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**K-16 STEM in the NEWS****Annual "Engineer For A Day" Program Brings Engineering to Life**

As part of "Engineer's Week", 25 students from area high schools participated in the highly successful and eleventh annual "Engineer for a Day" program held last month at the Toledo engineering firm SSOE. What is unique about this program is that the different fields of engineering are explored by students in a day filled with interactive and engaging hands-on activities, all with the focus of exposing students to what it's really like to work as an engineer. The students gained valuable insight on the different engineering disciplines, and learned what it takes to become, and more importantly, work as an engineer.



SSOE Engineers take the students through fun experiments and projects, all in an effort to expose the students to what it is like to actually work as a team, putting into "action" how engineering may be applied to day-to-day activities.

The day began with "Let's Build a Motor"; an activity led by Master Engineer Ed McConnell and Electrical Engineer Zulema Lopez, who stated, "We've done the motor building project for two years to make it fun and interesting for the kids. We give them a D battery and other materials, along with instructions and then they are on their own to learn how to build a motor from scratch." Ms. Lopez went on to explain the students are put into groups, and they must decide on their own who will be the project manager, and then work together as a team. "The kids get really into it, they get really excited when the motor starts working!"

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Along with an extensive tour of the SSOE corporate headquarters, the students explored "Design Technology" computer engineering and the application of 3D technology and animation software. Students then took



part in "Construct a Building Frame"; a hands-on activity designed to test the students' creativity with various structural design options, as well as their ability to work as a team while managing a theoretical project building and schedule.

The day closed with Ms. Lopez, who has been with SSOE for nine years, speaking with the students on the rarity of and unique challenges faced as a female in the engineering industry. "Even though engineering is a male-dominated field, women and minorities should not shy away from it. We can offer great contributions to engineering and the sciences," she stated.

[\(read more\)](#)

## STEM Opportunities

### Ohio Junior Science and Humanities Symposium (OJSHS)

Join us for the 51st Annual OJSHS  
March 19 - 21, 2014 at BGSU

Ohio's top high school science students and selected 8th grade students will present the results of their original research during the 51st Annual Ohio Junior Science and Humanities Symposium (Ohio JSHS) in both paper and poster sessions. This event will begin on Wednesday afternoon, March 19, and continue through Friday, March 21 at Bowling Green State University. The Ohio JSHS is patterned after research sessions at professional meetings where both paper and poster sessions will take place.



Over 100 high school students from throughout the state of Ohio will present their own original research on topics from all areas of science. The eight paper sessions will take place on Thursday and Friday in Olscamp 101B. Poster judging will take place on Thursday with public viewing on Friday as follows:

- Poster viewing will take place in Olscamp 101A from 4:05 p.m. - 5:05 p.m. on Thursday.
- Poster viewing will also take place from 8:45 a.m. until 12:15 p.m. on Friday.

**The public is invited to view the posters at these times.**

For more information visit: [http://cosmos.bgsu.edu/nwo\\_ojshs](http://cosmos.bgsu.edu/nwo_ojshs)



Are you a high school teacher who wants your students to master state science benchmarks? Do you want to gain a deeper understanding of core concepts and how to teach them in a meaningful and interesting way? If so, the 2014 STAMPS Modeling Institute at BGSU is the place to be! The Modeling Institute will be peer-led. Science content will be reorganized around basic models to increase its structural coherence. Participants will be supplied with a complete set of course materials and work through activities alternately in the roles of student or teacher, as they practice techniques of guided inquiry and cooperative learning.

**DEADLINE TO REGISTER IS MARCH 31.**

### **Schedule:**

#### **Physics and Chemistry**

- 2-week Summer Institute, July 14 - 25, M - F, 8 AM - 5 PM (80 contact hours)
- AY follow-up dates: Sept. 2, Oct. 7, Nov. 11, Jan. 27, Feb. 24, Mar. 24, Apr. 28
- Total hours are equivalent to 4 semester hours (3 for Summer Institute, 1 after Mar 2015)
- Application deadline March 31, 2014

#### **Biology**

- It is expected that participants in the Biology Summer Institute will have previously completed a modeling workshop in physics, chemistry, or physical science.
- 2-week Summer Institute, July 14 - 25, M - F, 8 AM - 5 PM (80 contact hours)
- AY follow-up: two dates TBD
- Total hours are equivalent to 3 semester hours for the Summer Institute
- Application deadline March 31, 2014

For more information visit: <http://cosmos.bgsu.edu/stamps/index.htm> or contact **John Laird**, [laird@bgsu.edu](mailto:laird@bgsu.edu), 419-372-7244.

## Literacy In The Park

### FREE Family Event

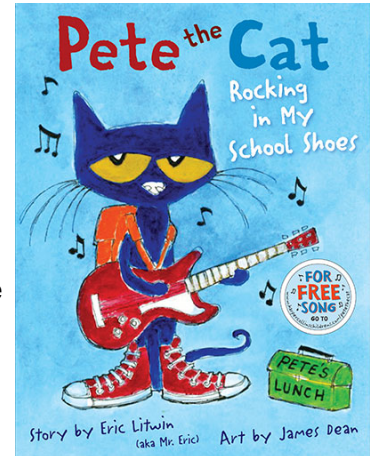
**Saturday, April 5, 2014**

**10:00 AM - 1:00 PM**

**Stroh Center, Bowling Green State University**

#### Featuring:

- Eric Litwin, #1 New York Times Best-Selling author of the first four "Pete the Cat" picture books,
- Exciting booths and activities, and
- Prizes, crafts, and performances.



Enjoy fun, food and literacy-based activities for the entire family in such areas as art, music, physical fitness, nutrition and finance. Each family receives a goodie bag with a free "Pete the Cat Rocking in My School Shoes" book. For more information: <http://www.bgsu.edu/events/literacy-in-the-park.html>

## S.T.E.M.urdays: Ohio State University Extension

Exploring food science, electricity, rockets, and robotics through fun hands-on experiences!  
Each program is first come, first served to 25 Hancock County youth currently in grades 5 or 6.

**Program Location:** Hancock County Agricultural Service Center, 7868 CR 140, Findlay OH 45840

This program is being generously funded by a grant from the Ohio 4-H Foundation.

**Call 419-422-3851 to register!**

March 22: Investigating Electricity (9:00 AM - 12:00 PM)

May 17: Robotics (10:00 AM - 3:00 PM)

May 31: Rockets Away (9:00 AM - 12:00 PM)

## United States Naval Academy STEM Summer Program

Engineering is all about creating, building, and making things better! So what does it take to be an engineer? If you like math and science, you are off to a great start. If you enjoy discovering new things, solving problems, and learning how things work - even better! Creativity, persistence, and the desire to make the world a better place are also important qualities. Becoming an engineer requires hard work and a good education. Our summer program will be a great start to your career in science and engineering. Applications are now open. They will close at 11:59 p.m. on April 15, 2014!

When applying, be sure to use an email address that is checked often. All correspondence will be sent via email. In addition, please note that we do not accept recommendations for the STEM program.

<http://www.usna.edu/Admissions/STEM>

## The Discovery Education 3M Young Scientist Challenge

The ultimate middle school science competition is the nation's premier science competition for grades 5-8. This one-of-a-kind video competition has sparked the imaginations of hundreds of thousands of students and enhanced science exploration, innovation, and communication across the United States. Learn more at

<http://www.youngscientistchallenge.com>



## Imagination Station Needs Your Help

**Imagination Station**, Toledo's Science Center, is your resource for interactive STEM education. Your feedback will help Imagination Station continually improve and provide the best possible experience for educators and students. Even if you have never attended Imagination Station, take our survey and enter to win a Kindle Fire.

[Educator Survey](#)



## Ohio's Spring Education Symposium 2014

Ohio's Spring Education Symposium 2014 provides a unique forum for Ohio educators to expand your understanding about how to design and select quality assessments for classroom use. Programming for this one-day event will strive to answer the fundamental question every educator asks of themselves: "How can I be truly effective with my teaching and ensure my students are learning what they need to learn for academic success?"

Login to your SAFE Account > STARS > Keyword Search: "RttT" > Select "Ohio's Spring Education Symposium"

**Space is limited, so sign up now! This event is FREE.**

For questions or registration assistance, please contact **Adrienne Carr** at [adrienne.carr@education.ohio.gov](mailto:adrienne.carr@education.ohio.gov).



*STEM Education and Beyond:  
Curriculum, Collaboration,  
College, and Careers!*



**Wednesday, May 14, 2014** at Tangeman University Center, on the campus of the University of Cincinnati

**STEM Conference is intended for:**

- K-12 STEM teachers and administrators from public and private schools, who are seeking innovative instructional strategies.
- Leaders in higher education, business, and industry that support STEM education and STEM-related career opportunities.

[Click here](#) to view the Conference and Registration Website. **Registration is now OPEN!**

## NCTM Issues RFPs for PreK-8 Action Research Projects

NCTM is calling for proposals for PreK-8 Action Research





Projects. NCTM will award grants to fund action research conducted as a collaborative by university faculty, pre-service teacher(s), and classroom teacher(s) seeking to improve their understanding of mathematics in PreK-8 classroom(s). For 2014-2015, grants up to a maximum of \$3,000 will be awarded. **The deadline for applying is May 2, 2014.** See more at [PreK-8 Pre-service Teacher Action Research Grants](#).

### **Apply for school in-service training grants for grades preK-5 teachers**

The purpose of this grant is to provide financial assistance to elementary schools for in-service education in mathematics. For 2014-2015, grants up to a maximum of \$4,000 each will be awarded to elementary schools. Only schools with a current (on or before April 25, 2014) NCTM PreK-8 school membership are eligible to apply for this grant. **The deadline is May 2, 2014.** For more information, go to the [Grants and Awards page](#).

## **Citizens Scientists Needed for Wildlife Monitoring Projects**

### **Marsh Monitoring Program Training**

**When:** Sunday, March 23, 1:00 - 4:30 PM

**Where:** Old Woman Creek NERR, 2514 Cleveland Road East, Huron, OH 44839

**Contact:** Maggie Finch, Ohio Department of Wildlife at 419-433-4601 or [Margaret.finch@dnr.state.oh.us](mailto:Margaret.finch@dnr.state.oh.us)



This spring, Old Woman Creek in Huron, Ohio, is initiating new wildlife surveys that will inform habitat management and help conserve rare species. ODNR is seeking citizen science volunteers to help. ODNR is joining forces with Bird Studies Canada and Ohio Wetlands Association's Great Lakes Marsh Monitoring Program, which surveys frogs, toads, and marsh birds throughout the Great Lakes region. The monitoring project is appropriate for beginning naturalists but volunteers must know or be willing to learn to identify local frogs and toads visually.

## **Time Warner Cable: Connect a Million Minds**

Help us celebrate by sharing how you've helped connect young people to STEM and you'll be entered for a chance to win a CAMM Prize Pack. We'll be choosing one winner a week from now until May 4. Post your story at <http://share.connectamillionminds.com>



## 2014 Community Resources Workshop for Educators

June 16 - 20, 2014

### [Registration is Open!](#)

Spend a week of Summer Vacation on a Fun-Filled Field trip for Educators while earning college credit or 40 contact hours.

**Registration fee:** \$150

**Registration fee includes:** Several lunches, one dinner, CEUs/Contact hours for entire week, teaching resources, and hands-on materials.

Please register for this exciting week packed with activities addressing the new Common Core Standards, STEM learning, and 21st Century Skills.

Learn more at: <http://cosmos.bgsu.edu/CRW/CRWhome.htm>



## ARC-Oak Ridge National Laboratory 2014 Summer Math-Science-Technology Institute and Summer Science Academy

The Appalachian Regional Commission, in partnership with the Oak Ridge National Laboratory in Tennessee, holds a summer math, science, and technology institute for middle and high school students as well as teachers from the Appalachian region. The participants spend a week working on real-world projects, applying their science and math skills.

More information on the program can be found on the website ([http://www.arc.gov/program\\_areas/ARCOakRidge2014SummerPrograms.asp](http://www.arc.gov/program_areas/ARCOakRidge2014SummerPrograms.asp)). Information on last year's program can be found at <http://www.orau.org/arc-ornl/2013/index.html>

## Computer Security Capture the Flag Competition for High School Students

**SecureState** ([www.securestate.com](http://www.securestate.com)), an information security firm, has partnered with the University of Mount Union in Ohio to create a "**Capture the Flag**" (CTF) Challenge event for high school students interested in information security or computer science. CTFs are a type of computer security competition, where certain pieces of information (called flags) are placed on servers, encrypted, hidden, or otherwise stored somewhere that is difficult to access. During the competition, different challenges are released which allow the participants to reverse engineer, break, hack, decrypt, and do whatever it takes to capture that flag. When a team submits this flag to a scoring page, they earn points. The challenges are set up with the intent of being hacked, making



it an excellent, legal way to get hands-on experience.

The event will be held on **April, 5th** and is free to register (<http://engage.securestate.com/2014zombiectf>) for. The winning team will earn scholarships to use at a university of their choice.

**For more information:**

- High School CTF Hacking Challenge ([pdf](#))
- CTF Fact Sheet ([pdf](#))

## SATELLITES Summer Teacher Institute

The SATELLITES (Students And Teachers Exploring Local Landscapes to Interpret The Earth from Space)institute will focus on geospatial technology, climate change, and student research projects. Teachers will be led through the process of engaging students in developing projects using GLOBE, which matches well with the Next Generation Science Standards (NGSS).

**WHEN and WHERE:** June 23 - 27, 2014 (all day) at The University of Toledo.

Participants attend a five-day institute that includes an overview of what remote sensing, GIS, and GPS technologies are and how they are useful to the understanding of the Earth's surface, atmospheric processes, and climate change.

**FOR TEACHERS:** Grades 4 - 12 Science, Social Studies, Geography, Technology, Earth & Space Sciences

**TOPICS COVERED INCLUDE:**

- An overview of remote sensing
- GLOBE cloud identification, Atmosphere & Energy Budget
- Training in GLOBE Surface Temperature protocol
- Introduction to Global Positioning Systems (GPS)
- Introduction to Geographic Information Science (GIS)
- Inquiry-based investigations & projects

More information is available at: <http://satellitesk12.org>

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## Job Opportunity

### Springfield High School Science Teacher

Springfield High School is looking for a science teacher that is interested in a part time position for next year and possibly beyond that. Contact Jim Schall for more information at [jschall@sismail.net](mailto:jschall@sismail.net)

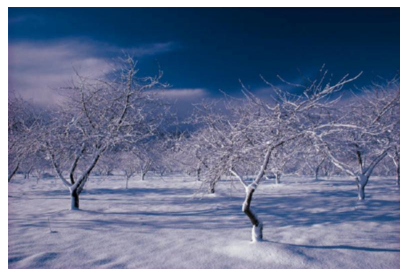
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## NWO Hands-On STEM Activity

### Changing State: Melting

*This lesson is shared with permission from American Chemical Society's [middleschoolchemistry.com](http://middleschoolchemistry.com)*

**Teachers:** March has finally arrived, which means Spring is around the corner! All the snow from our record-breaking winter of 2014 will be slowly melting away. Use this lesson to teach your students about the scientific aspects of melting frozen matter.



Melting is a process that causes a substance to change from a solid to a liquid. Melting occurs when the molecules of a solid speed up enough that the motion overcomes the attractions so that the molecules can move past each other as a liquid. Please click on the link below.

<http://www.middleschoolchemistry.com/lessonplans/chapter2/lesson5>

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### Share Your Story!

Thank you for your support of NWO, our programs, our activities, and our partners. Please send us updates, press releases, and news of STEM happenings at your school, district, or organization. Please submit to [nwo@bgsu.edu](mailto:nwo@bgsu.edu). We are always looking for great STEM education stories to feature in upcoming newsletters.

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### Find Even More Ohio STEM Education Resources

Visit our STEM clearinghouse, [nwostemresources.org](http://nwostemresources.org), for more STEM activities, programs, and information.

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