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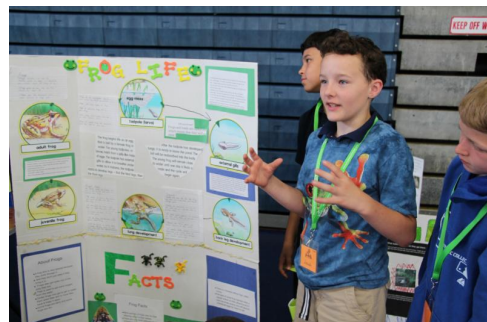
**K-16 STEM in the NEWS****Sandusky City Schools' Students Present Research at Symposium**

On May 31, approximately 1,000 3rd-5th grade students of Sandusky City Schools presented their research findings to each other and the community at Sandusky High School. Students had much to talk about, having participated throughout the school year in one of five research projects.



Third graders participated in a pollinator project, monitoring the insects and birds that visited school gardens filled with native plants that provide food for pollinators.

Fourth grade researchers using "FrogWatch USA" recorded local frog calls at various sites, such as Sheldon's Marsh or their own back yards to help scientists track which species are present or absent in the Sandusky area. This information can tell scientists much about the health of the area's land and water.



Fifth grade researchers studied water samples from Sandusky Bay or a local creek. The information gathered by students could ultimately provide important pieces to the puzzle of how to prevent harmful algal blooms in Lake Erie.

These research projects were initiated through the National Science Foundation grant **iEvolve with STEM**, in partnership with Bowling Green State University, Perkins Local Schools, the

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Toledo Zoo, Erie Soil and Water Conservation District and The Ohio State University Stone Lab.



**NWO Hands-On STEM Activity**

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**Community STEM in the NEWS**

**Pollinator Garden Created**

In response to their research, a pollinator garden was created by third graders from Sandusky City Schools to help endangered pollinators. The garden provides an important food source for the creatures who are key to the production of much of our food. Coordinated by Chris Norwell-Fischer, Curriculum Coach, third graders and their teachers from Hancock Elementary, Mills Elementary, Osborne Elementary and the Regional Center for Advanced Academic Studies planted the garden with the help of several



partners. Mitch Magdich of the Toledo Zoo led students in their research and assisted Sandusky's City Greenhouse in selecting and growing the native plant species.



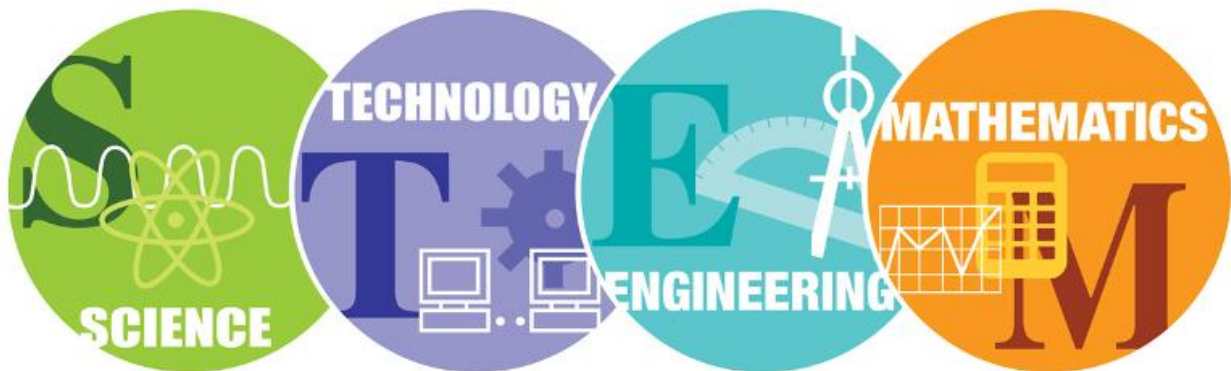
Plants were purchased with funding from the **iEvolve with STEM** grant, a National Science Foundation grant project led by Bowling Green State University, which has focused on integrating student participation in science research with classroom instruction.

Students designed the colorful sign for the garden and students from teacher Dan Riedy's career tech class at Sandusky High School constructed the base for it. Stein Hospice Care Center provided garden space next to its memorial garden. The garden was dedicated on May 31st, 2016, with songs and readings written by the students and their teachers. More information about pollinators can be accessed via the QR code on the garden's sign.

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## STEM Opportunities

### NWO Symposium 2016: Presentation Proposals Due Sept. 26



**Northwest Ohio Symposium on Science, Technology, Engineering, and Mathematics Teaching**

**Saturday, November 19, 2016**

8:30 AM - 4:00 PM

Olscamp Hall, Bowling Green State University  
Bowling Green, OH 43403

Featuring the 2016 keynote speaker:

Dr. Jodi Haney  
BGSU, Professor Emeritus

## Presentation Proposal Information

We invite submission of proposals for presentations at the 2016 NWO Symposium on Saturday, November 19th at Bowling Green State University. To submit a presentation proposal, please click the link below and complete the online form. Please review the Symposium Strands listed on the web site; you will need to choose one of these strands for your presentation.

[Click Here To Apply by September 26](#)

All presentation proposals must be submitted by SEPTEMBER 26th at 5:00PM. Beginning September 27, NWO staff will review the proposals and notify prospective presenters if their proposal has been accepted. Accepted presenters will not be charged a registration fee.

For more information visit the Symposium website at: [bgsu.edu/nwoSymposium](http://bgsu.edu/nwoSymposium)

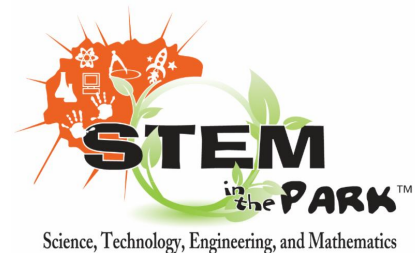
Questions? Contact [nwo@bgsu.edu](mailto:nwo@bgsu.edu)

## Join us for STEM in the Park!

**Saturday, September 24, 2016, 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)

## Blending Literacy And Science Together with Technology "BLASTT"

This workshop is designed to address literacy in science, blending oral and written communication skills while pairing ELA with content area reading. Participants will explore PBL and how to implement it in the Elementary Classroom effectively.

The emphasis will be on curriculum alignment and assessment and utilizing technology tools (Nearpod, Google Classroom, See Saw, and many more) as catalysts for learning within the classroom. Please bring a device

with you to class and some of your favorite literature, both fiction and nonfiction. Part of the workshop will be spent creating a unit for your classroom.

**MONDAY, JUNE 27TH, 8:30AM TO TUESDAY, JUNE 28TH, 3:30PM**  
**2550 LANDER ROAD, PEPPER PIKE, OH**

This course is offered at Ursuline college and the cost is \$175.00 for one graduate credit. Each session runs from 8:30-3:30. To register: call Rose Call at **440-646-8180** or email [rcall@ursuline.edu](mailto:rcall@ursuline.edu). Certificates for attendance will be provided.

<https://www.smores.com/1685g-blastt>

## Battelle for Kids Learning Hub

Stay connected this Summer with Battelle for Kids by visiting the Learning Hub website for free resources that help teachers adopt innovative strategies for the upcoming school year.

<http://battelleforkids.org/learning-hub>

## STEM Investigations Using TI-Nspire™ Technology

A Texas Instruments dynamic handheld device for the STEM, science & math classroom, lab & field.



**August 8-10, 2016 | 8:30 a.m. to 3:30 p.m.**

Designed for middle grades and high school science and mathematics classrooms, this workshop explores:

- STEM Content
- Experimental and Engineering Design processes
- Data Collection and Analysis procedures
- Mathematical Modeling

### Cost:

- \$300 (Workshop without TI technology)
- \$350 (Workshop with TI-Nspire™ CX or TI-Nspire™ CX CAS Handheld with TI-Nspire™ Teacher Software)
- Group discounts available

### Location:

Olscamp Hall, Room 208  
Bowling Green State University

Bowling Green, OH 43403

Contact:

Jenna Pollock

Northwest Ohio Center for Excellence in STEM Education (NWO)

419.372.2739 | [jpollock@bgsu.edu](mailto:jpollock@bgsu.edu)

<https://education.ti.com/en/us/professional-development/summer-workshops>

## The Chemical Educational Foundation® Free Resources

Free chemistry education programs all under the name You Be The Chemist®. We offer free professional development workshops to K-8 educators (You Be The Chemist Essential Elements) and also have 50+ downloadable chemistry activities to do at home (You Be The Chemist Activity Guides).

<http://www.chemed.org/>

## Integrating STEM Activities into the Elementary Science Curriculum Workshop

This 10- week course will provide educators the opportunity to experience and understand how to integrate STEM lessons into the pre-K - 6 science curricula.



Participants will discuss the benefits of developing STEM literacy in school-age students; explore integrated hands-on activities that serve as exemplars for integrating STEM concepts based on the Next Generation Science Standards; investigate how scientific inquiry and engineering design can guide implementing STEM projects in elementary science lessons; learn how to assess elementary STEM lessons, and review free or inexpensive resources for elementary STEM. As a final project, attendees will develop their own integrated STEM lessons based on a science concept standard they teach at their grade level or present an integrated STEM lesson they currently teach.

The cost of the course is **\$150**. A semester hour of graduate credit can be earned through Ashland (OH) University for an additional \$175 that is transferrable worldwide.

For more information about the course, go to <http://moodle.treca.org/moodle> or contact Bob Claymier at [bob@stemiselementary.com](mailto:bob@stemiselementary.com)



The Ohio Technology and Engineering Association is hosting a Technology and Engineering Showcase as part of the **Ohio State Fair from July 27 through August 7**. The showcase will feature:

- K-12 student design and problem solving exhibits;
- Technology experiences by technical societies, business, industry and universities;
- Resource displays and discussions of STEM materials and curriculum; and
- Family oriented Hands-on STEM activities.

During the 2015 Ohio State Fair, some 15,000 youth, their parents, educators and other fairgoers took advantage of opportunities to engage in hands-on activities, demonstrations and view exhibits at the Technology and Engineering Showcase in the Youth Center at the Ohio State Fair. If you are a STEM educator, a technical business, industry, educational institution or organization and would like to contribute, participate, display or conduct an interactive activity at this year's showcase, please contact Dick Dieffenderfer, Showcase Director, at [radieffenderfer@aol.com](mailto:radieffenderfer@aol.com)

For more information, please visit these websites: [www.oteea.org](http://www.oteea.org), <http://ohiostatefair.com/>

## **The CryptoClub Project at the University of Illinois at Chicago is offering Summer Leader Training Workshops for middle-grade teachers and afterschool educators**

Cryptography, the science of secret messages, is an intriguing STEM topic and an important application of mathematics. The CryptoClub curriculum has been developed with support from the National Science Foundation. It uses games, treasure hunts, and other informal activities to engage students in learning cryptography and applying middle-school mathematics.

Workshops will take place in **Chicago on July 18-20 or July 26-28**.

Those who have already attended a CryptoClub Leader-Training Workshop can learn how to help their students produce video tutorials on cryptography and mathematics topics at the Video Tutorial workshop on July 20-21. The registration fees are \$150 for the CryptoClub Leader-Training Workshop and \$50 for the Video Tutorial Workshop, including leader materials and meals during the workshop hours.



A color flyer and additional information about the CryptoClub curriculum, workshops, and registration can be found at [www.math.uic.edu/CryptoClubProject/workshops.html](http://www.math.uic.edu/CryptoClubProject/workshops.html)

## Global High Schools Prize

The primary aim of the Global High Schools category is to inspire future generations across the globe by instilling an ethos of sustainability from an early age, including an appreciation of issues in energy, and broader sustainability.

The Global High Schools category will therefore not focus on past activities of the school. Instead, each school will submit a detailed proposal for a project, and the Prize will become a grant that enables the project's completion. While the main objective is to promote sustainability in schools, special emphasis of the proposed project should be on specific measurable initiatives to promote renewable energy and sustainability, which may include improvements in energy or water efficiency, or a reduction in waste.

Grant money will be allocated to one school in each of five regions: The Americas, Europe, Africa, Oceania, and Asia. Each regional winner will be allocated up to \$100,000, with the final Prize amounts decided based on financial information submitted in the project proposals.

[http://www.zayedfutureenergyprize.com/en/prize-categories/global\\_high\\_school\\_prize/](http://www.zayedfutureenergyprize.com/en/prize-categories/global_high_school_prize/)



## Franklin Park Conservatory and Botanical Gardens has an exciting opportunity for students!

The Conservatory is a partner in the growing network of schools and public gardens in North, South and Central America offering a unique program: the Fairchild Challenge. This free, standards-based, STE(A)M-focused environmental education program provides teachers with a valuable tool to deliver core curriculum, and gives students an opportunity to shine. Fairchild Challenge invites learners to investigate environmental issues, devise imaginative and effective responses to these issues and to take action-at any level-to address them.



The Fairchild Challenge homepage: <http://www.fairchildchallenge.org/>

Consider participating in any or all of the challenges in this program. All central Ohio middle and high schools are invited to participate in the **2016-2017 Fairchild Challenge!** Winning schools receive monetary awards for their ongoing programs - and engage in friendly competition with rival schools.

<http://fpconservatory.org/>



## Environmental Science Education Resource

Please check out this new website: <http://www.environmentalscience.org/>

Environmental science is the study of the effects of natural and unnatural processes, and of interactions of the physical components of the planet on the environment.



## American Electric Power

### Teacher Vision Grants

Teachers motivate youth to learn to think creatively, to step into leadership roles and to address the challenges of the future. If adequate funding is all that stands between a teacher and a new classroom adventure, American Electric Power's Teacher Vision Grant program may help.

### Who Can Apply?

Teachers of pre-K through Grade 12 who live or teach in the AEP service area or in communities with major AEP facilities may apply.

### Priority may be given to educators who:

Have attended AEP Workshops for Educators, have participated in the National Energy Education Development (NEED) Project, are affiliated with an AEP school-business partnership.

<http://www.aep.com/community/TeachersAndStudents/TeacherVisionGrants.aspx>

## Transforming Undergraduate STEM Education: Implications for 21st-Century Society

A Network for Academic Renewal Conference  
**November 3-5, 2016 Boston, Massachusetts**

**Register by October 5, 2016, for best conference rates!**

AAC&U and Project Kaleidoscope invite you to join with colleagues at the conference Transforming Undergraduate STEM Education: Implications for 21st-Century Society to share and examine evidence-based models, practices, and strategies to provide high-quality undergraduate STEM teaching and learning and increase the number of students majoring, completing baccalaureate degrees, and pursuing careers in STEM

fields. This year's conference will deepen our understanding of "what works" in STEM higher education reform and provide attendees with the opportunity to rethink curricular designs and teaching approaches in ways that will maximize learning.

<http://www.aacu.org/meetings/stem/17>

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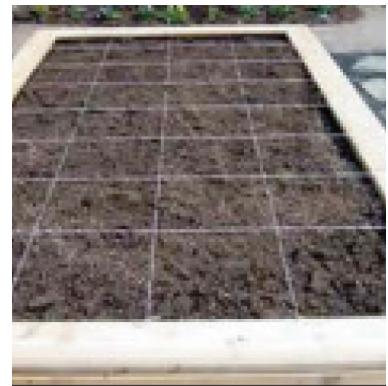
## NWO Hands-On STEM Activity

### 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.

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