



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

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## K-16 STEM in the NEWS

### STEM in the Park Enchants Record Crowd

The fourth annual **STEM in the Park** took place on the campus of BGSU on Saturday, September 7, to the delight of many. More than 3,000 people (over 1,600 children) attended this year, surpassing last year's attendance of 2,270. Scores of children enthusiastically enjoyed all the event had to offer, which included lively and engaging hands-on interactive exhibits such as exploring a rain garden, making fossils, discovering the metamorphosis of butterflies, learning about the 'science' of music, controlling a robot, building Legos, connecting with live animals, setting off bottle rockets, and much more.



**STEM in the Park** is a free community event, and was created to get people of all ages excited about STEM (Science, Technology, Engineering, and Mathematics). NWO, the Northwest Ohio Center for Excellence in STEM Education at BGSU, organizes this event for the entire northwest Ohio and southeast Michigan communities and beyond. NWO is a partnership among a number of area universities, K-12 schools and community partners who all come together at this event to showcase innovation and educational opportunities and promote positive attitudes toward STEM teaching and learning.

NWO invites area families to participate in interactive hands-on displays and connect with teachers, university faculty and community resource providers such as the Toledo Zoo and the Imagination Station, in an effort to engage in a program of inquiry-based STEM activities, explore STEM careers, and experience a local university. One of



[Challenge](#)[iLearnOhio](#)[Texas Instruments](#)

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**NWO Hands-On  
STEM Activity**[See How IT GROWS: Earth  
System in a Bottle](#)

the goal is to inspire a new generation to increase their interest and education in the sciences, which may lead to positively influencing academic achievement for students.

Drs. Emilio and Lena Duran, both faculty members at BGSU, created **STEM in the Park**. Inspired by "Literacy in the Park", a spring on-campus event that brings families in for a variety of literacy-boosting activities, **STEM in the Park** seeks to increase public engagement in the STEM fields. "It is a true pleasure and privilege for our BGSU family to be able to provide people of all ages in our community and all over northwest Ohio and beyond with enjoyable and engaging opportunities to participate in hands-on STEM learning," stated Emilio Duran.

This year, over 75 exhibitors hosted hands-on STEM Activity Stations, a remarkable increase from last year, demonstrating the increasing popularity of **STEM in the Park**. Hosts included BGSU's Marine Lab and Herpetarium, Challenger Learning Center of Lake Erie West, Imagination Station, ERG Environmental Services, Verizon, and many other organizations. New this year was a 'Roots to STEM Pre K-2 Zone', sponsored by PNC Bank and featuring activities that cater specifically to younger children. Local restaurateur Tony Packo's catered a free lunch, and free STEM activity cards were provided to extend learning at home.

Mrs. Allie Berns, mom of two stated, "We had a wonderful experience... both of our children enjoyed themselves immensely and our son walked away thrilled about all of his hands-on experiences. He has sensory processing disorder and often struggles with some of the activities that are new and involve his direct participation. I am happy to say he loved it all, especially the Lego section, the live animal table, and the racecar, of course. While our daughter is still very young, this was a great introduction to the STEM learning programs and as a mother of a daughter, I really do believe in getting more young women interested in the science and technology fields. We can't wait to attend next year and are excited to try some of the activities at home."

**STEM in the Park** Presenting Corporate Sponsors for 2013 included BP, Lubrizol and Verizon. BGSU is also a Presenting Sponsor, with support from the following BGSU colleges and departments:

- Admissions Office
- BGSU Foundation
- College of Arts & Sciences
- College of Education and Human Development
- School of Teaching & Learning
- Department of Biological Sciences
- College of Technology, Architecture & Applied Engineering
- Office of the Provost
- Department of Visual Communication & Technology Education
- Department of Environment and Sustainability



Supporting Sponsors include Spectra Group Limited, Inc., Cooper Tires, Kroger, Tony Packo's, PNC Bank, and Wal Mart. NWO also conducted community outreach with Toledo Public Schools this year and provided transportation for 80 students and their families to attend.

Said Lena Duran, "I know (organizing this event is worthwhile) when I watched kids explore Legos, rocks, larva, and play musical instruments, when I saw children skipping around in the center of the floor with big smiles on their faces, when I saw a small boy who arrived in a wheelchair crawl out of his chair and into the inflatable planetarium and come out with a huge smile on his face, and when I watched another child who had severe developmental disabilities explore "Oobleck" with such excitement and awe that I don't think I will ever forget his face or do the "Oobleck" activity without remembering him."

To learn more, please visit the website at: [www.nwocenter.org/STEMinPark](http://www.nwocenter.org/STEMinPark)

## **STEM Opportunities**

### **PreK-8 Preservice Teacher Action Research Grants Supported by the Ernest Duncan Fund and National Council of Teachers of Mathematics (NCTM)**

The purpose of this grant is to provide financial support for 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, a grant up to a maximum of \$3,000 will be awarded. Primary emphasis will be placed on collaboration by a team of researchers consisting of university, elementary/middle schoolteachers, and pre-service teachers from the undergraduate ranks. The action research should be designed, implemented, and completed with a focus on enhancing the teaching and/or learning of mathematics in Grades PreK-8. Proposals must address the following: rationale for the research project, the expected impact on teaching/learning in the school setting, and anticipated improvements in pre-service student learning. Grant funds should be used to support project expenses to plan and carry out the action research.

See more at: <http://www.nctm.org/resources/content.aspx?id=15479#sthash.oAp4EEve.dpuf>

## **2013 Global STEMx Education Conference**

**September 19 - 21, 2013**

Join the world's first massively open online conference for educators focusing on Science, Technology, Engineering, Math, and more. This is a new event, and STEMx is soliciting new outreach and advisory board members, partner organizations, or sponsors. Please visit the website for more information:

<http://www.STEMxCon.com>

## NWO Inquiry Series

NWO is very pleased to announce the theme and keynote speakers for the 2013-14 Inquiry Series. The theme of this year's five-part series is: **Going Digital: the STEM Effect** and will focus on incorporating digital tools and technology into the preK-16 STEM classroom. Sessions topics may include:

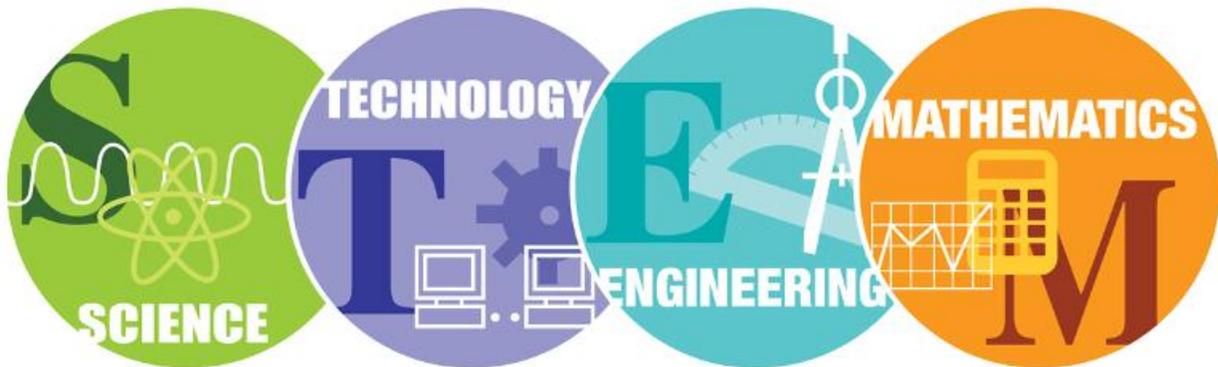
- Flipped Classroom
- Collaboration and Communication Tools
- Creativity Tools
- Digital Content
- Digital Inquiry



The Series will once again be held at WGTE/PBS in Toledo and headlining the first program will be Elliot Soloway from the University of Michigan and Cathleen Norris from the University of North Texas, two internationally known and sought-after speakers in the field of integrating technology into the digital classroom.

Registration information is on our website at: <http://cosmos.bgsu.edu/inquiryseries>

## SAVE THE DATE - NWO Symposium on STEM Teaching



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

## NOVEMBER 2, 2013 @ BGSU's OLSCAMP HALL

**KEYNOTE SPEAKER: ALFIE KOHN**, who will speak on: "Overhauling the Transmission Model: Teaching your students to be active meaning makers".

The traditional "bunch o' facts" model of education applied to STEM subjects consists of filling students with information about decimals and variables, cells and minerals. The process typically relies on lectures, worksheets, grades, tests, and homework. But our challenge is to help students think like scientists and mathematicians so they can actively make sense of ideas - and, ideally, to take pleasure in doing so. In his keynote address, Alfie Kohn invites us to reflect on how we can bring about just such a shift in our classrooms.

**Presenter and Vendor Registration is OPEN!** Space is still available and you can submit your proposal by visiting: <http://cosmos.bgsu.edu/nwoSymposium/PresenterInfo.htm>

**Attendee Registration is OPEN!** Visit <http://cosmos.bgsu.edu/nwoSymposium/AttendeeInfo.htm> for more information and registration details.

## Project 2061

### AAAS Workshops for Science Educators - New for Fall 2013!

**Save the date** for the new *Understanding and Using Next Generation Science Learning Goals* workshop, **Nov. 7-8** in Washington, DC. See [website](#) for more details.



Early-Bird registration is still available for the **October 9-11** *Developing and Using Assessments Aligned to Science Learning Goals* workshop. Visit [website](#) for more details and registration.



**Ovation**, America's only arts network, has partnered with the President's Committee on the Arts and the Humanities (PCAH); and Americans for the Arts (AFTA) to introduce the second annual **innOVATION Grant Awards Program**. This year's innOVATION grant awards will be made to schools that have developed model STEAM (Science, Technology, Engineering, Arts and Math) programs in an effort to raise awareness about the importance of integrating the arts into educational curriculum. The innOVATION Grant Program invites school

administrators and teachers to submit programs that have effectively incorporated the arts with these core subjects into their curriculum, and can show the creativity and innovation of the program as well as robust partnerships between the arts and their communities to enhance learning. innOVATION STEAM grant awards of \$10,000 will be made to up to eight schools with exemplary STEAM programs. Elementary through high school-level schools within the United States, including charter and magnet schools, are eligible to apply online at: <http://www.ovationtv.com/innovation-steam>

The submission **deadline is October 28**. The final eight grant award recipients will be announced at a special ceremony in Washington, DC, in early 2014.



**Register NOW!**

greatlakes  
**place-based education**  
conference

**November 7-9, 2013**  
Grand Rapids, MI

This year's conference will be co-hosted by the Great Lakes Stewardship Initiative and Groundswell, a regional GLSI hub at Grand Valley State University in Grand Rapids, Michigan.

 GRAND VALLEY  
STATE UNIVERSITY  
COLLEGE OF EDUCATION

The 2013 Great Lakes Place-based Education Conference will take place in Grand Rapids, Michigan, **November 7-9**. This conference is a great opportunity to network with peers and learn about the exciting developments in place-based education. There are a limited number of spots available for: K-12 teachers and staff, school administrators, employees and members of non-profit organizations interested in education and/or environmental issues, private-sector partners engaged with local education, education and environmental policy makers and staff, faculty and staff of higher education, and members of the foundation and philanthropic community. Visit the [website](#) for more information.

## Science Sundays at Ohio State

**SCIENCE SUNDAYS** provides a forum to interest, engage, and inform the public about a wide range of current and emerging topics and issues in science that touch our everyday lives. Speakers are experts in their fields from on campus and around the world with experience in making their topics interesting and accessible for audiences of all ages, with or without a science background. Please visit website:

<http://artsandsciences.osu.edu/science-sundays>

The first in the series will be held on **Oct. 13, 2013**, titled: "The Great Animal Orchestra", by Bernie Krause, and will explore how the myriad voices and rhythms of the natural world formed a basis from which our own musical expression emerged.

## Imagination Station Opportunities

### 2013-14 Field Trip & Program Guide

A comprehensive snapshot of all of Imagination Station's educational programs is available to assist teachers on their classroom's educational mission. It includes information on field trips, outreach programs, standards alignment, exhibit guide descriptions, upcoming special exhibitions, special science events ideal for classroom visits and so much more.

Don't miss the traveling exhibitions - **Grossology: The (Impolite) Science of the Human Body** and **Titanic: The Artifact Exhibition**. [Download the 2013 - 2014 Field Trip & Program Guide now.](#)



### Educator Open House

Educators and their families can visit Imagination Station for FREE with a teacher ID. View hands-on demonstrations, learn how to make the most of upcoming class field trips and more.

### Spooky Science

October 1 - 31

Explore hair-raising, bone-chilling, spine-tingling activities that teach chemistry, physics and biology. *Sponsored by Meijer.*

### National Chemistry Week

November 5 - 9

Experience demonstrations which can't be replicated in the classroom as students get excited about this year's national theme: Energy! *Sponsored by ACS and The University of Toledo.*

## Geophysical Information for Teachers (GIFT) Workshop

The Geophysical Information for Teachers (**GIFT**) Workshop allows science teachers to hear about the latest geoscience research from the scientists making the discoveries, explore new classroom resources for their students, and visit exhibits and technical sessions of the American Geophysical Union (AGU) Fall Meeting (an

annual gathering of over 22,000 Earth and space scientists in San Francisco) for free. AGU collaborates with the National Earth Science Teachers' Association (NESTA) to run **GIFT** workshops at the Fall Meeting.

**Registration for the 2013 GIFT workshop is now open.** Topics in Earth and space science as well as a presentation and discussion regarding the Next Generation Science Standards will take place on Monday and Tuesday December 9-10, 2013 in San Francisco.

To register, visit <http://fallmeeting.agu.org/2013/account/>

For more information about **GIFT**, visit <http://education.agu.org/education-activities-at-agu-meetings/gift/>.

## NSTA-Shell Science Lab Challenge

The National Science Teachers Association-Shell Oil Company Challenge invites middle and high school science teachers (Grades 6-12) in the United States and Canada (with special attention to urban and underrepresented groups) to participate in the challenge to win a school science lab makeover support package valued at \$20,000. Teachers and schools submitting top entries will receive laboratory tools, resources, and rich professional development opportunities. The deadline is December 20, 2013. See the [Shell Science Lab Challenge](#) for more information.



"**ilearnOhio**" is a comprehensive e-learning platform funded by the Ohio General Assembly to ensure that Ohio students have access to high-quality online courses. This statewide platform includes a searchable repository of standards-aligned educational content (courses and digital resources), an e-commerce marketplace, and a learning management system to facilitate the delivery of course content from multiple providers to various end users. "**ilearnOhio**" is administered by the Ohio Resource Center, located at the College of Education and Human Ecology at The Ohio State University, under the direction of the Ohio Board of Regents.

As a member of this community, educators will have access to free online professional development, education-focused social networking resources, and a growing community of more than 55,000 educators across the country.

edWeb.net hosts professional learning communities (PLCs) that offer free webinars and CE certificates. [Join](#)

[an edWeb community](#) to get advice from experts, exchange ideas and resources with peers, ask questions/get answers, and discover ways to improve teaching and learning.

[Sign up for a free webinar](#) for a CE certificate for attending a live webinar or viewing a recorded webinar.

[Join a community](#) Connect with colleagues on a wide variety of education topics.

## Texas Instruments

If planning a STEM event during the 2013/14 school year please consider contacting <http://education.ti.com>

**Texas Instruments Incorporated** is one of the original STEM companies. The education group offers wonderful resources for STEM, math, and science classrooms.

Check the newest STEM program "STEM behind Hollywood" at <http://education.ti.com/en/us/stem-hollywood>.

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## NWO Hands-On STEM Activity

*This month's STEM activity features one of the many exhibitors showcased at this year's **STEM in the Park**. More fun activities from STEM in the Park 2013 can be found on our website at: [www.nwocenter.org/STEMinPark](http://www.nwocenter.org/STEMinPark)*

### See How IT GROWS: Earth System in a Bottle

*This month's Hands-on Activity is from BGSU - School of Teaching & Learning and Department of Environment & Sustainability*

**Purpose:** Students construct an earth system containing soil, air, water, and living organisms. This activity can be used by students to conduct experiments on the needs of a balance system.

*For more on Earth System in a Bottle (activities, songs, story, role-play) visit Elementary GLOBE @ <http://www.globe.gov>*



[/web/elementary-globe](#) (*All About Earth module*)

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](#)

Follow NWO on [Twitter](#)

## 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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NWO/COSMOS | 241 Math Science Bldg. | BGSU | Bowling Green | OH | 43403-0212

