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November 2016

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K-16 STEM in the NEWS

Women in STEM 2016

Nearly 400 young women from northwest Ohio middle schools learned about careers in the science, technology, engineering and mathematics (STEM) fields at the 33rd annual "**Women in STEM**" program on Oct. 21 at Bowling Green State University.

Students spent the day exploring and performing experiments in physics and astronomy, chemistry, biology, engineering, mathematics and technology and others as they learned about the STEM fields and what STEM has to offer in high school and beyond. Presenters from a wide range of STEM professions offered breakout sessions and hands-on workshops throughout the day.



Thirty-five students from underrepresented populations were able to attend the event through sponsorship from BP.

Abby Knowles, the Executive Director responsible for Verizon Wireless Network operations in the Great Lakes states region of the United States, delivered this year's keynote presentation. She has 20 years of experience in the network communications industry working for Verizon in various roles as an engineer and leader, including program management, operations and business analysis. "I am so glad to be a part of this program and work with this age group of girls. A career in the STEM fields can have a lot of impact on our communities, and it's so important for women to have a role in these fields because as they expand, we will be a part of it."

Susan Stearns of NWO stated, "**Women in STEM** is a program that showcases female role models who have careers in the STEM fields.

[The Hour of Code is Coming During Computer Science Education Week: December 5-11!](#)

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Exposure to these successful role models allow for the girls to learn it's possible and it's achievable for them to major in STEM fields in high school and college."



Jadwiga Carlson, a BGSU faculty member in computer science who presented a workshop at the event stated, "Women are greatly underrepresented in computer science and all STEM fields, and I feel this program is a great way to expose them to the different fields and role models. "

The Northwest Ohio Center for Excellence in STEM Education (NWO) at BGSU organized the event. NWO is a partnership with a number of area universities, K-12 schools, and community organizations that have a mission to advance STEM education for people of all ages.

Sponsors for the 33rd annual **Women in STEM** program were BGSU, BP, NWO and Verizon.

Community STEM in the NEWS

Another Thrilling FALCON BEST

The final "Game Day" of the fourth annual Falcon BEST (Boosting Engineering, Science and Technology) Robotics competition was held at Bowling Green State University's Stroh Center on October 8. Sixteen teams from northwest Ohio and Indiana middle and high schools competed in the daylong competition for various awards. The "Game Day" event was the culmination of a six-week process by around 300 enthusiastic students. "It was one of the largest hub events of the Northern Plains competition, and culminates with a regional event in Fargo, N.D., stated Jessica Belcher, Associate Director of NWO who serves as the registration coordinator for the event.

This year's theme was "Bet the Farm". Teams were assigned to develop robots that could be used to assist with agriculture by demonstrating the robot could herd pigs; harvest and deliver ripe vegetables; and turn a water valve. Teams scored points by how efficiently their robots can complete the tasks in three-minute matches throughout the day.

The Falcon BEST program is comprised of two parts: the robotics competition and the BEST Award. For the robotics competition, each participating school was provided an identical kit of equipment and parts, a set of game rules, and given six weeks to



design, build, and test a Remote Controlled robot in an effort to outperform other schools' robots. Students conduct every aspect of the design and construction of their robot. Local engineers, University faculty members, and other technical professionals from industry serve as team mentors, advising and guiding students throughout the design and construction of their robot.

The BEST Award (which is optional for all teams) is presented to the team that best embodies the concept of 5 elements, which include:

- Project Engineering Notebook
- Marketing Presentation
- Team Exhibit and Interview
- Spirit and Sportsmanship
- Robot Performance



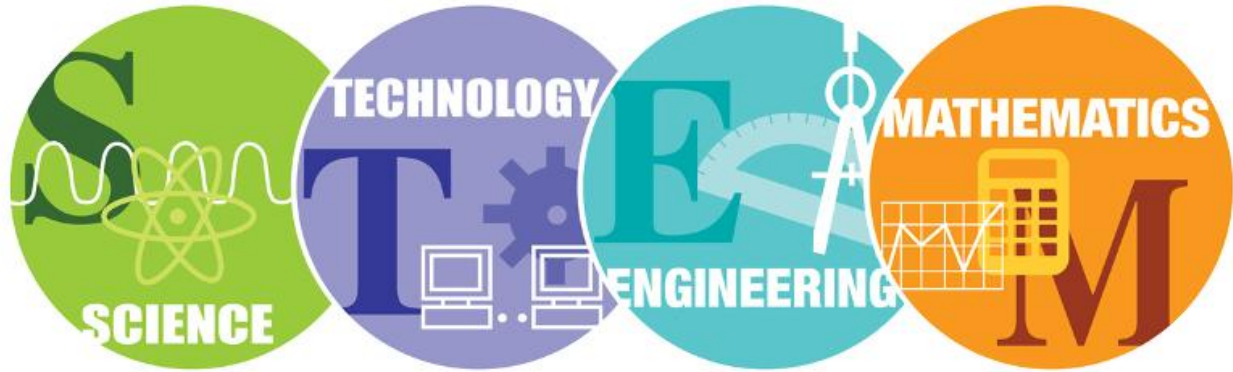
The series of events began with a kickoff on August 27, followed by a Practice Day on September 24 at the BGSU Ice Arena. **Hamilton Southeastern High School**, of Fishers, Ind., took first place in both the robotics and BEST categories. **St. Francis de Sales School** took second in robotics, and **Millstream Career Center** took second in the BEST category. **Port Clinton High School** and **Maumee Valley Country Day School** each earned third place in the robotics and BEST categories.

Hosted by Bowling Green State University, the College of Technology, Architecture and Applied Engineering, and the Northwest Ohio Center for Excellence in STEM Education at BGSU; the Falcon BEST hub at BGSU is part of a nationwide organization. The mission of BEST is to inspire students to pursue careers in engineering, science, technology, and mathematics through robotics design. Other sponsors included the Lathrop Corporation and First Solar.

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STEM Opportunities

[NWO Symposium 2016: Register Today!](#)



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

2016 NWO Symposium Program Is now available!
[Click Here](#) to download (pdf)

Online registration for Attendees is now open!
[Click here](#) to register

- Standard Registration:
 - \$35 Pre-registered
 - Undergraduates: \$5 Pre-registered
- Multiple Participant Discount: (5 or more participants from same school)
Schools with 5 or more participants are eligible for a reduced registration fee of \$30

per participant before November 15.

For more information visit the Symposium website at: bgsu.edu/nwoSymposium

Questions? Contact nwo@bgsu.edu

The General Aviation Manufacturers Association (GAMA)

Registration is open for the fifth annual GAMA/Build. A Plane Aviation Design Challenge, a competition to promote STEM skills among U.S. high school students using aviation. This national competition is open to schools in Northwest Ohio.

High schools or after-school programs that register for the Aviation Design Challenge will receive FREE "Fly to Learn" curriculum and software powered by X-Plane to learn aerodynamic and aviation principles. The winning team will receive an all-expenses-paid trip for four students, a teacher, and a chaperone to experience general aviation manufacturing firsthand next summer. Registration is limited to the first 100 high schools.

Please visit <http://www.gama.aero/advocacy/aviation-education/stem> for more information.

Additional information is available in an Air & Space magazine article profiling the competition: <http://www.airspacemag.com/as-next/i-built-airplane-little-help-my-friends-180960522/?no-ist>.

Xcite Learning Science Assessment Workshop

**Measuring What Matters:
Assessing the WHOLE Science Learner
[Prek-12]**

December 5th and 6th, 2016 - [REGISTER TODAY!](#)

Create a science assessment plan chock full of opportunities to measure **HOW EACH CHILD IS SMART**, rather than merely how smart each child is! Build formative and summative assessments FOR YOUR UNITS OF STUDY to truly measure what matters [base knowledge, scientific thinking and processes, active participation and engagement]! Participants receive Page Keeley's Science Formative Assessment book and a gift card to purchase a collection of her Uncovering Student Ideas probes from the NSTA Science Store.

To register: <https://goo.gl/forms/R2J0fe3zsMPG0auv2>



Graduate Level Online STEM Course for K-5 Educators in Ohio

The next online STEM class for K-8 Ohio math and science teachers will begin in January, 2017 through Miami (OH) University's **iDiscovery** program. This course will allow educators to engage in critical analysis of their STEM teaching practices through personal and peer reflection, and to identify and share effective STEM teaching strategies for improvement of students' learning. The course will run 16 weeks and participants will earn 2 or 3 semester hours of credit through Miami for \$220.

Topics covered include:

- Teaching Ohio Learning Standards for Mathematics and Science Using STEM, Engineering and Technology;
- Analysis of a Well-Designed Thematic STEM Unit;
- Designing Assessments for a Thematic STEM Unit;
- Thematic STEM Unit Overview, Timeline, and Supporting Details;
- Analysis and Discussion of Posted Thematic STEM Units;
- Lesson Plan, Assessment, and Reflection for Thematic STEM Unit Lesson;
- Analysis and Discussion of Posted Thematic STEM Unit Lessons; and
- Final Analysis and Reflection.



For more information, contact: bob@stemiselementary.com
or visit <https://idiscovery.org>

Google Education on Air: It Takes a Teacher

Education on Air will celebrate educators and the exploration of the future of education and technology.

Here are just some of the over 100 sessions for educators:

- Learn the story of how Jahana Hayes became the 2016 National Teacher of the Year, and receive tips on how she keeps her students engaged.
- Fantastic feedback tools for Google Docs
- Assessment that matters - using technology to personalize learning
- Explore your world with Expeditions
- Wicked soap company: an entrepreneurial approach to chemistry

For more information and to register: <https://goo.gl/0P5puV>



LEGO® - Imagination Station's Temporary Exhibition

Certified LEGO® Professional Adam Reed Tucker has taken over half a million LEGO Bricks and created Imagination Station's latest exhibition. 2,700 pounds of



LEGO bricks that would stretch 11 miles end to end... this has to be Imagination Station's biggest temporary exhibition yet!

This temporary exhibition bridges art and hands-on learning by featuring amazing sky high LEGO architecture and the opportunity for visitors to build their own structures as they explore engineering, art and design through play!



For more information visit: <http://imaginationstationtoledo.org/visit>

The Hour of Code is Coming During Computer Science Education Week: December 5-11!

In a world where technology is changing everything, the Hour of Code movement has introduced over 100 million students to computer science. Help Code.org reach every student with critical 21st century skills.



The Hour of Code activities webpage has just been refreshed with new content, an updated look, and a filter tool that will allow teachers to find the best activity for their classroom.

Please visit: <https://code.org/learn>

Ohio GOOGLE Summit

The Ohio Google Summit will be **May 1-2, 2017** at Kalahari in Sandusky, Ohio. Registration is now open and Ohio school personnel are encouraged to attend!

Attendees will learn how to save thousands of dollars by using Google's free Apps for Education, how to simplify the operation of the school, how to transform classrooms into 21st century learning environments, and how to provide the technology-rich education students and parents want. Sessions will be presented by Google Education Trainers, Google Educators, and "Googley", a platform in which Ohio educators share how their schools use Google. The Summit will also include sessions by national featured speakers and Ohio educational leaders.

For more information: <https://www.itsco.org/blog/google-summit-2017>

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NWO STEM Activity

*This month's STEM activity features one of the many exhibitors that was at this year's **STEM in the Park**. More fun activities from STEM in the Park can be found on our website at: www.STEMinthePark.org*

Bath Fizzies

This month's Hands-on Activity is brought to you from Xcite Learning

What you need:

DRY INGREDIENTS

- Baking Soda - 1 cup
- Citric Acid - 1/2 cup
- Corn Starch - 1/2 cup
- Salts - 1/2 cup (we used honey & milk epsom salts)

WET INGREDIENTS

- Water or Witch Hazel in a spray bottle: just a spritz (enough to just dampen the dough)
- Essential Oils (we used a citrus oil)
- Oil - 1 to 2 tablespoons (we used Baby Oil)
- Food Coloring

What to do:

1. Start by mixing together all of your dry ingredients into one bowl. It's a good idea to get everything mixed as evenly as you can, so take your time here!
2. Add in a small amount (dropper full) of the wet ingredients at a time and stir **QUICKLY** and vigorously. You will see a slight reaction, but the stirring will help stop it. **ONLY** use as much of the liquid as needed to create a moldable dough (error on the side of more dry than wet).
3. Using your spray bottle, spritz your dough with just a little bit of water or witch hazel. You don't want too much or your mixture will start to react. Stir. You want the dough to be moldable, but not mushy. Error on the side of more dry than wet.

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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