to guide learning, not to impart knowledge through lecture: the student must take an active role in learning in order to attach meaning and value to concepts." PSTA welcomes Kaja into our ranks as an educator and wish our best as she leads the next generation of students.

## ***Pennsylvania Junior Academy of Science Winners***

Pennsylvania Science Teachers Association awards one \$50 US Savings Bond to the PJAS winner in each of the following areas: Chemistry, Physics, Biology, and Computers/Mathematics.

Certificates were presented at the **Annual State Meeting of the Pennsylvania Junior Academy of Science.**

Winning is based upon the scores the students earn during the oral presentation and defense of their research projects at the state meeting. In order to present at the state meeting, the participants previously presented their research projects to judges at a regional meeting in their home area. Each participant is judged against established and proven PJAS criteria. The awards are based on how well they met the criteria. Students may only use 2-dimensional illustrations (i.e. slides, transparencies, poster displays, etc.) to explain their projects. Their explanations include how they: chose their project, completed their research, analyzed the data, arrived at their conclusions, and explained possible future experimentation.

Biology – **Luke Diorio-Toth**

Pittsburgh Central Catholic – PJAS Region 7

Chemistry – **Anna Chiumento**

Holy Cross High School – PJAS Region 2

Physics – **John Columbia**

California High School – PJAS Region 7

Computer Science – **Stephen Bussey**

Carlisle High School - PJAS Region 4

## ***Past Fellows Recipients***

The Fellows Award is designed to recognize individuals who, through active leadership and scholarly activities, have made extraordinary contributions to the advancement of education in the sciences and science teaching. This individual must have served as an officer or director of PSTA and have been a sustaining member within the organization. The Fellows Award is the highest honor the organization can bestow upon an individual.

Recipients of the Fellows Award include:

1985	William McIlwaine
1985	Kenneth Mechling
1986	Roy Allison
1986	H. Seymour Fowler
1988	Donna Oliver
1990	Wayne Mikach
1990	Barry Barnhart
1991	Clyde Dry
1991	Bruce Smith
1993	David A. Wiley
1994	Donald Keys
1996	Laura Yoder
2000	Judith Hechtman
2000	Anthony Lazzaro
2001	Mary E. Sweeney
2003	Donald E. Kline
2005	Christine Anne Royce
2006	William Ayers
2008	Ruth Ruud

### ***Past McIlwaine Award Recipients***

The William B. McIlwaine Science Teaching Award has been established to promote and recognize the outstanding teaching of science in grades K-12 by full time undergraduate and graduate students and full time teachers who have completed no more than two years of teaching.

2000	Mary Maxwell
2001	Donna Barrett
2003	Diane Womer
2003	Steve Kochis
2004	Amanda Potteiger
2004	Andrea Ferraco
2005	Brian Chubb
2007	Jennifer Long
2007	Jessica Saienni

### ***Past Science Leadership Award Recipients***

The Leadership in Science Education Award, which was established in 1995, is presented by the Pennsylvania Science Teachers Association to an individual not actively involved in classroom teaching or an organization, which over a period of at least five years, has made outstanding contributions in support of PSTA and individual members of PSTA.

1995	Daryl Flynn & Silver Burdett and Ginn
1999	Randy Stom & Delta Education
2002	Reeny Davison
2002	Jane Conrad
2004	Dr. G. Kip Bollinger
2005	Spectroscopy Society of Pittsburgh (SSP) Society for Analytical Chemists of Pittsburgh (SACP) Dr. John A. Varine, President
2006	PA Society for Biomedical Research
2007	Delta Education
2008	Dr. Kathleen Blouch
2008	Representative David J. Steil

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## *Notes*

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## *Verification of Attendance*

It is the individual's responsibility to obtain a label from the appropriate person at the end of a session. Attendees entering a session after the door's close (five minutes into a session) or leaving before the end of a session will not be given credit for attendance at that session. Each label indicates the title of the session and number of hours to be credited. It is the responsibility of the attendee to submit this form to their local district for it to count towards Act 48 hours. Labels will only be available at the end of the session and will be destroyed following that session. Lost forms cannot be reconstructed, therefore, please keep this form in a safe place.

### **Wednesday – December 1, 2010**


### **Thursday – December 2, 2010**


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**Friday - December 3, 2010**

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