This issue of the Science Matters eBlast is filled with Pre-K through high school opportunities and resources for both teachers and students. Please share the eBlast with your colleagues. It is also available by one of two methods, depending on how you receive this email. You can click on the attachment at the end of the message or locate it in the SAS Science Learning Community of SAS.

**Science Education in the News**

Ed Trust-West has released a study focusing on the implementation of NGSS and the impact on English learners. Components of the study are interesting, which include students being actively involved with phenomena, implementation of science practices, science notebooking, and involving students immediately where they learn vocabulary when they are actively involved with the phenomena. It also affirms prior research of actively involving students with the phenomena immediately . . . language acquisition (and content knowledge) comes from the interaction with phenomena and not in isolation. The study, Unlocking Learning: Science as a Lever for English Learner Equity, can be downloaded from the EdTrust-West website.

The Updated Science Curriculum Framework is posted in the Curriculum Framework section of SAS today. At this time, only pdf versions of the framework are available in the Curriculum Framework section of SAS. Word documents of the framework are available in the Content Repository of the Science Learning Community.

Governor Wolf signed Act 86 into law on July 13, 2016. Section 8 of Act 86 amended section 1605 of the Pennsylvania Public School Code, 24 P.S. § 16-1605, allowing high school students to apply up to one credit towards a math or science high school graduation credit requirement upon successful completion of computer science or information technology coursework. In accordance with Section 1605(c), this law is effective beginning with students graduating from a public high school at the end of the 2016-2017 school year, and continuing each school year thereafter. The governing body of the student’s public high school has discretion to determine the graduation credit requirement to which the credit earned by the student for computer science or information technology coursework is applied. Section 1605 defines a public high school as a school within a school district, a charter school, a cyber-charter school, a regional charter school or an area vocational-technical school, that offers grade 12. PDE has released guidelines for implementation.
Professional Opportunities

David Orr Keynote speaker at PAEE on March 13/14 at the McKeever Environmental Learning Center. He is the author of eight books, including *Down to the Wire: Confronting Climate Collapse*, served as a board member or adviser to ten foundations and on the Boards of many organizations, has been awarded eight honorary degrees and a dozen other awards including a Lyndhurst Prize, a National Achievement Award from the National Wildlife Federation, leadership awards from the U.S. Green Building Council (2014) and from Second Nature (2012), and a lifetime achievement award from Green Energy Ohio. [PAEE Registration](#).

PA Green and Healthy Schools Forum – Join the Pennsylvania Green & Healthy Schools Partnership (PAGHSP) and the National Wildlife Federation (NWF) for our first Green Schools Stakeholder Forum on Friday, February 17, 2017 at PaTTAN Harrisburg. The forum will bring together experts, practitioners, and resource providers to explore the “how,” “what,” and “why” of greening your school. Structured around NWF’s Eco-Schools USA program, the panels will focus on issues related to Consumption and Waste and Water Conservation and Quality. An experienced facilitator will also help guide small group discussions related to school sustainability issues and student engagement, providing time to share your experiences and to develop new ideas that can be implemented in schools. Participants will learn about NWF’s Eco-Schools USA program and network with PA Green & Healthy Schools Partners, school stakeholders, government agencies, NGOs, and community members who share a common interest in promoting sustainability at schools. [Registration is FREE](#).

Project Learning Tree (PLT) workshops are available this spring. Costs include materials for each session. PLT is one of the premier environment and ecology programs available for classrooms.

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<tr>
<th>Date</th>
<th>Workshop</th>
<th>Location</th>
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| 2/25  | Maple Sugaring and PLT (PreK-8) 8:30 – 3:30  
$10 | Parker Dam State Park         | 814-765-0630  
cahuber@pa.gov  
erensel@pa.gov |
| 3/24  | PLT (preK-8) 9:00 – 3:00  
$25 | Kings Gap Environmental Education Center | 717-486-3799  
sberg@pa.gov |
| 3/25  | PLT Focus on Forests (PreK-12) 8:30 – 3:00  
$20 | Moraine State Park            | 717-486-3799  
sberg@pa.gov |

If you are interested in taking a Project Learning Tree workshop but these dates do not work for you, consider PLT’s online training option. By accessing PLT’s web-site, you can participate in online training and download the electronic materials or purchase the printed materials. More information: [www.plt.org/trainings/online/](http://www.plt.org/trainings/online/)

The NSTA Learning Center has recently been updated with a sharp new look and enhanced features, including a simplified interface and navigation. [Check it out here](#).

The American Geosciences Institute’s Center for Geoscience and Society and the National Association of Geoscience Teachers are collaborating with other organizations and member societies to support implementation of the Earth and space science Next Generation Science
Standards. Webinars and email lists are available on their [website](#).

**EQuIP Peer Review Panel** is identifying and shining a spotlight on emerging high quality lesson and unit plans designed for the NGSS. Achieve launched and is facilitating an EQuIP Peer Review Panel for Science, a group of expert reviewers who will evaluate the quality and alignment of lessons and units to the standards. Learn how to [submit your lessons and units](#) today.

**SAS Training** delves deeper into resources available on SAS. Join the content advisors from PDE to delve deeper into resources for each content area. [Registration](#) is through [IU 5](#).

| Scranton Hilton – February 15 | East PaTTAN, Malvern – February 23 |

Registration is open for a FREE Organ & Tissue Donation Awareness Spring Institute in State College, PA on May 11-12, 2017. Secondary school teachers of all discipline areas, administrators, and school nurses are invited to attend. Act 48 credit is available and Act 58 credit for nurses is pending approval. [Grants up to $5,000 per year](#) are available for schools to assist in the implementation of Organ and Tissue Awareness into your curriculum. Space is limited. The [FREE registration](#) includes lodging, meals, and the conference. For questions: Sue Howes, [OTDA Project Coordinator at sue_howes@iu13.org](mailto:sue_howes@iu13.org) or (717) 606-1795.

**PA State Parks** continue to offer [innovative, multi-modal educator workshops](#) across the state. New sessions for after the first of the year have recently been added. Participants will receive Act 48 credit.

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<tbody>
<tr>
<td>February 16</td>
<td>Go Teach: GPS</td>
<td>Wildwood Park</td>
<td><a href="mailto:jwebster@dauphinc.org">jwebster@dauphinc.org</a></td>
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<tr>
<td>March 24</td>
<td>Project Learning Tree</td>
<td>Kings Gap EE Center</td>
<td><a href="mailto:sberg@pa.gov">sberg@pa.gov</a></td>
</tr>
<tr>
<td>March 25</td>
<td>Project Learning Tree</td>
<td>Moraine State Park</td>
<td><a href="mailto:moraineenedsp@pa.gov">moraineenedsp@pa.gov</a></td>
</tr>
<tr>
<td>April 8-9</td>
<td>Watershed Education</td>
<td>Presque Isle State Park</td>
<td>Register online</td>
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**Expanding Your Horizons: STEM Career Day for Girls** for middle and high school students will be held at Penn State University on January 28, from 9:00am – 4:00pm. It is an inspiring full-day event for middle and high school girls that will feature speakers and interactive workshops on STEM topics and careers. Registration and information: [http://science.psu.edu/outreach/special-programs/EYH](http://science.psu.edu/outreach/special-programs/EYH)

**Penn State CSATS Summer Workshops** have been announced. Spend a week with [Center for Science and the Schools](#) getting an in-depth experience with Penn State researchers. CSATS week-long workshops focus on engaging teachers in activities designed around cutting-edge research projects. Workshop activities may include field trips to site locations, working with researchers and graduate students in their labs or in the field, and professional development tailored to bring research-based practices into your classroom! [http://csats.psu.edu/overview-of-csats-programs/summer-workshops](http://csats.psu.edu/overview-of-csats-programs/summer-workshops)
Links/Resources

Deflategate is the focus of MIT Blossoms that looks at air pressure, use of Kelvin measurement units, Gay-Lussac’s law, compare predictions from a physical law with experimental measurements of the same quantity, to introduce the concept of measurement error, and use the Ideal Gas Law to compute the amount of gas that would need to be added or removed from a fixed volume of gas, held at constant temperature, to achieve a given increase or decrease in pressure. The lesson includes two classroom activities – teacher guide and student worksheet.

Pennsylvania Learns has resources for all levels of students. Teachers from across the state put together the resources to be utilized in all classrooms with a focus on one to one schools. The biology teachers organized resources around the Assessment Anchors and Eligible Content of the Biology Keystone Exam. This is one of the hidden jewels of SAS located in the ‘Instruction’ section of SAS! http://www.pdesas.org/Page?pageId=30

Grants, Awards, Contests

Lemelson-MIT InvenTeams are teams of high school students, educators, and mentors that receive grants up to $10,000 each to invent technological solutions to real-world problems. InvenTeams research intellectual property, exchange ideas, design parts, build models, and make modifications as they develop their invention prototypes. They learn to move forward through challenges and celebrate “Eureka!” moments, all while cultivating their technical leadership skills. Projects are collaborative efforts, driven by the students. The InvenTeam initiative fosters a “learning-by-doing” environment. The initial application deadline is April 10, 2017. Educators selected as finalists in step 1 are considered Excite Award recipients and attend EurekaFest at MIT June 15-17, 2017. The award is an all-expense paid trip to MIT and professional development on invention education. Only Excite Award recipients who attend EurekaFest will be invited to submit a final application which is due in early September 2017.

The Presidential Awards for Excellence in Mathematics and Science Teaching application will be available the first week of November. PAEMST is a phenomenal program that recognizes excellence in the teaching of science. By going to the PAEMST website, you can sign up for notification of information regarding the program.

Teacher Grants – What could you do with $1,000 for your classroom? K-12 classroom teachers can apply for a Technology Teacher Grant by writing a short essay on what new technology would mean to their classroom and how they would use the grant to address a learning challenge. The submission deadline is February 24, 2017.

The Presidential Innovation Award for Environmental Educators Program recognizes outstanding K-12 teachers who employ innovative approaches to environmental education and use the environment as a context for learning for their students. Teachers from each U.S. Environmental
Protection Agency region will be selected to receive the award. The deadline for application is March 1, 2017.

The Research Experience for Teachers program is inviting science teachers are invited to participate in 8 weeks of laboratory research in the group of one of Northwestern’s leading research professors. The Research Experience for Teachers carries an $8,500 stipend and runs from June 19 through August 11, 2017. Research topics include a wide range of materials science, physics, and chemistry areas such as polymers, nanoscience, biomaterials, molecular electronics, and photonics. The application deadline is March 15, 2017.

For Students

Schuylkill Acts & Impacts is a weeklong watershed expedition that is offered to a team of 12 high school students from the 5 counties (Schuylkill, Berks, Montgomery, Chester, Philadelphia) in the Schuylkill River watershed. Students spend a week learning about different water quality impacts in the watershed, do hands-on testing, learn from and interact with environmental professionals throughout the watershed, and will camp, kayak, and have tons of fun! Applications due March 24, 2017.

The Cassini Scientist for a Day essay contest is open to all students in grades 5-12. Students may work alone or in groups of up to four students. Students write an essay of up to 500 words about one of three possible imaging targets that the Cassini spacecraft has taken during the past few years. The contest deadline is February 24, 2017.

Action for Nature seeks applications from students ages 8-16 for its International Young Eco-Hero Awards Program. The awards program recognizes the accomplishments of young people whose personal actions have significantly improved the environment. Projects must concern advocacy, environmental health, research or protection of the natural world. The application deadline is February 28, 2017.

The President's Environmental Youth Awards program recognizes outstanding environmental projects by K-12 youth. The application deadline is March 1, 2017.

Witnessing Change Video Competition from the Climate Cost Project gives high school and college students an opportunity to document local impacts of climate change. Submissions due April 1, 2017. In addition to the video contest, the Climate Cost Project provides interdisciplinary educational materials on the economics of climate change, including a specialized climate change economics game and an environmental economics chapter.

National Youth Science Camp – The National Youth Science Camp is now accepting applications for graduating high school students from Pennsylvania. The camp is limited to two students from each
state, which is an amazing honor. This is a phenomenal experience for students that will take place in West Virginia, June 14-July 8 . . . and all expenses are paid! Applications are now available online. Start the process immediately!

**Science Matters Information**

If someone sent you this eBlast, you can become a member of Science Matters to receive it directly! Go to: [http://pascience.org/Science-Matters.php](http://pascience.org/Science-Matters.php)

Science Matters is an initiative of the Pennsylvania Science Teachers Association and the National Science Teachers Association to promote quality science education, through the sharing of information, resources, and professional development opportunities. The Pennsylvania state coordinator is Dave Bauman: davbauman@pa.gov.