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## K-16 STEM in the NEWS

### President Obama continues to advocate for STEM

In his State of the Union address on Tuesday, February 12, and for the third year in a row, President Barack Obama advocated for STEM education in U.S. elementary and high schools. In this speech to Congress, he called for redesigning the high school education system with focus on science, technology, engineering and math. The president urged high schools to "better equip graduates for the demands of a high-tech economy" and said they should create new STEM classes and partner with colleges and employers. Obama said the government will reward the effort, and he emphasized the importance of making sure students learn technical skills in high school that will prepare students for jobs.

As an example, Obama described the work of the New York City school P-Tech, a joint effort of New York City Department of Education, New York City College of Technology, City University of New York and the IBM Corp.

Students come to P-Tech school in ninth grade and graduate in fourteenth grade, receiving both a high school diploma and an associate's degree in computer science or engineering.

In the President's "Plan for a Strong Middle Class & A Strong America", released in conjunction with the State of the Union address, the President is calling on Congress to commit new resources to create a STEM Master Teacher Corps, enlisting 10,000 of America's best science and math teachers to improve STEM education. The President stated, "Four years ago, we started Race to the Top - a competition that convinced almost every state to develop smarter curricula and higher standards, for about 1 percent of what we spend on education each year. Tonight, I'm announcing a new challenge to redesign America's high schools so they better equip graduates for the demands of a high-tech economy. We'll reward schools that develop

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new partnerships with colleges and employers, and create classes that focus on science, technology, engineering, and math - the skills today's employers are looking for to fill jobs right now and in the future."

The president said that the skills in STEM fields are "the skills today's employers are looking for to fill jobs right now and in the future."

Obama first embraced the importance of STEM education in his State of the Union speech in 2011. The president set a goal to prepare 100,000 new STEM-teachers in a decade. He continued his advocacy in 2012, saying the commitment to skills and would help the nation "prepare for the jobs of tomorrow."

## Community STEM in the NEWS

### OHIO JUNIOR SCIENCE AND HUMANITIES SYMPOSIUM TO CELEBRATE 50TH ANNIVERSARY!

For 50 years, the U.S. Army Research Office, the Office of Naval Research, and the Air Force Research Office have supported the efforts to encourage young people to pursue careers in science and engineering, with over 48 regional symposia held throughout the United States. In Ohio, the annual Junior Science and Humanities Symposium (OJSHS) is sponsored by Bowling Green State University and The Northwest Ohio Center of Excellence in STEM Education. This program calls for all high school students who have completed an original research investigation in the sciences, engineering, or mathematics to apply. All students in grades 9-12, enrolled in public, private, or home schools within Ohio are eligible. Each year one student finalist and four alternates from the OJSHS program are chosen (all expenses paid) to attend the National JSHS. The OJSHS first and second place finalists present their research papers to compete for twelve opportunities to represent the United States at the London International Youth Science Fortnight (LIYSF). Since 1966, over fifty OJSHS finalists have presented papers at the National JSHS. Thirteen of these students subsequently presented their papers at the LIYSF in London, England.



Deadline to enter the 50th anniversary competition is FEB. 20. [Click here](#) for more information and how to enter.

## STEM Opportunities

### New! Inquiry Workshops for Educators at The Toledo Zoo

Participants will learn basic principles for doing a life science inquiry with their students using the QUEST model. Working in groups, teachers will learn inquiry techniques by participating in guided inquiry lessons on days one and two. The series will culminate with teachers working in teams to perform an open inquiry utilizing animal exhibits at the zoo.

\*\*\*When you register, you will be signing up for all three sessions in the series.

- **When** - Thursday February 21, March 7, and March 14
- **Time** - 4:30 - 6:45PM
- **Where** - The Toledo Zoo, 2 Hippo Way, Toledo, OH
- **What** - Applying life science inquiry lessons in the classroom  
Who - Elementary teachers; Secondary Audience - middle and high school life science/biology teachers
- **Cost** - \$75/person - includes light dinner, refreshments, instruction, and handouts for each of the 3 sessions and an outreach inquiry program for each participant's classroom (new zoo education program).
- **Contact Hours** - 6 contact hours will be awarded at the conclusion of the series.

***Of special note - The maximum number of registrants is 20, so register soon!***

#### To Register:

Please visit the following link...

<http://onlinesales.toledozoo.org/eComm/products.php?cat=669>

#### Questions?

Email Mitch Magdich, [mitchell.magdich@Toledozoo.org](mailto:mitchell.magdich@Toledozoo.org), Curator of Education at The Toledo Zoo

### STEM Speaks! 2012-13 NWO STEM Education Inquiry Series continues

**March 12, 2013** ~ Dan Brahier, BGSU Faculty and author of *Panning for Gold: 15 Investigations to Enrich Middle School Mathematics*

Students learn mathematics by solving problems. But to learn best, they need immersive problems that activate background knowledge while introducing new concepts that challenge them to make connections between mathematical principles, mirror their real-world experiences, and show them the big ideas underpinning procedural understandings. These kinds of problems are riches for any classroom, and in *Panning for Gold*, students discover a trove of extended investigations that support deep learning in math.

*Panning for Gold* contains fifteen classroom-tested, open-ended inquiries into real-life topics that build students' facility with algebra, geometry, data analysis and probability, number and operations, and measurement. Its extended, two- to three-day investigations are a high-quality supplement for any curriculum.

Please join us for this engaging event! [Click here](#) to register for the March 12 Inquiry Series.

For more information please visit: <http://cosmos.bgsu.edu/inquiryseries/index.htm>

If you missed the January STEM Speaks!, Susan Everett, co-author of *Everyday Engineering: Integrating Science and Engineering Activities*, below is the link for the video held on January 8, 2013.

[http://media.aeoned.org/wgte/content/items/video/STEM3\\_web.mov](http://media.aeoned.org/wgte/content/items/video/STEM3_web.mov)

As always, if you are interested in getting contact hours for watching the video and reflecting on the ideas presented, please contact [nwo@bgsu.edu](mailto:nwo@bgsu.edu) for more information.

## INTERNATIONAL TECHNOLOGY AND ENGINEERING EDUCATORS ASSOCIATION

**ITEEA's 75th Annual Conference  
Columbus, OH  
March 7-9, 2013**



Improving Technology and Engineering Education for All Students: A Plan of Action ITEEA's 75th Anniversary celebration of its past, present, and future.

REGISTRATION INFO ON WEBSITE: <http://www.iteaconnect.org/Conference/registration.htm>

## Toledo Area Parent News Science Experiment Contest

Send Toledo Area Parent News your craziest, wackiest, funniest (or totally serious) family video of your home science experiment and you could win a family 4-pack of admission tickets to Imagination Station.



**Here's how it works:**

1. Check the Toledo Area Parent magazine after the first of the month for the QR code (or web address) of a science experiment featured by Imagination Station or click or view the video here.
2. Watch the video and inspire your inner scientist.
3. Record yourself, your family, your troop or your classroom doing the experiment and email it to: [contest@adamsstreet.com](mailto:contest@adamsstreet.com) or post it to: [facebook.com/toledoarearent](https://www.facebook.com/toledoarearent)

Each month, the Toledo Area Parent News will choose the best one and award its creator the prize.



Each month, Imagination Station will give a family 4 pack of admission passes to the best home video.

Upload your video to YouTube and email the link to: [contest@adamsstreet.com](mailto:contest@adamsstreet.com) or post it to: [facebook.com/toledoarearent](https://www.facebook.com/toledoarearent)

Grab your kids! Check out this cool experiment and try it at home.

<http://www.youtube.com/watch?v=AuXEDaGDv4M&feature=plp>

419-244-2674 • [imaginationstationtoledo.org](http://imaginationstationtoledo.org)

## Summer 2013 Employment Opportunities Instructor and Teaching Assistant



JOHNS HOPKINS  
CENTER FOR TALENTED YOUTH

Center for Talented Youth (CTY) offers challenging academic programs for highly talented elementary, middle, and high school students from across the country and around the world. We are currently seeking highly motivated and qualified candidates to work in our summer programs. Information regarding employment and our summer programs can be found at [cty.jhu.edu/jobs/summer](http://cty.jhu.edu/jobs/summer).

We are currently seeking individuals with expertise in the following chemistry-related courses:

- Fast-paced high school chemistry
- Chemistry in Society
- Crystals and Polymers
- Examining the Evidence
- The Edible World

For more information about these positions, site locations, program dates, and access to our online employment application, please see our website, [cty.jhu.edu/jobs/summer](http://cty.jhu.edu/jobs/summer), or contact us via email at [ctysummer@jhu.edu](mailto:ctysummer@jhu.edu) or by calling 410-735-6185.

## "STEM is ELEMENTARY" events:

- The International Technology and Engineering Educators Association's international Conference will be held in Columbus, OH March 7-9 at the Columbus Convention Center. Sessions and workshop on technological literacy and STEM for grades K-12 will be presented. See <http://www.iteea.org/Conference/conferenceguide.htm> for details and registration information.
  - A FREE pre-conference workshop on integrating STEM into the elementary language arts and social studies curriculum will be held at the Columbus Convention Center on March 6 from 5 to 6:30. It is free to all attendees but space is limited. See [http://www.tecchome.org/assets/files/UTF-8\\_B\\_Q2.pdf](http://www.tecchome.org/assets/files/UTF-8_B_Q2.pdf) for details.
  - "What is STEM Education" by Hays Blaine Lantz, Jr., Ed. D. Dr. Lantz ties many educational topics such as Understanding by Design and current STEM research into a very readable discussion on exactly what STEM education is and what should be included in an integrated STEM curriculum. The PDF is found on <http://www.currtechintegrations.com/pdf/STEMEducationArticle.pdf>
- Please visit: [www.stemiselementary.com](http://www.stemiselementary.com) for other lessons and resources for elementary STEM.

## FREE ELEMENTARY SCHOOL EDUCATOR WORKSHOPS

The Children's Council of the International Technology and Engineering Educator's Association (ITEEA) resources for STEM in elementary school.

A free paper engineering contest for preK-6 students: [http://www.tecchome.org/conference-info/Paper\\_Engineering\\_Contest\\_flyer.pdf](http://www.tecchome.org/conference-info/Paper_Engineering_Contest_flyer.pdf)

A free workshop for elementary teachers during the next ITEEA Annual Meeting in Columbus on Wednesday, March 6: <http://www.iteea.org/Conference/workshops.htm>

## Opportunity for marine research travel

A researcher with ties to BGSU, Michael Mauntler, offers a marine research travel opportunity and possible grant writing help for two expeditions this summer. These expeditions are open to anyone, with a particular focus on providing teachers with a chance to have hands-on experiences in marine science that they can take

back to their classrooms.

- June 22-28 on a liveaboard dive boat in Cat Ppalu, Bahamas, to collect water samples on ocean acidification while developing content related to biodiversity, coral reef ecology and invasive species.
- July 17-21 in Isla Mujeres, Mexico to work with biologist John Tyminski on the whale shark aggregation, collect data, contribute to the photo ID database, and conduct plankton tows.

Mr. Mauntler's background includes classroom teaching in high school science, leading student groups on dive trips in the Caribbean and Egypt, developing curriculum and teaching distance learning classes at Mote Marine Laboratory, and work in wildlife filmmaking, including productions for the BBC/Discovery series Nature's Great Events and the PBS series Nature.

**More information:**

Michael Mauntler - Fluid Blue Productions

[www.fluidblueproductions.com](http://www.fluidblueproductions.com)

## LEGO® Education Robotics Workshop is coming soon!

### Join us in Marion, Ohio!

LEGO® Education Robotics Workshops are great opportunities to learn how to use robotics curriculum to give students

hands-on, real-world applications in science, technology, engineering, and math.



# education

### Introduction to Robotics Teacher Workshop

Don't miss this exclusive educators-only, hands-on workshop exploring the world of robotics! Used to explore everything from simple robotic machines to computer-programmed autonomous robots, the LEGO MINDSTORMS® NXT Base Set <[http://marketing.legoeducation.us/acton/ct/2543/e-02fe-1302/Bct/l-tst/l-tst:9/ct7\\_0/1](http://marketing.legoeducation.us/acton/ct/2543/e-02fe-1302/Bct/l-tst/l-tst:9/ct7_0/1)> , software <[http://marketing.legoeducation.us/acton/ct/2543/e-02fe-1302/Bct/l-tst/l-tst:9/ct8\\_0/1](http://marketing.legoeducation.us/acton/ct/2543/e-02fe-1302/Bct/l-tst/l-tst:9/ct8_0/1)> , and activities are powerful tools that convert your classroom into a hands-on, minds-on robotics laboratory.

**When:** Saturday, February 23, 2013, 8:30 a.m.-3:30 p.m.

**Where:** TRECA, 100 Executive Drive, Marion, OH 43302

Breakfast and lunch will be provided. Seating is limited to 24 participants per workshop. Payment reserves your seat. Please arrive 20 minutes early.

**[Click here](#) to Register!**

**Registration closes Thursday, February 21, 2013.**

**For more information, contact:**

Ivery Toussant, Jr., LEGO Education Consultant

**877-647-0043**

[itoussant@LEGOeducation.us](mailto:itoussant@LEGOeducation.us)

or

Douce, TRECA

**740-361-6772**

[tdouce@treca.ori](mailto:tdouce@treca.ori)

## NWO Hands-On STEM Activity

**Better Lesson** ( <http://betterlesson.com/>) is an online social network which allows teachers to share classroom resources, and was founded by a group of teachers from Atlanta and Boston public schools to connect educators and help them create, organize, and share their curricula. They are focused on aggregating and scaling the most innovative content and practices from high-performing teachers across the country.

### Intro to States of Matter

*Suitable for grades 2-4*

#### PREP

- Have an example of a solid (book), liquid (bottled water) available.
- Copy Student Response Sheet. Materials needed: scissors, glue
- Check access to youtube videos. They can be omitted.

#### LAUNCH

- Ask students to look around the room and think about what the world is made of.
- Have students share their ideas. (Chart or list on the board)
- Tell: Scientists classify everything in the world as matter.
- Tell the students that for this unit in science, they will be learning what matter is, the different types/or states of matter, and how the different states can change from one to the other.
- Define: Matter is anything that takes up space.

#### EXPLORE

Show one (or both) of these introduction videos:

<http://www.youtube.com/watch?v=9xDNJSMikBo>

[http://www.youtube.com/watch?v=quoU\\_cuR8EE](http://www.youtube.com/watch?v=quoU_cuR8EE)

Download a pdf of the complete hands-on activity by [clicking here](#)!

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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.

Join NWO on [Facebook](#)

## Find Even More Ohio STEM Education Resources

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

## Print and eNewsletters from the past!

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