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**K-16 STEM in the NEWS**

**STeM to STEM at ONU: Teaching K-12 teachers about engineering**

Dr. Debra Gallagher, assistant professor of education, and Dr. Ken Reid, director of freshman engineering and associate professor of electrical and computer engineering at Ohio Northern University, are directing a new type of teacher professional development workshop - STeM 2 STEM. Middle and high school math, science and technology teachers chosen from Lima City, Bath, Ottawa-Glandorf, Kalida and Pandora-Gilboa school districts are learning exciting ways to present engineering concepts to their students. The project is funded by an eTech Teacher Planning Grant.



These teachers are participating in Institute of Electrical and Electronics Engineers program engineering activities, web 2.0 and vodcasting sessions, classroom Skyping with professional engineers, and sessions on STEM resources.

STeM 2 STEM focuses on using educational technology to emphasize the "e" for engineering in STEM. According to research for the project, teachers are trained to operate information and communication technology (ICT) tools but tend to struggle with incorporating ICT into their teaching. Because engineering courses are rare in K-12 schools, the goals for emphasizing or capitalizing that "e" are advancing ICT and introducing engineering education to middle and high school teachers and students. The program also wants to provide pre-service teachers with field experience in

classrooms using technology, engineering and project-based learning, and develop a community of practice involving teachers, ONU faculty and peer teachers advanced in ICT and engineering education. STeM 2 STEM provides teachers with materials and the ICT needed for classroom engineering projects and will offer support through the project's website. Included in the professional development program is a week-long workshop with a series of follow-up meetings to reflect on how things are working back in the classroom.

## Community STEM in the NEWS

### UT and Community Partners Nurture Young Minds with Grant-Funded Science Program

Funded by the National Science Foundation, NURTURES (Networking Urban Resources with Teachers and University enRich Early Childhood Science) is a partnership led by the University of Toledo (UT) Judith Herb College of Education, Health Science and Human Service and the UT College of Engineering. NURTURES unites the university with Toledo Public Schools (TPS), area nursery schools and day cares and a number of informal science education and community organizations such as Imagination Station, Toledo Zoo, Toledo Area Metroparks, Toledo Botanical Gardens, Toledo Grows, Lourdes University, Challenger Learning Center, YMCA, Boys and Girls Club, Toledo-Lucas County Library and WGTE Public Media on a five-year \$10 million grant project. The focus of NURTURES is to engage students, teachers, parents and the community in a model program that makes science education a priority for young people to encourage them to continue to study science and later pursue scientific careers.



Beginning this summer, teacher institutes will provide the professional development needed for area science educators to develop challenging inquiry-based, age appropriate science instruction that also integrates reading and math. The training expects to reach a total of 495 teachers, principals and directors in at least 50 community-based early care and education programs and 300 K-3 classrooms.

The program will begin at Apple Tree Nursery School, pre-selected Toledo Public School buildings and a local Head Start provider and then expand to include more teachers and educational environments. For more information, visit [www.nurtures.utoledo.edu](http://www.nurtures.utoledo.edu)

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## STEM Opportunities

## SAVE THE DATE for the Fall STEM Challenge

**October 4th- 5th, 2012 at  
Challenge Challenger Learning Center in Oregon, OH**

This exciting day of hands-on STEM will be modeled after NASA Plumbrook's 2011 Winter STEM Challenge and is geared toward 8th grade students in Lucas, Wood, Fulton, Henry, Hancock, Putnam, and Allen Counties. Schools are invited to bring their eighth graders to Challenger for a day of science, technology, engineering, and math activities and career and college information.

If you would like to bring eighth students from your school to participate, contact **Brenda Wilson** at [bwilson@esclakeeriewest.org](mailto:bwilson@esclakeeriewest.org) or call **419-246-3120**. If you are an institution of higher education and would like to participate in the event, you may also contact Brenda Wilson.

## ODE addresses upcoming changes with Top Tips

You hear this question frequently: What should educators and school leaders do right now to get ready for all of the changes taking place in Ohio education? To answer this question, ODE has developed a series of **Top Tips** that offer simple, practical advice for teachers, administrators and school board members who want to get on track today for the big changes set as Ohio transitions to the College- and Career-Ready standards and new assessments in 2014-2015. Please share these suggestions, accessible at [toptips.education.ohio.gov](http://toptips.education.ohio.gov), with members of your organization. ODE also invites comments and suggestions at this website.

## Duane Bollenbacher's 24th Annual SUMMER MATHEMATICS WORKSHOPS for TEACHERS

Download an informational flyer for the Summer Workshop offerings by [clicking here!](#)

Contact **Duane Bollenbacher** at [bollenbacherd@bluffton.edu](mailto:bollenbacherd@bluffton.edu) for more information.

Topics from late June to August:

- "Using RICH Problems to Learn and to TEACH Good High School Mathematics - Course 3 (Different From Summers 2010, 2011-All New Problems)
- "PROBLEM SOLVING in the Middle School Become a MASTER TEACHER - Ratio and Proportional Thinking - New Offering
- 205 Things that EVERY High School Mathematics Teacher Should Know (Repeat of 2011)

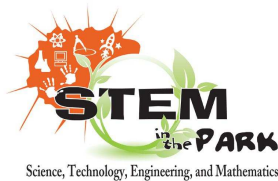
## STEM Think Tank & Conference

### "Changing the Paradigm: Lessons Up & Down the Pipeline - K12 to University to Corporate"

Registration is open for the STEM Think Tank and Conference to be held **July 18-20, 2012** at the Harpeth Hall School in Nashville, TN.

Our presenters are coming from coast-to-coast and represent public and private K-12 educators, university researchers and outreach leaders, museum leaders, and representatives from STEM companies. Don't miss this opportunity to participate a national conference that is unique in its focus and origin. If you have any questions, please contact [stem@harpethhall.org](mailto:stem@harpethhall.org). Registration link: <http://www.harpethhall.org/podium/default.aspx?t=160024&rc=0>

## SAVE the Date for STEM in the Park 2012



**STEM in the Park 2012** will be held on **Saturday, September 8** from **10 am-1:30 pm** on the campus of Bowling Green State University. We expect to host over 50 STEM Activity Stations from a spectrum of NWO partners including Imagination Station, Scrap4Art, BGSU's Herpetology Lab, Challenger Learning Center and Wood County Historical Center. This family-friendly event features loads of hands-on STEM activities, free lunch and take home STEM resources. This is an opportunity to enjoy time with your family while networking with area STEM resource providers and discovering great activities for your classroom! Visit: [nwocenter.org/STEMinPark](http://nwocenter.org/STEMinPark).

## 15th annual eTech Ohio Conference

**Don't miss Super Early Bird savings, now through July 25**

Join eTech Ohio for the 15th annual Ohio Educational Technology Conference! This three-day event brings together more than 6,000 educators, administrators, and ed tech experts from across the state and beyond to collaborate, innovate, and information-share.

Registration information can be found at: <http://www.etech.ohio.gov/conference-2013-registration>. You may register via mail, fax, or e-mail by printing and returning the Conference registration form.

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

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NWO is the Northwest Ohio Center for Excellence in STEM Education. NWO's offices are located on the campus of Bowling Green State University. NWO is a consortium of many area businesses, institutions of higher education, and K-12 schools in a 29-county region and the Northwest Region's Ohio STEM Learning Network Hub. Our mission is to advance STEM education for people of all ages.

### Please Share Your STEM Success Story with us!

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.

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