



Advancing science, technology, engineering, and mathematics education for people of all ages.

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## K-16 STEM in the NEWS

### Local "You Be the Chemist Challenge" Winner Goes on to Win National Challenge!

NWO is very excited to announce that **Daniel Liu**, a 10-year old seventh-grader at Ottawa Hills Junior High School in Ottawa Hills, Ohio, is the **2015 National "You Be The Chemist Challenge"® Champion!**

At 10 years old, Daniel is the youngest-ever National Champion and the first from Ohio. His "quick thinking and impressive understanding of chemistry won him the title, but it was his infectious smile and on-stage victory fist pump that won the audience's hearts," stated the Challenge coordinator from the Chemical Educational Foundation, the main sponsor of the event.



The top four contestants earned scholarships in the amounts of \$10,000 (champion), \$5,000 (first runner-up), \$2,500 (second runner-up) and \$1,000 (third runner-up).

The "You Be The Chemist Challenge" competition, created in 2004, is open to students in fifth through eighth grades and is designed to help middle school students learn chemistry concepts and their real-world applications. Practice study guides are distributed to the participating students. The Challenge is a unique opportunity for a variety of community partners—including schools, industry, higher education, and community groups—to come together and show their support for STEM education.

### [National Science Teachers Association](#)

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Daniel and contestants from around the country went through 11 rounds of chemistry questions at the national challenge. In the final round, Daniel and the other finalist answered a series of 10 questions. They tied after that round, and then had to answer five more questions, before Daniel was finally crowned the winner.

Nearly 40,000 students participate in the local and state levels of the competition. Daniel advanced to the national contest by winning a competition at his school in Ottawa Hills and then the Ohio "You Be the Chemist Challenge" held at Toledo's Bowsher High School in April, co-sponsored by NWO.

Daniel will advance to high school as a freshman at Ottawa Hills High School this fall and likes taking honors chemistry and calculus classes.

Held on June 22, 2015, this year's national competition was the biggest ever! Over 350 industry members, educators, family members, and guests came together in Philadelphia to celebrate the participants' hard work, and the value of a career in the sciences.

The "You Be The Chemist Challenge"® is a national academic contest that encourages grade 5-8 students to explore important chemistry and STEM concepts. The Challenge is a unique opportunity for a variety of community partners-including schools, industry, higher education, and community groups-to come together and show their support for STEM education.

## **Community STEM in the NEWS**

### **Putting Technology in Play**

#### **Innovative Learning at STEM Camp**

PERRYSBURG - Students interested in exploring careers in Science, Technology, Engineering and Math (STEM) went to camp this month at Penta Career Center.

Penta's STEM Summer Camp took place June 15-19. Around 100 area students in grades 7 through 9 participated in this hands-on camp where they explored areas such as: computer hardware/networking, construction carpentry, culinary arts, manufacturing technology, and public safety/criminal justice.

The students participated in a different program each day designed to increase their understanding of how STEM skills are used in a variety of career fields.



Some of the hands-on activities included using construction tools and geometric theories to build a Dr. Seuss-style house in the construction carpentry program; discovering how science plays a role in baking cookies in culinary arts; building and testing fuel-powered rocket cars in the manufacturing technology program; exploring crime scene investigation techniques by making shoe impressions in the public safety/criminal justice program; and creating alien robots for competitions in the computer hardware/networking program.

Each year, Penta's STEM Summer Camp is offered to students who reside in Penta's member school districts which includes Anthony Wayne, Bowling Green, Eastwood, Elmwood, Genoa, Lake, Maumee, Northwood, North Baltimore, Oak Harbor, Otsego, Perrysburg, Rossford, Springfield, Swanton and Woodmore.

**Photo Credit:**

*Jeb Shook carries a styrofoam roof rafter in the construction carpentry session during STEM camp at Penta Career Center. Students visited five stations where they helped build a Dr. Seuss house, pythagorean math, cantilever challenge, and a giant Jenga wooden puzzle.*

*Photo by J.D. Pooley/Sentinel-Tribune*

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## STEM Opportunities

### Join us for STEM in the Park!

**Saturday, September 26, 2015, 10:00am - 2:00pm  
in the Perry Field House @ BGSU.**

A free event for all northwest Ohio families and the entire community. STEM in the Park features:

- Four hours of engaging, hands-on STEM activities from over 60 area businesses, schools and organizations,
- Free lunch and other refreshments (while supplies last),
- Free take-home activities,
- Free STEM materials, and best of all:
- Fun for the whole family!



Visit the website for more info at [www.STEMinthepark.org](http://www.STEMinthepark.org)

## Toledo MetroParks

Local professional and student artists are crafting bug art especially for BugFest, **August 15 from 10 a.m. to 2 p.m.** at Secor Metropark. Dr. Insecta will perform his Incredible, Unforgettable BugLab Experience show. The Toledo Zoo and Imagination Station will be there also.

<http://www.metroparkstoledo.com/metro/>



## NCTM

### PreK - 6 Classroom Research grants

The purpose of this grant is to support and encourage classroom-based research in precollege mathematics education in collaboration with college or university mathematics educators. For 2016-17, grants with a maximum of \$6,000 each will be awarded to mathematics educators or classroom teachers currently teaching mathematics at the grades Pre-K-6 level. The research must be a collaborative effort involving a college or university mathematics educator (a mathematics education researcher or a teacher of mathematics learning, teaching, or curriculum) and one or more grades Pre-K-6 classroom teachers.



<http://www.nctm.org/Grants-and-Awards/grants/Pre-K-6-Classroom-Research-Grants/>

## Crossing Boundaries: Transforming STEM Education

### A Network for Academic Renewal Conference

**November 12-14, 2015**

**Seattle, Washington**

**Register by September 24, 2015, for best conference rates**

**Crossing Boundaries: Transforming STEM Education** will explore the latest research on integrative, cross-disciplinary STEM teaching and learning; inclusive excellence and broadening participation in STEM; STEM faculty support and reward systems; and institutional transformation to advance hands-on learning and increase the achievement of key learning outcomes for all students.

Designed to assist colleges and universities as they work to make inclusive excellence the foundation for institutional purpose and educational practice, the conference will also focus on the inextricably linked goals of both increasing STEM baccalaureate degree earners and ensuring that all college graduates achieve scientific learning outcomes essential for responsible citizenship in a complex world.

[http://www.aacu.org/meetings/stem/15?utm\\_medium=email&utm\\_source=2015stemreg1&](http://www.aacu.org/meetings/stem/15?utm_medium=email&utm_source=2015stemreg1&)

[utm\\_campaign=2015stemreg1](#)

## A Call to Science Educators

Climate science is one of the most important challenges of today. Climate change is affecting fresh water supplies, agriculture, habitat loss, ocean acidification, and sea level rise. The science and politics of climate change are deeply entwined. Please come and join other science teachers to play the World Climate game. Teachers will learn how to engage students in this interpersonal game that focuses on negotiations and using data to drive decisions.



**The event will take place:** Friday, July 24, 2015, 9:00am-12:00pm

**Located at:** The Franciscan Earth Literacy Center.

194 St. Francis Ave., Tiffin, Ohio

Space is limited. Register at: [tiny.cc/gnflzx](http://tiny.cc/gnflzx)

**Cost:** Free

**Benefits:** Learning how to engage students in climate change science and using data to drive decisions.

**Website:** [www.climateinteractive.org/tools/world-climate](http://www.climateinteractive.org/tools/world-climate)

### For more information contact:

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## New STEM on Station Website Brings the Space Station Into the Classroom

NASA Education is celebrating the yearlong mission to the International Space Station with the launch of the new *STEM on Station* website!

The website features lesson plans, videos and up-to-the-minute education news. Learn more about the crew that is living and working on the space station for a whole year and what can be learned from this extended mission. Get to know the International Space Station, and find out what a typical day for an astronaut on board is like.



The *STEM on Station* website also features Learning Launchers. These "Teacher Toolkits" focus on research and activities related to the space station. Each month will feature a One-Year Mission research theme or



other topic related to the space station. Use lesson plans, videos and related resources to bring the International Space Station into your classroom.

To check out the new website, visit: [http://www.nasa.gov/audience/foreducators/stem\\_on\\_station/index.html](http://www.nasa.gov/audience/foreducators/stem_on_station/index.html).

## The 2015 Ohio Technology and Engineering Showcase

The Ohio Technology and Engineering Educators Association will host its Technology and Engineering Showcase at the Ohio State Fair, July 29 through August 9.

The Showcase will feature:

- Student exhibits of design projects and problem-based learning activities by elementary, middle and high school students
- Technology experiences provided by volunteers from technical societies, businesses, industry and universities
- Resource displays of STEM materials and curriculum designed to promote technological literacy
- Hands-on activities provided at several family activity learning centers, many of which are self-guided.



For more information: [http://www.ohiostatefair.com/osf/downloadbooks/specialevents/2015/tech\\_ed.pdf](http://www.ohiostatefair.com/osf/downloadbooks/specialevents/2015/tech_ed.pdf)

## National Science Teachers Association

Summer brings heat, extended daylight, and fun. It also gives science teachers time to shore up their professional learning resources before the new school year approaches! Catch up on NSTA's new and innovative resources to help teachers of science-including elementary teachers-better understand and implement key practices and ideas in the Next Generation Science Standards and Framework for K-12 Science Education.



Also:

- NGSS [interactive e-book](#) and unit planner
- Free [videos](#) showing NGSS/Framework-based teaching in action
- Free NGSS-supported [instructional resources](#)-including lesson plans, units, instructional guides, books and book chapters, video simulations, science kits, and more-vetted by an expert team of curators.

<http://ngss.nsta.org/Classroom-Resources.aspx>

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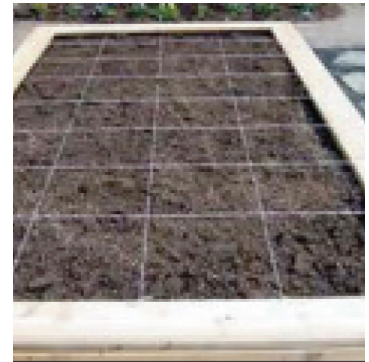
## NWO Hands-On STEM Activity

### Practicing Math with Square Foot Gardening

Recommended for Grades 3-7

#### Background:

Students can practice their math skills all summer long with this activity, which parents and children can do together. The activity comes from ideas provided in the book "Square Foot Gardening," and "All New Square Foot Gardening" by Mel Bartholomew. Bartholomew, a former engineer, notes that most academic research and experimentation is geared toward the needs of commercial farmers, where out of practicality you grow in long rows. In a home garden, it's much more practical to grow in grids. In this method, the garden space is divided into beds that are easily accessed from every side.



#### What you need:

- For a raised bed: 1 by 6 or 2 by 6 lumber is ideal, and comes in 8-foot lengths. Most lumberyards will cut it in half at little or no cost. Use deck screws and a screwdriver to fasten them together.
- For a staked bed: Wooden or bamboo stakes
- Coated string or twine
- A staple gun or tacks
- Yard stick or tape measure
- Packets of seeds or small seedling plants
- 12 x 12 pieces of paper (if desired)
- Permanent marker
- Good quality soil to plant in (amend if necessary, with a mix of 1/3 blended compost, 1/3 peat moss, and 1/3 coarse vermiculite).
- Garden Rake
- Trowel
- Water

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](#)

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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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