



Did you see the SUPER MOON?

Only one of a number of exciting space events to experience.

Super bright moon dazzles night skies

The "supermoon," was the closest and therefore the biggest and brightest full moon of the year. At 11:34 p.m., May 5, the moon was about 221,802 miles from Earth. That's about 15,300 miles closer than average.

That proximity makes the moon appear about 14% bigger than it would if the moon were at its farthest distance, said Geoff Chester of the U.S. Naval Observatory. The difference in appearance is so small that "you'd be very hard-pressed to detect that with the unaided eye," he said.

By: Tariq Malik
05/06/2012 10:06 AM EDT on SPACE.com

The biggest full moon of the year, a so-called "supermoon," rose into the night sky on May 5 to the delight of skywatchers around the world, who captured the lunar sight in dazzling amateur astronomy photos.

Because of a fluke of orbital timing, the full moon of May peaked late Saturday just as the moon was passing its perigee, the closest point to Earth of its orbit. The result was the biggest full moon of the year, which NASA and other scientists nicknamed the [supermoon of 2012](#).

The supermoon hit its peak at 11:34 p.m. EDT (0334 GMT), when the moon reached its perigee and was about 221,802 miles (356,955 kilometers) from Earth at the time. One minute later, the full moon of May hit its peak, offering a dazzling lunar show for skywatchers with clear weather.

The last time a supermoon occurred was on March 19, 2011, when the moon was about 248 miles (400 km) closer to Earth than it was on Saturday night. On average, the Earth-moon distance is about 230,000 miles (384,400 km). [[Supermoon Full Moons Explained \(Infographic\)](#)]

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[NASA - Space exploration](#)

A super-full and extra-bright moon dazzled the night skies this weekend as the lunar body swept along the low point of its elliptical orbit around the Earth.

The so-called lunar perigee brings the moon about 50,000 kilometres (30,000 miles) closer to the Earth than when it's at the farthest point of its oval orbit.

When a full moon coincides with this low point, as it did overnight from Saturday to Sunday, it appears especially bright and large, with observers often able to make out craters and other lunar features in clearer detail than normal.

NASA says the perigee full moon appears about 14 percent larger and 30 percent brighter than other full moons in 2012.

Super-full perigee moons occur about once a year on average



There will be a partial lunar eclipse on June 4, 2012, which will be most visible from locations in and near the Pacific Ocean starting 8:48 UT and ending 13:18 UT.

[When is the next total solar eclipse in the U.S.?](#)



The next total solar eclipse visible from the mainland U.S. will be on August 21, 2017. During a total solar eclipse – when the new moon swings in front of the sun and completely covers it – the sky turns suddenly from day into night, and stars pop into view.

[Solar eclipse at sunset from JunCtion's photostream](#)

SCIENCE SNIPPETS

Agriculture Secretary Vilsack Urges Petroleum Companies to Increase Adoption of American Made Renewable Energy

OXFORD, N.C., May 3, 2012 – Agriculture Secretary Vilsack today called on petroleum companies to help increase the percentage of ethanol in America's gas tanks in order to reduce dependence on foreign oil, boost job creation and promote development of renewable energy from farm-produced feedstocks. Recent Environmental Protection Agency (EPA) action approved the use of E15 a fuel blend that is 15 percent ethanol and 85 percent gasoline, up from the current 10 percent blend level.

EPA's recent decision to allow the blending of up to 15 percent ethanol in gasoline represents one of several steps needed from federal, state and industry to commercialize E15 gasoline blends.

The Renewable Fuel Standard, a long-term renewable fuel mandate established by Congress requires the use of 36 billion gallons of renewable transportation fuel by 2022. Advanced, low-carbon renewable fuels such as cellulosic biofuel must make up 21 billion gallons of this mandate. Achieving this mandate will help speed the transition to cleaner, more secure sources of energy in the transportation sector, helping our nation address the challenges of climate change, dependence on oil, and job creation. Increasing the amount of ethanol that is allowed to be blended in the fuel supply of cars to 15 percent is an important step in the effort to reach this goal.

"When we get to 36 billion gallons, that's going to mean that we will be importing fewer barrels of oil," said Vilsack. "That means that the wealth that we are currently transferring into those countries that don't necessarily agree with us and are from an unstable part of the world can be redirected into creating rural opportunities and jobs." Through the Recovery Act - the 2008 Farm Bill, the U.S. Department of Energy (DOE) and U.S. Department of Agriculture have provided grants, loans and loan guarantees to spur American ingenuity on the next generation of biofuels. Before it can be sold, manufacturers must first take additional measures to help ensure retail stations and other gasoline distributors understand and implement labeling rules and other E15-related requirements.

With a focus on helping the country reach 36 billion gallons by 2022, USDA, in collaboration with DOE and EPA, developed the Growing America's Fuels strategy. This plan will help ensure that dependable supplies of feedstock are available for the production of advanced biofuels to meet legislated goals and market demand, as well to enhance rural economic sustainability. Toward that end, USDA is supporting the establishment of five Regional Biomass Research Centers and has published a Biofuels Production Roadmap addressing regional variations in feedstock availability and biorefinery locations. In addition, USDA

continues to implement bioenergy programs from the 2008 Farm Bill.

At Secretary Vilsack's direction, USDA is working to develop the national biofuels industry producing energy from non-food sources in every region of the country. Working with private and government partners, USDA is supporting research into innovative energy technologies and processes, helping companies build biorefineries – including the first ever commercial-scale cellulosic ethanol facilities – and supporting farmers, ranchers, and businesses taking risks to pursue new opportunities in biofuels.

The Climate Fixers

Is there a technological solution to global warming?

One cubic mile of oil would fill a pool that was a mile long, a mile wide, and a mile deep. Today, it takes three cubic miles' worth of fossil fuels to power the world for a year. That's a trillion gallons of gas. To replace just one of those cubic miles with a source of energy that will not add carbon dioxide to the atmosphere—nuclear power, for instance—would require the construction of a new atomic plant every week for fifty years; to switch to wind power would mean erecting thousands of windmills each month. It is hard to conceive of a way to replace that much energy with less dramatic alternatives. It is also impossible to talk seriously about climate change without talking about economic development. Climate experts have argued that we ought to stop emitting greenhouse gases within fifty years, but by then the demand for energy could easily be three times what it is today: nine cubic miles of oil. (From Sustainable Pittsburgh)

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One of Earth's Greenest Buildings Opens in Pittsburgh on May 23

Opening on May 23, 2012 at Phipps Conservatory and Botanical Gardens, the new 24,350-square-foot Center for Sustainable Landscapes (CSL) will emerge as one of the greenest buildings on Earth. Seeking to achieve or exceed the world's highest sustainable standards, including the Living Building Challenge, LEED® Platinum and Sustainable Sites Initiative(TM) (SITES) certification for landscapes, it will also be the largest operational structure pursuing living building status in the U.S. when it opens.

“The Peoples’ Department: 150 Years of USDA”

On May 15, we will recognize the 150th anniversary of the founding of the U.S. Department of Agriculture. On that date in 1862, President Abraham Lincoln signed into law an act of Congress establishing USDA.

Two and a half years after he established the Department, in what would be his final annual message to Congress, Lincoln called USDA "The People's Department."

President Lincoln knew the importance of agriculture to our prosperity – particularly at a time when about half of all Americans lived on the farm. And while that number today stands at about 2 percent, our values are still rooted in rural America.

As the United States has changed and evolved over the years, at USDA we have not lost sight of Lincoln's vision. Through our work on food, agriculture, economic development, science, natural resource conservation and a host of other issues, USDA has impacted the lives of generations of Americans. And over the past three years, we have furthered that commitment to this nation.

USDA has supported producers – making a record number of farm loans, maintaining a strong safety net, and expanding markets to drive record exports. We've stood by rural communities – supporting more than 6,000 community facilities projects, providing more than 50,000 loans to help rural businesses create jobs, and investing in thousands of infrastructure projects that have delivered modern broadband, water and electric services to millions.

We've enrolled a record number of acres in conservation programs, and laid out a sensible new planning rule for 193 million acres of National Forests to promote job growth while conserving the environment.

USDA has continued its history of groundbreaking research. For example, we've invested about \$320 million to accelerate research on the next generation of renewable energy – so we can create jobs and ensure America's energy security for years to come. And we're helping families lead healthy lives. USDA provides nutrition assistance for one in four Americans, enabling them to put healthy meals on the table, even when times are tough, and we're serving healthier school breakfast and lunch to 32 million kids a day.

Today, USDA truly remains a "Peoples' Department" that touches the life of every American. Folks depend on us. That's why I'm committed to leveraging the efforts of our Department and more than 100,000 hardworking USDA employees to continue creating jobs, supporting rural communities and helping our country prosper. As we commemorate 150 years of accomplishments, USDA is looking forward to addressing the changing needs of agriculture and rural America.

For our small towns and communities looking to compete in a globalizing world, we'll be there with access to broadband, critical infrastructure and support for new businesses. USDA will continue its support for the next generation of renewable fuels and help promote advanced, bio-based products. And we'll keep working closely with America's agricultural producers to maintain a dependable safety net for their work – which ultimately is connected to 1 in 12 American jobs – and ensure the food supply we need to feed a growing world population.

I hope Americans will join us in our commemoration of 150 years of USDA. This is a great time to learn about this Department's contributions to the strength of our nation, and to see how we can continue to partner with Americans working to provide a better life for their families. I invite everyone to visit www.usda.gov/usda150 to learn more about USDA's history and our plans for the future – as the "Peoples' Department" continues serving all Americans, every day and every way.

Game Over for the Climate

By JAMES HANSEN

Published: May 9, 2012

GLOBAL warming isn't a prediction. It is happening.

Canada's tar sands, deposits of sand saturated with bitumen, contain twice the amount of carbon dioxide emitted by global oil use in our entire history. If we were to fully exploit this new oil source, and continue to burn our conventional oil, gas and [coal](#) supplies, concentrations of carbon dioxide in the atmosphere eventually would reach levels higher than in the Pliocene era, more than 2.5 million years ago, when sea level was at least 50 feet higher than it is now. That level of heat-trapping gases would assure that the disintegration of the ice sheets would accelerate out of control. Sea levels would rise and destroy coastal cities. Global temperatures would become intolerable. Twenty to 50 percent of the planet's species would be driven to extinction. Civilization would be at risk.

[James Hansen](#) directs the NASA Goddard Institute for Space Studies and is the author of "Storms of My Grandchildren."

EDUCATION NEWS

U.S. DEPARTMENT OF EDUCATION LAUNCHES OFFICE OF EARLY LEARNING WEB SITE

The newly-established Office of Early Learning (OEL) now has a web site. It is our desire to provide you with useful and timely information that will enhance your knowledge about the early learning programs and initiatives at the U.S. Department of Education.

The Office of Early Learning (OEL) is the principal office charged with supporting the Department's Early Learning Initiative with the goal of improving the health, social-emotional, and cognitive outcomes for children from birth through third grade, so that all children, particularly those with high needs, are on track for graduating from high school college- and career-ready.

OEL is also responsible for the discretionary grant programs in OESE exclusively focused on early learning. The Office works collaboratively with other Department offices to help coordinate and align early learning programs and initiatives. Additionally, OEL works across Federal Agencies to support early learning, including co-administering the Race to the Top – Early Learning Challenge grants with the Administration for Children and Families (ACF) at the U.S. Department of Health and Human Services.

Please visit our web site for more information:

<http://www2.ed.gov/about/offices/list/oese/oel/index.html>

REGION 3 COLLEGES AND UNIVERSITIES EXCEL IN THEIR GREEN POWER PURCHASES AND GREENHOUSE GAS EMISSION PROJECTS

On April 18, EPA recognized colleges and universities having the largest individual green power purchases for 2011-12. Colleges and universities in Region 3 included: [University of Pennsylvania](#), [Carnegie Mellon](#), [Drexel University](#), [Dickinson University](#), [University of Maryland](#), [Georgetown University](#), [The Catholic University of America](#), [American University](#), [Allegheny College](#), [St. Mary's College of Maryland](#), [Mercyhurst College](#), [Duquesne University](#), and [Chatham University](#). For more information, go to <http://www.epa.gov/greenpower/index.htm>.

78 SCHOOLS ARE WINNERS AS GREEN RIBBON SCHOOLS, INCLUDING SOME FROM REGION 3

On April 23, U.S. Secretary of Education Arne Duncan, the White House Council on Environmental Quality Chair's Nancy Sutley, and EPA Administrator Lisa Jackson announced the U.S. Department of Education's Green Ribbon Schools winners at a ceremony in Washington, D.C. The [list of winners](#) include two from D.C., four from Maryland, four from Pennsylvania, one from Virginia and two from West Virginia. Schools are recognized for becoming more cost-efficient, environmentally friendly and healthier places of learning. For more information, go to <http://www2.ed.gov/programs/green-ribbon-schools/index.html>.

Looking Up

Did you see [the recent item in C&EN's "Newscripts" column about high school chemistry teacher Scott Byrum, who has decorated his classroom ceiling with the Periodic Table](#)? In the article, Byrum points out that the table on the ceiling "engages [students'] minds visually like a game." He's competing with video games and instant messaging for students' attention, so Byrum is definitely bringing his A game! We applaud this kind of creative and innovative use of the Periodic Table, and it got us wondering - what other clever ways are people using the Periodic Table to spark curiosity and interest in chemistry? If you've got an example or a tip for us, please e-mail us at ACSNewsletterEditor@acs.org - we'd love to feature it in an upcoming "pHun & Games"!

NASA NEWS

The latest issue of the [Space Place Newsletter: News and Notes for Formal and Informal Educators](#) has just been published. The newsletter is all about the many useful and--it goes without saying--free resources on the Space Place website that can be helpful for kids and grown-ups interested learning about science, technology, and space.

A link is: it may be downloaded from <http://spaceplace.nasa.gov/educator-newsletter/en>.

SOLAR RADIATION STORM

In March 2012, [the Sun unleashed](#) the most intense radiation storm since 2003, peppering satellites with charged particles and igniting strong auroras around both poles. A group of high school students in Bishop, California, knew just what to do: They launched a rubber chicken.

The students inflated a helium balloon and used it to send “Camilla” to an altitude of 120,000 feet (36.5 kilometers), where she was exposed to high-energy solar protons. “We equipped Camilla with sensors to measure the radiation,” said Sam Johnson, age 16, of Bishop Union High School’s [Earth to Sky](#) student group. “At the apex of our flight, the payload was above 99 percent of Earth’s atmosphere.”

Launching a rubber chicken into a solar storm might sound strange, but the students had a reason: They are doing an astrobiology project. “Later this year, we plan to launch a species of microbes to find out if they can live at the edge of space,” said team member Rachel Molina, age 17. “This was a reconnaissance flight.”

Many space enthusiasts are already familiar with Camilla, the mascot of NASA’s [Solar Dynamics Observatory](#). With help from her keeper, Romeo Durscher of Stanford University, Camilla corresponds with more than 20,000 followers on Twitter, Facebook, and Google+ about the latest results from NASA’s [heliophysics missions](#).

On March 3, the Earth to Sky team and a local class of fifth graders attached Camilla to the payload, a modified department store lunchbox full of instruments. The payload included four cameras, a cryogenic thermometer, and two GPS trackers. Seven insects and two-dozen sunflower seeds (*Helianthus annuus*) were also sent up to test their response to near-space travel.

The fifth grade assistants are now planting the sunflower seeds to see if radiated seeds produce flowers that are different than those grown from the seeds that stayed on Earth. They're also pinning the corpses of the insects—none survived—to a black “Foamboard of Death,” a rare collection of bugs that have been to the edge of space.

Study: Quickening Water Cycle Fueling Extreme Weather

There's been no shortage of extreme weather in recent years, from [flooding in Australia](#) to record-breaking [temperatures in North America](#) to [wildfires in Russia](#). A new study [published in Science](#) argues that at least some of the blame should go to [global warming](#) for accelerating the [water cycle](#). By measuring changes in the salinity of the ocean's surface, the authors conclude that the water cycle has [sped up by 4 percent](#) over the last half century. The research is based on data from ships and a network of [floating Argo sensors](#), not satellite data. However, NASA's newly-launched [Aquarius satellite](#) will likely provide better global salinity estimates in the coming years. In other extreme weather news, [a new poll](#) found that two-thirds of Americans believe global warming is exacerbating severe weather and [a new video](#) (above) from the Yale Forum on Climate Change tackles the subject as well.

TRANSIT OF VENUS

The Sun-Earth Day and NASA EDGE Teams will bring the *Transit of Venus* to the world from the summit of Mauna Kea in Hawaii. During a live webcast, the transit will be shown in high definition video through H-alpha, Calcium-K, and White Light telescopes. Coverage will consist of video of the transit, interviews with scientists and Native Hawaiians, and question and answer sessions.

Resources are available on the website for use in museum events and classroom participation, including videos providing cultural and historical information about the transit. Promotional materials include bookmarks, wallpapers, and a flier that can easily be downloaded from the website. A Google map is also available, to see where events are happening, and where you can submit your own event. For more information, visit <http://1.usa.gov/H1raix>.

[Planet Hunters - Help Find Planets Using Kepler Data](#)

Planet Hunters is a citizen science project where site visitors can help to sieve through data taken by the NASA Kepler space mission. These data consist of brightness measurements, or "light curves," taken every thirty minutes for more than 150,000 stars. Users search for possible transit events – a brief dip in brightness that occurs when a planet passes in front of a star – with the goal of discovering a planet. The project's first paper, Fischer, et al. 2011, '*Planet Hunters: The First Two Planet Candidates Identified by the Public using the Kepler Public Archive Data*' was published in September, and two more papers have recently been submitted: Schwamb, et al. 2012, '*Planet Hunters: Assessing the Kepler Inventory of Short Period Planets*' and Lintott, et al. 2012, '*Planet Hunters: New planet candidates from the first year of analysis*.' So far, over 10 million light curves have been classified by more than 100,000 users. To join the hunt, visit <http://bit.ly/xh9kit>.

Cubesats "Land" at National Science Foundation on Thursday, May 24th

Imagine a fully instrumented satellite the size of a half-gallon milk carton. Small low-cost satellite payloads, built mainly by students and hitching rides into orbit on Air Force and NASA launch vehicles, have been making recent history in successes many herald as a "space revolution."

Called cubesats for the roughly four-inch-cubed dimensions of their basic building elements, each one is stacked with modern, smart-phone-like electronics and tiny scientific instruments.

Several cubesat projects funded by the National Science Foundation (NSF) are currently operating in orbit, making first-of-their-kind experiments in space and providing new measurements that help scientists understand how the Earth's upper atmosphere responds to solar activity.

Media Contact-Cheryl Dybas, NSF (703) 292-7734 cdybas@nsf.gov

Announcing the Student Spaceflight Experiments Program (SSEP) Fifth Flight Opportunity - SSEP Mission 3 to the International Space Station for the 2012-13 Academic Year

Opportunity for Schools and Districts to Engage Their Grade 5-12 Students in Real Microgravity Experiment Design for Flight to the International Space Station

We Are Truly Inviting Your Students and Community to Be Part of America's Space Program

TIME CRITICAL:

We are trying to provide enough advance notice for the Mission 3 opportunity so that schools and districts can assess interest with their staff and, if appropriate, move forward with an Implementation Plan before summer break.

Milestone dates:

8-Week Experiment Design Phase: September 17 to November 9, 2012 Selection of Flight Experiments: December 7, 2012 Ferry Flight to ISS: early-April 2013 Ferry Flight Return to Earth: mid-May 2013 National Conference in Washington, DC: early July 2013

PROGRAM OVERVIEW:

The National Center for Earth and Space Science Education, in partnership with NanoRacks, invites communities across the U.S. to participate in SSEP Mission 3 to ISS. SSEP immerses a community of students in real scientific research of their own design, using a highly captivating spaceflight opportunity on the International Space Station (ISS) - America's newest National Laboratory, and which will garner the community significant media attention for STEM education.

Each participating community will be provided all launch services to fly a real microgravity research mini-laboratory on ISS from early April to mid-May 2013, and a kit for assembly and loading of their mini-lab.

An 8-week experiment design competition in your community, held Fall 2012, will allow grade 5-12 student teams to design real microgravity experiments vying for the community's reserved mini-lab slot on ISS. Your student teams write very real but grade level appropriate research proposals, go through a formal proposal review process, and one experiment is selected to fly for your community. This is a true science immersion program where students are asked to be real scientists and go through the exact same process as professional researchers vying for research resources and research opportunities.

Two NASA feature articles on the SSEP program at NASA.gov appeared on the International Space Station RESEARCH page, not education page. NASA considers these students TO BE RESEARCHERS. The program is changing the way students view both science and their ability to do science. It is also changing the way teachers teach science.

The pedagogical approach for the program embraces student ownership in learning, a recognition that we humans are born to explore, and that science is really just organized curiosity married to evidence-based learning. The power of this pedagogical approach is reflected in a 3-minute music video made from my Keynote Address to 6,000 teachers at the National Science Teachers Association National Conference in 2011: <http://www.youtube.com/watch?v=haUj3qUncOs>

SSEP is a true STEM education program. It addresses a wide range of biological and physical science disciplines (thus appropriate for all teachers of science), including: seed germination, crystal growth, physiology of microorganisms and life cycles (e.g. bacteria), cell biology and growth, food studies, and studies of micro-aquatic life. Students design experiments to the technology and engineering constraints imposed by a real research mini-lab and flight operations to and from Earth orbit.

Contact us via the link below, or call me directly at: 301-395-0770

GO TO NATIONAL ANNOUNCEMENT OF OPPORTUNITY: <http://ssep.ncesse.org/?p=9708>

Earth-observing instruments

We bring you this week's indicator—90—with a sigh.

Ninety is the combined number of Earth-observing instruments on NASA and NOAA satellites that are currently monitoring our planet. And that number is about to plunge, according to a [National Research Council report](#) released in May 2012. By 2020, there could be less than 20 instruments in orbit, and the total number of missions is expected to fall from 23 to just 6.

Many of these space-based instruments aren't exactly household names. ([MODIS](#), anyone? [ASTER](#) or [ALI](#)? [AMSU-A](#) or [SORCE](#)?) Still, they are our eyes and ears on the planet, as indispensable to understanding how it works and changes as our human senses are to navigating life on the surface. Without these satellites, the United States would be blind to most Earth systems, unable to effectively monitor the effects of [global warming](#) and the constant parade of volcanic eruptions, wildfires, droughts, dust storms, hurricanes, crop health, air pollution.

The NRC study authors mince few words in explaining what the reduction would mean:

These precipitous decreases warn of a coming crisis in Earth observations from space, in which our ability to observe and understand the Earth system will decline just as Earth observations are critically needed to underpin important decisions facing our nation and the world. Advances in weather forecast accuracy may slow or even reverse, and gaps in time series of climate and other critical Earth observations are almost certain to occur. When these long-running data streams fall silent, users requiring these observations will go unsupported, and progress toward understanding the Earth system and how it supports life may stagnate.

It's worth noting that the committee only counted missions that have been officially proposed, funded, and given a launch date. It did not include missions that will likely come to fruition but have not yet been fully funded (the [successor mission](#) to [GRACE](#), for example). That means the future fleet might not be quite as small as feared, but even the most optimistic estimates indicate a major decline in observing capability.

DIRECTIONS

Attention all informal and formal educators who teach youth about water (extension educators, environmental educators, nature center directors, scouting program executives, camp directors, curriculum coordinators, afterschool program educators, volunteer trainers, Envirothon coordinators, classroom teachers, and more!!)

Dive Deeper - A multi-state environmental education summit spotlighting innovative teaching about water
Thursday, September 27, 2012
The Central Hotel & Conference Center
Harrisburg, PA

An all day event with workshops, lunch, and guest speakers

Find out more about this summit at: <http://www.surveymonkey.com/s/DiveDeeper>
(ACT 48 Credits will be available)

YOU AND YOUR COLLEAGUES ARE INVITED

[Year of the Solar System - Resources for New Data, New Ideas](#)

May's topic for the Year of the Solar System is "New Data, New Ideas." Our understanding of the solar system is constantly changing as we develop new technologies and make new discoveries. Join the YSS team as they explore the scientific process of gathering new data and formulating new ideas! To find resources and events relating to this month's topic, please visit <http://1.usa.gov/JGFUpC>.

[MY NASA DATA Lesson Plan 44: Think GREEN – Utilizing Renewable Solar Energy \(Grades 7-12\)](#)

Through this lesson plan, students utilize satellite data to determine greatest renewable energy potentials in any given region. This process allows students to develop skills in graphing and reading graphs.

<http://bit.ly/lSKB2l>

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The Ethics of Science and Animals

Join us for a Free Science Curriculum Workshop for Teachers this summer!!

Wednesday, August 8, 2012
University of Pittsburgh Medical Center

ACT 48 credits provided

The Ethics of Science and Animals

9:30am - 2:30pm includes *Complimentary Lunch*

[Click here](http://www.psbr.org/index.php?option=com_rsform&Itemid=120) to (http://www.psbr.org/index.php?option=com_rsform&Itemid=120) register

Workshop Description: **The Ethics of Science and Animals**

Explore the scientific and ethical implications of animal research using hands-on, engaging activities. Receive the unit free on CD and compiled in a binder.

This session will provide an overview of animal research through presentations by a scientist, a veterinarian, and tours through a research lab and animal housing facility.

Participants will receive practical strategies for managing bioethical discussions related to animal research, an overview of scientific aspects of biomedical research, and a CD containing the complete unit.

These materials were developed by the Northwest Association for Biomedical Research (www.nwabr.org) in conjunction with classroom teachers, ethicists, and scientific researchers and were made possible by a NIH Science Education Partnership Award grant. The session addresses National Life Science Content Standard F, Science in Personal and Social Perspectives, which indicates that all students should develop understanding of science and technology in local, national, and global challenges.

Presented by The Pennsylvania Society for Biomedical Research (www.psbr.org) and the University of Pittsburgh

To register [Click here](http://www.psbr.org/index.php?option=com_rsform&Itemid=120) (http://www.psbr.org/index.php?option=com_rsform&Itemid=120)

Questions? Please contact Lisa Cassaro, PSBR Program Assistant at 717-731-3559 or lisa@psbr.org.

● **NASA G.I.R.L.S. Mentoring Project**

NASA is looking for the next generation of scientists, engineers, and innovators. To jump-start the future of potential explorers, Women@NASA has created a mentoring project that offers a one-of-a-kind experience for middle school girls. Participants will get to explore the possibilities of a career in the fields of science, technology, engineering, and mathematics.

The project will feature one-on-one mentoring from women working at NASA. Participants will complete online lessons with their mentors while virtually connected through Skype or Google Chat. Applicants must be U.S. citizens in Grades 5-8 or home-school equivalent. The mentoring project will take place over a five-week period during the summer.

Applications will be open for submission on May 15 and are due **June 15, 2012**. The NASA G.I.R.L.S. website and social media accounts will be updated when application submission is opened! For more information on how to follow along on Twitter or Facebook, go to <http://women.nasa.gov/get-involved>.

For more information and to register online, visit <http://women.nasa.gov/nasa-g-i-r-l-s/>. Email any questions about this opportunity to hq-women@nasa.gov.

Source: NASA Education Express Message, April 19, 2012

[Pennies for PUR](#)

Almost one billion people in the developing world do not have access to clean drinking water. To address this critical need, Procter & Gamble created water purification packets that are easily transportable and very inexpensive. The powdered mixture removes pathogenic microorganisms and suspended matter, making previously contaminated water clean. As part of its International Year of Chemistry observance,

ACS initiated a “Pennies for PUR” campaign to raise money for this life-saving advance made possible by chemistry. Dr. Greg Allgood, who directs P&G’s Children’s Safe Drinking Water program said, “The nearly \$18,000 contributed by ACS members and friends will support 800 days of clean water.” To learn more or make a personal gift, please visit www.csdw.org.

PRCST SUMMER PROFESSIONAL DEVELOPMENT PROGRAMS

JUNE:

NEW

Linking Liberal Arts to Science Workshop

June 13, 2012

6 Act 48 Hours

Fee: \$25

Bridgeside Point Building – 2nd Ave. beside the Hot Metal Bridge

<p>Join in an exciting day showing how to integrate science concepts and liberal arts components into science/environment curriculum!</p>
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Morning:

Plays and the theater: Invited: _Shakespeare-in-the-Schools
Exploring the Classical Myths: Linking with Science Concepts - PRCST

Afternoon:

Using Ballet to Demonstrate Science/Math Concepts: Bodiography with Maria Caruso

It is Bodiography's belief that by holding a standard for educational excellence within a professional dance setting, there will be a mature and inspirational quality within both the working atmosphere and the work produced. By only employing dancers who have received a minimum of a four-year baccalaureate degree, there is a great opportunity to provide not only mature and high quality work, but also offer a high standard of education. Bodiography believes strongly that our youth will pave the way of the future. With that in mind, Bodiography is dedicated to providing quality dance education through Bodiography Center for Movement, where the educators enrich young and aspiring artists about the importance of a sound mind, body, and spirit within the technique of ballet, modern, jazz and other affiliated subjects.

Maria Angelica Caruso
Founding Artistic/Executive Director
Bodiography Contemporary Ballet
www.bodiographycbc.com

Chair
La Roche College Performing Arts Department

NEW PRCST WORKSHOP

LINKING LANGUAGE ARTS AND SCIENCE/ENVIRONMENT

“Reading to Learn the Content”

The Renewable Resources Unit of Study

Presented by Dr. Patricia Vathis, Advisor PA DOE Office for Environment/Ecology

June 14, 2012 [Bridgeside Point Building \(next to the Hot Metal Bridge\)](#)

Six Act 48 Hours – Fee: \$25.00 – Grades 1-4 inclusive

The Renewable Resources Unit of Study will deal with the sustainable concept of the environment. Teachers will learn about the water cycle and its impact on the earth, the farm ecosystem, the concept of from farm to table, how seasons influence and impact humans and the different ecosystems, and trees as a renewable resource and the products they supply. All of this is done through the integration of language arts. The Renewable Resources Unit of Study will deal with the sustainable concept of the environment. Teachers will learn about the water cycle and its impact on the earth, the farm ecosystem, the concept of from farm to table, how seasons influence and impact humans and the different ecosystems, and trees as a renewable resource and the products they supply. All of this is done through the integration of language arts.

Registration refreshments and Lunch will be provided. Teachers will be provided with \$200 of equipment.

Space is limited.

The Bridgeside Point (Thermo Fisher) building is located just off Second Avenue, beside the Hot Metal Bridge, Oakland, PA

Specific directions will be included in a confirmation letter.

July

NEW 2 DAY WATER QUALITY WORKSHOP

“Natural Gas Extraction – Marcellus Shale: impacts and Benefits”

July 11-12, 2012

12 Act 48 hours

Fee:\$35.00

Lunches Provided

Held at the PA Geologic Survey– Washington’s Landing, Pittsburgh, PA: Space Limited

Presented by the Pittsburgh Regional Center for Science Teachers (PRCST)

Explore the history of PA geologic resources, the current program of extracting Marcellus Natural Gas in Pennsylvania, problems and remedies - the environmental, health, and economic impacts, the social, and governmental influences, and the current status today.

Day One:

- Geologic resources in PA – geology, watersheds, fossil fuels – environmental and economic Impacts;
- PA Geologic Survey/USGS
- Geology of PA and stratification layers related to fossil fuels.
- Marcellus Shale extraction: history and current status.

How does the current Marcellus shale play relate to the history of petroleum exploration and production in the Appalachian basin?

A recent issue of PA Geology provides an excellent primer on the evolution in thinking regarding the exploration of the Marcellus shale. Operators in the Appalachian basin have known the Marcellus Formation to be a reservoir rock for over 75 years. Once the gas had drained from “pockets” in this shale, drillers continued drilling to deeper targets (mainly, the Oriskany Sandstone).

Day Two

- Water Quality – sources, uses, conservation: **Free- PRCST Water Extension Kit** .This program encourages systems thinking – rather than merely cycles. The expansion into thinking about global water systems and the relationship to our local efforts is not always perceived or understood. Our use of fresh water in extraction and utilization of fossil fuels is a larger issue for introduction into the classrooms. Complexities in the use of all fossil fuels can “hide” the related impacts – ex. Air quality impact in Marcellus Shale drilling
 - Impacts of Marcellus Shale extraction: economic and environmental
 - With current oil prices and advancements in drilling and completion technology, the Marcellus shale has become an important gas play.
 - Regulations and legislation
-

“WHAT’S IN THE AIR WE BREATHE?”

SOURCES AND SOLUTIONS

Two Day workshop

July 25-26, 2012

12 Act 48 hours

Fee: \$25.00

Presented by the Pittsburgh Regional Center for Science Teachers (PRCST) and Citizen Power

Bridgeside Point Building – next to the Hot Metal Bridge

Teachers will explore the history of air pollution and remedies in Pennsylvania, the environmental, health, and economic impacts, the social and governmental influences, and the current status today. Local to global connections will be included.

Day 1. Sources of air pollution: history and current status

Some presenters will include:

Don Hopey, Writer for the Post Gazette: Report “Mapping Mortality” (Air Pollution in Western PA) This report includes interactive maps for specific variables researched.

PRCST EHI - FREE Air Quality kit : activities: Fine Particles – size and dissemination (Hands-on)

GASP: Air Quality - In Transportation – use of an air monitor in the school

Air & Waste Management – Air Quality environmental resources/activities: Skit “Dirty Half-Dozen”; Ozone activities

Center for Healthy Environments & Communities - CHEC – Ozone report, Drew Michanowicz

Breathe Project - Marily Nixon – Website and activities

Day 2. Solutions: Alternative/green energy sources – solar, wind, energy efficiency .

CITIZEN POWER will conduct this workshop and provide a wealth of energy related educational materials.

The focus will be on wind and solar energy production and saving energy audits. Energy Trainers in wind and solar power and energy-efficiency technologies will provide hands-on instruction. Teachers receive \$170 worth of free teaching resources, including: a resource binder and flash drive with relevant curricula links, a functioning model wind turbine, a solar energy kit, an LED light bulb, books, DVDs and more.

For all PRCST workshops:

Space Limited! Contact Jane Konrad – konrad@pitt.edu for reservation. Make check payable to University of Pittsburgh and mail to:

Jane Konrad, PRCST
5512 Posvar Hall
University of Pittsburgh
Pittsburgh, PA 15260

Zero Robotics"

"Zero Robotics" is a robotics programming competition where the robots are [SPHERES](#) satellites inside the [International Space Station](#). The competition starts online, where teams compete to solve an annual challenge guided by mentors. Participants can create, edit, share, save, simulate, and submit code, all from a web browser. After several phases of virtual competition, finalists are selected to compete in a live championship aboard the ISS. An astronaut will conduct the championship competition in microgravity with a live broadcast! There are three types of Zero Robotics tournaments:

- **High School Tournament:** Geared towards students in Grades 9-12, the tournament takes place from September-December each Fall. This is a nationwide event open to any teams from the U.S.
- **Middle School Summer Program:** For younger students, this is a 5-week program where students learn to program through a graphical interface. The program will take place at TBD locations (where the SPHERES team has a strong presence). The first open program is expected to start in the Summer of 2013.
- **Open Challenges:** These are **open to everyone** from around the world, including professionals, educators, university students, etc. You can participate individually or as a team. These competitions usually involve working on complex algorithms that will help future spaceflight missions.

All tournaments are free of charge. All you need to participate is to create an account and register your team for an active tournament. High school and middle school teams also need a primary mentor.

For more information, visit: www.zerorobotics.org/web/zero-robotics/home-public.

SSP
Spectroscopy Society of Pittsburgh



The Spectroscopy Society of Pittsburgh, along with our sister society, the [Society for Analytical Chemists of Pittsburgh](#), is a non-profit organization dedicated to furthering science education in the Western Pennsylvania region.

To that end, with support from [Pittcon – The Pittsburgh Conference](#), we support member education programs, teacher and student awards, a wide variety of educational programs, and grant programs for high schools, colleges, and beginning university professors.

If you're interested in the Society, please note that our [monthly meetings](#), the third Wednesday of the month, are open to the public. The Technology Forum at 5:30 usually hosts a speaker and topic of general science interest. Dinner, following the Technology Forum, is a mere \$8, and that includes free parking at our host institution, [Duquesne University](#), centrally located in the heart of Pittsburgh.

The Technical Program, after dinner, hosts only the best spectroscopists. Take a look! Anybody interested in spectroscopy is welcome at the meetings.

If you are interested in becoming a member of the SSP or volunteering to help promote science education through our various programs, please visit the [membership information page](#).

If you wish to speak to someone concerning the society and its programs or to contact any of the executive council members, please contact the SSP Administrative Assistant at (412) 825-3220 or by e-mail at sspinfo@pittcon.org.



SACP

What is the SACP?

The Society for Analytical Chemists of Pittsburgh (SACP), is a non-profit organization dedicated to the advancement of analytical chemistry through science education.

The SACP is dedicated to the education of the membership, of the community and of the future scientists in our schools. By educating the children and the community, a new generation is being prepared to meet the future. Continuing Education helps to keep the members current with new technologies, instrumentation and methods. The society provides awards, scholarships and grants both locally and nationally.

Members are involved in joint endeavors with the [Spectroscopy Society of Pittsburgh](#), (the Pittsburgh Section of the *American Chemical Society*), and [Pittcon](#), (*The Pittsburgh Conference*).

CALENDAR OF EVENTS

NSTA CONFERENCES:

2012 Area Conferences

- Louisville, Kentucky: October 18–20
- Atlanta, Georgia: November 1–3
- Phoenix, Arizona: December 6–8

2013 National Conference:

San Antonio, Texas April 11–14, 2013

JUNE DATES TO NOTE:

6-12 National Safe Drinking Water Week
21-27 Recreational Water Illness Prevention Week (CDC)
May 27-June 2 National Hurricane Preparedness Week (NOAA)

PRCST Summer Workshops: (See Directions for details)

July 11-12 - Water Quality in PA: Geology and Marcellus Shale Drilling. PA USGS Office, Washington's Landing,

July 25-26 - Air Quality: Sources and Solutions, U. Pittsburgh

Looking Ahead:

Nov.28-20, 2012 PSTA Annual Conference. Hershey Lodge

March 7-9, 2013 ITEEA's 75th Annual Conference in Columbus, Ohio

The Council on Technology and Engineering Teacher Education (CTETE, formerly CTTE) will sponsor three types of special interest sessions at the 75th Annual ITEEA Conference in Columbus, Ohio, March 7-9, 2013:

1. Paper/Research presentations (blind reviewed)
2. General Conference sessions (peer reviewed)
3. Poster presentations (peer reviewed)

PRCST thanks those who have supported PRCST Programs:

Air & Waste Management Association

Carnegie Mellon University

Carnegie Science Center

Conservation Consultants, Inc.

DEP – Education Grants program

Digioia, Gray Assoc.

Diocese of Pittsburgh

Fisher Scientific

National Energy Technology Laboratory (NETL)

PASA – Education Program

PDE Office for Environment/Ecology

PA Resources Council

Phipps Conservatory and Botanical Gardens

Pittsburgh Geological Survey

Pittsburgh Tissue Engineering Initiative
McGowan Institute for Regenerative Medicine
Moretti Consulting Group
PA NASA Educator Resource Center (ERC)
Spectroscopy Society of Pittsburgh (SSP)
Society for Analytical Chemists of Pittsburgh (SACP)
The Pittsburgh Foundation – Nancy Hannon Gordon Fund
University of Pittsburgh – School of Education
Western PA Unit – Herb Society of America