



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

Vol. 8 Issue #12

December 2016

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K-16 STEM in the NEWS

NWO's Annual Symposium on STEM Teaching

"What a terrific mix of STEM teaching topics that seemed to touch every grade level. I like to come every year and I always take something away from each session I attended. Its so important to keep finding ways to engage our students even further," stated a teacher attending the annual 2016 NWO Symposium on STEM Teaching, held last month on the campus of Bowling Green State University.

BGSU Professor Emeritus Dr. Jodi Haney delivered the keynote address titled: "STEM Assessment: When the whole is greater than the sum of its parts!" Dr. Haney



has taught numerous science education courses, curriculum courses, technology courses, and courses in environmental sustainability. She has authored over 30 peer-reviewed publications, made over 50 scholarly presentations, and has served as an educational consultant to well over 100 Ohio schools. She believes that teaching is the essence of her identity, and is passionate about her role to inspire joy and the love of learning through active, engaged, and authentic experiences both within the classroom and in the local community. To view Dr. Haney's presentation slides, please see our website at: <http://www.bgsu.edu/nwo/programs/symposium.html>

After the keynote address, participants attended presentations that addressed a wide variety of topics in all of the STEM domains and disciplines including engineering, as well as science, technology and mathematics. Hands-on inquiry, project-based learning, formative



assessment, computational thinking, and cross-curricular connections linking to history and other non-STEM areas, were

[Ohio Department of Education
Launches Mobile App](#)



just a few of the topics that were presented. The Symposium also included one new strand titled "Extended Day STEM: Supporting After School Programs" as part of a partnership between NWO and the Northwest Ohio

NWO STEM Activity

Afterschool Alliance.

[Poinsettia Chemistry](#)

Over 300 people attended more than 50 presentations on various aspects of best practices in STEM teaching and learning to educators and administrators at all levels from pre-school through college.

Presentations from 73 STEM education professionals revolved around eight strands of disciplines and included:

- Teaching and Learning in Engineering
- Teaching and Learning in Science
- Teaching and Learning in Mathematics
- STEM in the Community: thinking outside the classroom
- Integrating Technology in the Classroom
- Putting Creativity to Work: Teaching STEM with Innovation
- Research Based Instructional Practices in the College Classroom: Enhancing the Undergraduate Experience
- Extended Day STEM: Supporting After School Programs. Plans for next year are already underway.

For more information and Dr. Haney's article on "Assessing Student Success", please see our website at: <http://www.bgsu.edu/nwo/programs/symposium.html>.

Community STEM in the NEWS

Ohio Schools Join Statewide Challenge to Fight Opioid Abuse

STEM network and state organize push to create student-directed solutions



Ohio is facing a major opioid overdose crisis. And as many Ohio families fight opioid abuse, the impact cascades into the learning environments in Ohio schools.

The Ohio Department of Education and the Ohio STEM Learning Network announced a program last month to help schools work to help address this crisis.

This year, several Ohio STEM schools will complete design challenges aimed at understanding and eliminating Ohio's opioid crisis. A design challenge is a multi-week project in which students learn by creating new solutions to real-world problems. Design challenges offer an approach to problem-based learning that can go deep into content areas while offering students a wide range of questions to consider.

Throughout the year, the Ohio STEM Learning Network will post resources and events to support schools in

organizing local design challenges that will help in the fight against opioid abuse. A page on the Ohio STEM Learning Network website, www.osln.org/design, provides templates and early guidance on creating a design challenge.

The Ohio Department of Education is supporting the effort with public appearances by State Superintendent of Public Instruction Paolo DeMaria and amplifying these opportunities through the department's communications channels.

"Real-world challenges offer students powerful opportunities to lock in learning," said DeMaria, superintendent of public instruction. "With this challenge, Ohio students will put their learning to the test to help solve a critical challenge facing our state."

All Ohio schools are welcome to participate. Schools interested in participating should visit www.osln.org/design and register to receive information about support and promotion opportunities.

Several Ohio STEM Learning Network schools already have started planning design challenges fighting opioid abuse. Participating schools include:

- Bio-Med Science Academy
- DECA Prep
- Dayton Early College High School
- Dayton Regional STEM School
- Global Impact STEM Academy
- Geauga iSTEM Early College High School
- Metro Early College High School
- Metro Institute of Technology
- Northwestern Local High School
- Reynoldsburg eSTEM Academy
- Reynoldsburg (HS)2 Academy
- Reynoldsburg STEM Middle at Baldwin Road
- STEM Academy of Lawrence County at Collins Career-Technical Center

The Ohio STEM Learning Network, managed by Battelle, was created as a public-private partnership in 2008. Today, more than 30 STEM schools and seven regional hubs make up the network. The Northwest Ohio Center for Excellence in STEM Education at BGSU is one of the seven hubs and represents 30 counties of northwestern Ohio.

"Ohio created this network of schools to serve as a catalyst for field testing promising ideas in education," said Aimee Kennedy, vice president of education, STEM learning, and philanthropy at Battelle. "In classrooms across the state, students will be mastering the content they need while laying the groundwork for a drug-free future."

The Design Challenge will culminating in a state exhibition at Battelle on May 18, 2017.

About Battelle

Every day, the people of Battelle apply science and technology to solving what matters most. At major technology centers and national laboratories around the world, Battelle conducts research and development, designs and manufactures products, and delivers critical services for government and commercial customers. Headquartered in Columbus, Ohio since its founding in 1929, Battelle serves the national security, health and life sciences, and energy and environmental industries. For more information, visit www.battelle.org.

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STEM Opportunities



The Ohio Department of Education is inviting all Ohioans to participate in a periodic update of Ohio's Learning Standards in science, social studies and financial literacy. Educators and administrators are asked to share their thoughts by completing a survey, open now through midnight on Jan. 9.

<http://education.ohio.gov/Topics/Ohios-Learning-Standards/Standard-Revision-Overview/Standards-Revision-in-Science-Social-Studies-and-F>

By fine-tuning all of Ohio's Learning Standards, ODE can ensure that schools are preparing students for the changing expectations of colleges and employers.

Xcite Learning Problem Based Learning Workshop

Project Based Learning [PBL] integrates your curriculum: Science, Mathematics, Social Studies, and Language Arts!

Project Based Learning (PBL) 101 & 201
[Grades PreK -12, multidisciplinary focus]

February 16 & 17

The 577 Foundation, Perrysburg, OH
8:30 - 3:00 pm



PBL 101: Examine PBL as a powerful and effective inquiry-based and interdisciplinary learning framework. This workshop is for teachers of all disciplines, not just science! TEACHING TEAMS are highly encouraged to attend together, but individual teachers will also benefit. First time participants receive a PBL Design book and access to PBL classroom materials and resources.

PBL 201: Teachers who have previously attended this workshop are encouraged to COME AGAIN! You and your team will participate in a "writer's workshop" in place of many of the PBL 101 sessions, allowing you to create new PBL units for your students.

COST: \$300/participant

[Team Discounts. \$275/participant for school districts sending 2+ to the workshop]

Each Participant Receives:

- The PBL Starter Kit, the leading Buck Institute on Education (BIE) "how to" book to guide classroom design and implementation
- CEU Certificates [14 contact hours]
- An OPTION to earn 1 graduate credit hour thru Ashland University (\$195 additional cost)

To register: <https://goo.gl/forms/D0sZz4Bph0SJrP872>

Contact **Jodi Haney** at jhaney@xcitelearning.com or **419.350.8469** for more information or visit: <http://www.xcitelearning.com>

High School Students: Apply Now for a Summer STEM Apprenticeship

The Research and Engineering Apprenticeship Program (REAP) and the Science and Engineering Apprenticeship Program (SEAP) for high school students are now accepting applications!

Students have the chance to participate in a paid apprenticeship program this summer sponsored by the Army Educational Outreach Program (AEOP). During a five-to-eight week program, apprentices work one-on-one with a scientist to conduct real-world research. Apprentices learn first-hand how Army and university laboratories are advancing technology and contributing to collaborative research. Along the way, you will bond with fellow students and learn about potential STEM education and career opportunities.



The Research and Engineering Apprenticeship Program (REAP) is offered specifically to high school students in under served and underrepresented populations. Female, Hispanic and African-American students as well as students who may receive a free or reduced lunch are encouraged to apply. **Submit your application by February 28, 2017.**

<https://goo.gl/tHQShF>

Free App Lets Teachers Teach, Kids Play & Learn

Introducing: Apps for Educators, The Teachers Edition

Kahoot asks: What's more fun in a classroom than playing games?

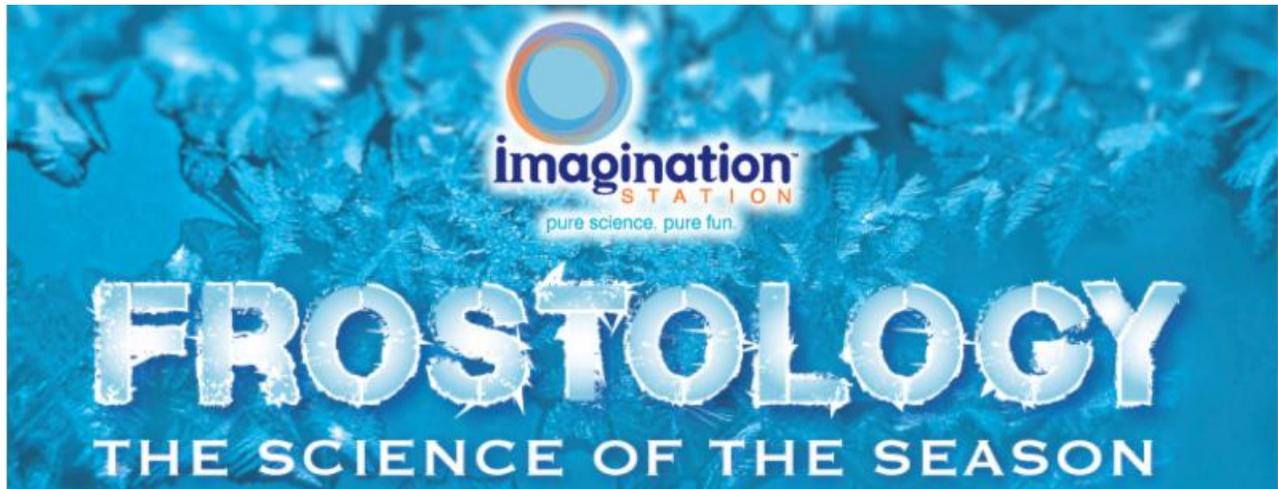
Kahoot is a free app for teachers to quiz, survey, and start discussions with their students.



Anyone with a device and internet connection can play, and it's simple for teachers to set up. In a quiz or skills practice scenario, the teacher sets up the questions with multiple choice answers in advance. Kids get the code, set up a name, and they're ready to play!



<https://goo.gl/zrcCFM>



December 26 - January 2, 2017

The weather outside is frightful, but the science at Imagination Station is delightful. Frostology will explore the slippery science of snow with holiday-themed activities and demonstrations.

Visit website for more information: <https://goo.gl/a17NY3>



Toledo Metroparks offers dozens of low-cost or free educational programs for all ages and interests. Programs are intended to help you explore your Metroparks and experience them to the fullest. You will learn about nature, develop outdoor skills and engage in fun, healthy outdoor activities.

<http://metroparkstoledo.com/discover/program-and-event-calendar/>

BGSU Planetarium

Secret of the Star A show for Christmastime

The Bowling Green State University Planetarium is a 118-seat public science theater serving BGSU students, area schools, and the public of northwest Ohio. Set under a 40-foot dome, the Minolta star projector can show the sky as it would be seen from any place on the Earth at any time, including the Sun, Moon, planets, and more than 4000 stars.

Area school classes and other groups can arrange presentations of planetarium programs between September and early May. More than 50 different programs are available for all ages from pre-school through adults.

For further information, contact the Planetarium Director, Dr. Dale Smith by phone at 419-372-8666 or by email at dsmith@newton.bgsu.edu

<http://www.bgsu.edu/arts-and-sciences/physics-and-astronomy/bgsu-planetarium.html>



Ohio Department of Education Launches Mobile App

Ohio families can now get the latest education news, search for schools in their neighborhoods and look at their schools' report cards from an App on their smartphones.

With the App, Ohioans can:

- Access timely educator and family resources;
- Find school report cards and other information
- Receive app updates and notifications;
- Send information;
- Navigate directly to schools.

The Ohio Department of Education Mobile App is available free of charge in the Apple App store and Google Play store by searching **Ohio Department of Education**.

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NWO STEM Activity

Poinsettia Chemistry Make Your Own pH Paper





Ohio Standards Alignment

Grades 9-12 (Current Ohio ACS - Physical Sciences)

Grades 7-12 (Ohio Revised Standards - Physical Sciences)

What You Need (for each group of students):

- Poinsettia plant (several leaves for each group)
- 400 mL Beaker Or 16 oz. Glass Jar
- Boiling Water Or Microwave Oven
- Toothpicks Or Eyedropper
- Scissors
- Coffee Filters Or Filter Paper
- Vinegar
- Baking Soda Solution (2g / 200ml Water)
- Rubber Gloves
- Safety Goggles
- Paper
- Colored Pencils

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. We are always looking for great STEM education stories to feature in upcoming newsletters.

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