

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 Once Again Amazes the Crowd!

"STEM in the Park", a free, hands-on and inquiry-based event designed to engage participants in the STEM fields, was held on the campus of BGSU on September 29. An estimated crowd of over 5,600 people attended the 9th annual event and enjoyed over 150 activities from a wide variety of exhibitors showcasing STEM disciplines. This year's event brought the addition of a new activity zone, "Take Flight with STEM", which was designed for participants to explore all aspects of flight with a visit to Wood County Regional Airport's Air Fair. The two programs combined their events to create a rich multi-site set of experiences, with a shuttle service available to transport families to both locations.



Event Coordinator Jenna Pollock stated her excitement for the new flight theme explaining, "We like to have the event stay current with fresh ideas and themes. My son has been into flying drones lately and that is what sparked our new Flight Zone idea! Plus, we love to partner with other community organizations and the Wood

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County Air Fair proved to be a great fit, combining two exciting events in one day!"

Other activity zones that were back by popular demand for the ninth annual event were the Food Science Zone, the Digital Media Zone, the Science of Sports Zone, the Robotics Zone, the H₂O Zone, and a Roots to STEM Pre-K-2 Zone, which featured activities that catered specifically to younger children. In addition, a STEM stage featured super-sized demonstrations from the Imagination Station and the Toledo Zoo.



Over 125 activity station hosts were at the event and included BGSU's Marine Lab and Herpetarium, SSOE, Verizon, Challenger Learning Center of Lake Erie West, BP, Thayer Family Dealerships, plus many more institutions and organizations. Activities within the FLIGHT ZONE included: C47, B25, and TBM Avenger Aircraft Displays, Helicopter Rides, Micro-Drone Racing, Remote Control aircraft demonstrations, and free airplane rides through the EAA Young Eagle Flight Program.

One of the many strengths of this program is the spirit of community that evolves during its planning and implementation. The many volunteers and exhibitors that provide free STEM- infused and inquiry-based learning activities to engage children and their families contributes to the remarkable success of "STEM in the Park".

"This event has become our passion. We truly love to see children and their families enjoying hands-on STEM learning activities," stated Emilio Duran, who co-founded the event with his wife Lena Duran. Both are faculty in BGSU's College of Education's School of Teaching and Learning and are amazed at the growth of the event over the years.



Another important aspect of the event is a program that was developed to offer transportation to students wherein transportation is the main barrier of attendance. Mrs. Pollock stated, "Each year we reach out even further in our region to provide this opportunity and we're thrilled and gratified at the number of those who come to enjoy this spectacular event!"

Attendance for the event has steadily grown each year, as crowds come to not only participate in the hands-on STEM-infused activities, but to watch the live super-sized demonstrations from the Imagination Station on the STEM Stage, listen to popular vocal and drumming groups under the Musical Tent, and enjoy a free Tony Packo's lunch. One participant exclaimed, "We love this event and come every year, it's a great way to get our kids interested in STEM!"

Presenting Sponsors for the 2018 STEM in the Park included BGSU, BP, Lubrizol, PPG Industries, and Verizon. Community Sponsors were The Andersons, First Solar, Thayer Family Dealerships, Perrysburg Rotary Club, SSOE, Northwest Ohio Center for Excellence in STEM Education at BGSU and Wal-Mart. And Biggby Coffee, Cooper Tires, NAMSA, Tony Packo's, Bostdorff's, Environmental Water Treatment Specialists, and Glass City Federal Credit Union made up the General Sponsors.

For more photos, videos and information on "STEM in the Park", please visit: www.steminthepark.org.

Community STEM in the NEWS

Ground Breaking New Study on Girls and STEM Released

To help celebrate the International Day of the Girl held on October 11, the Ruling our Experiences (ROX) organization released a new study with support from Battelle and the Ohio STEM Learning Network titled "Girls, STEM and Careers: Decoding Girls' Futures in an age of Social Media". The research report results are from a nationally representative survey of more than 10,000 girls, designed to develop a deeper understanding of the thoughts, experiences, perceptions, beliefs, behaviors and attitudes of girls throughout the United States. The study reveals some startling facts and data on what today's girls think about STEM. The companion report, the 'Girls, STEM & Careers Impact Report' is the second in a series of additional data releases from 'The Girls' Index' designed to provide a deeper analysis by examining the factors connected to girls' perceptions of their abilities in math and science, their thoughts on pursuing a career in STEM and the variables that may be related to these perceptions. Respondents answered questions such as: "Are you good at math and science?" "Are you interested in a STEM career?" and charting how those answers change from 5th to 12th grade [Please read the report here.](#)



The founder of ROX, Dr. Lisa Hinkelman, a former full-time faculty member at Ohio State in Counselor Education, wanted to create a program that helped girls successfully navigate the challenges that they face during their adolescent years. Under Dr. Hinkelman's leadership, a research team of graduate students, counselors, social workers, teachers and advocates developed the curriculum and the research study that ultimately became Ruling Our eXperiences. ROX is now the national non-profit leader in programming, research and education focused on girls and is based in Columbus, Ohio.

For more information on ROX: <https://rulingourexperiences.com/>

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STEM Opportunities

NWO SYMPOSIUM - Registration is now OPEN!

NWO Symposium on Science, Technology, Engineering and Mathematics Teaching

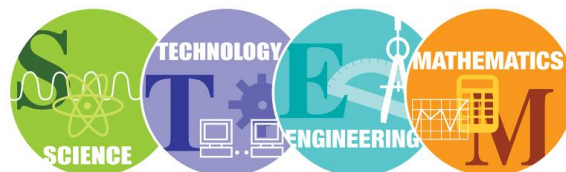
November 17, 2018

8:45 AM - 3 PM

Olscamp Hall @ BGSU

2018 NWO Symposium Strands

1. STEM in the Community: Thinking Outside the Classroom
2. Putting Creativity to Work: Teaching STEM With Innovation
3. Integrating Technology in the Classroom
4. Teaching and Learning in SCIENCE
5. Teaching and Learning in MATHEMATICS
6. Teaching and Learning in ENGINEERING



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

NEW Highlight for 2018

The Symposium will host an Education Resource Fair, where local educational resource providers will showcase classroom resources and services available for teachers and students.

[Click Here To Register!](#)

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

Xcite Learning hosting Engaging, Inspiring, & Practical Professional Development in a BEAUTIFUL Retreat Setting

Two-Day Professional Development Retreat

COST: \$300/teacher or \$275/teacher if 2+ teachers/district

LOCATION: The 577 Foundation, Perrysburg, Ohio. A beautiful retreat & conference setting.

WHAT TO EXPECT: All workshop participants receive:

- High-quality professional development that respects and honors your teaching experience and know-how!
- \$40 in classroom-ready teaching materials/resources to jump-start your implementation of workshop ideas/strategies
- CEU certificate for 15 hours of PD
- Plenty of good food & great conversation
- Graduate credit available [additional cost]
- Small, intimate PD setting, with a maximum of 24 participants



November 5 & 6, 2018

8:00 am - 3:00 pm

Project Based Learning (PBL)

Join us in discovering PBL as a powerful and effective inquiry-based learning framework for K-16 classrooms

across all disciplines. Find ready-to-use PBL units for your grade level and design your own PBL units. Participants will each receive the book "Hacking PBL" along with other ready to use classroom materials. All participants will leave with a draft PBL design for immediate implementation into their classroom. Bring a team and develop an interdisciplinary PBL unit [team discounts available].

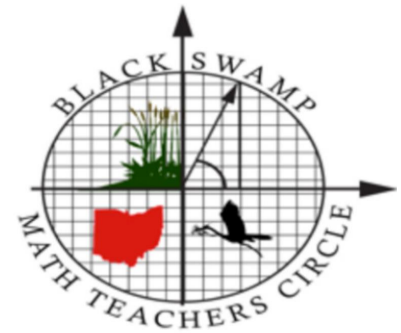
[SIGN UP TODAY](#)

For more information visit Xcite Learning at: <http://www.xcitelearning.com/>

Black Swamp Math Teachers' Circles

Math Teachers' Circles bring together teachers and mathematicians to enrich the teachers' experience of mathematical problem solving. The 2018 sessions are FREE and open to K - 12 math teachers and college faculty/staff in northwest Ohio. Space is limited and participants will receive:

- Great professional development.
- Networking with mathematicians, higher education faculty and other classroom teachers.



BS-MTC meets from 6:30 - 8:30 PM on the following dates: (you may attend one or both sessions). Meetings will be held at BGSU in the Business Administration Building, Room 115.

- Monday, October 22, 2018
- Monday, November 26, 2018

You can register for the sessions at: <http://www.bgsu.edu/nwo/programs/bs-mtc.html>.

For more information, please contact Dr. Debra Gallagher, Bowling Green State University, at dgallag@bgsu.edu c
419-704-1920.

Ohio Academy of Science Call for Papers

Each year, the Academy brings together Ohio's scientists, engineers, educators, graduate, undergraduate and pre college students to discuss recent developments in science and technology. The meeting is a science gathering with scientific sessions, renowned speakers, and valuable networking opportunities.

Deadline to submit abstracts: November 19. Please see <http://www.ohiosci.org/annual-meeting-2019/> for more information.

Toledo Lucas County Public Library "Maktober"

Maktober celebrates making, building, creating, designing, and exploring by offering free programs across all of the Toledo Lucas County Library locations.

Visit toledolibrary.org/maketober for program information.

Teach Engineering Curriculum Search



Search the Teach Engineering site for lessons, activities, units, sprinkles (short design briefs) and maker challenges for grades K-12

<https://www.teachengineering.org/curriculum/browse>

Computer Science Workshops for Administrators and School Counselors

Join Battelle workshops this fall on what Computer Science is, why it matters, and how to bring quality educational resources like [#OHTeacherCon](#) to schools. Battelle partners with [Code.org](#) (a non-profit computer science curriculum provider) to expand access to computer science and to increase the participation of women and underrepresented minorities.

Computer Science Workshops for Administrators and School Counselors

Location: Battelle (505 King Avenue, Columbus, Ohio) Register at the link below. Lunch will be provided.

October 26, 2018

9:30 a.m. to 1:30 p.m.

[Register](#)

November 16, 2018

11 a.m. to 2:30 p.m.

[Register](#)



Columbus City Schools and SMART Columbus Design Challenge

Columbus City Schools launched a new design challenge focused on public transportation in Ohio's capitol. The challenge asks a central question: **how can technology be used to create a transportation system that provides access to opportunities for all people?**

This challenge follows a specific process: the Stanford Design Thinking Process. Students start by empathizing with people struggling with the problem - in this case mobility. Then, they define the problem, ideate and brainstorm, prototype a solution, and test it. 75 teams from Metro just started working, but all middle schools in central Ohio are invited to participate. In January, teams will present their solutions to transportation professionals from Battelle, The Ohio State University, and Smart



Columbus.

Learn more at [the SMART Columbus website](#)

Gateways to Education Online Summit

Gateways to Education is a free online summit to learn how districts and schools are overcoming STEM's biggest challenges. Participants will virtually interact with STEM practitioners, EdWeek reporters, and other experts through a series of live interviews and chats aimed at making sense of the obstacles and sharing the solutions.

Register today and improve the **Gateways to STEM Education**. [Click here for more information.](#)

[Click here to view the full agenda](#)

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NWO STEM Activity

What is a Carbon Footprint?

This month's activity was featured at the 2019 STEM in the Park and is from Sudershan Ketley of BGSU's College of Technology Architecture and Applied Engineering.

You can't control everything, but being conscious of your carbon footprint helps.

Carbon Footprint

A carbon footprint is the amount of greenhouse gases produced by a particular human activity.

A carbon footprint is the amount of greenhouse gases-primarily carbon dioxide-released into the atmosphere by a particular human activity. A carbon footprint can be a broad measure or be applied to the actions of an individual, a family, an event, an organization, or even an entire nation. It is usually measured as tons of CO₂ emitted per year, number that can be supplemented by tons of CO₂-equivalent gases, including methane, nitrous oxide, and other greenhouse gases.

How is a Carbon Footprint Calculated?

When calculating a carbon footprint, a lot of factors are taken into consideration. For example, driving to the grocery store burns a certain amount of fuel, and fossil fuels are the primary sources of greenhouse gases. But that grocery store is powered by electricity, and its employees probably drove to work, so the store has its own carbon footprint. In addition, the products that the store sells were all shipped there, so that must also be factored into the total carbon footprint. Beyond that, the fruits, vegetables, and meats that the store sells were all grown or raised on farms, a process that produces methane, which has a greenhouse effect 25 times greater than CO₂. All of those elements must be combined to understand the full carbon footprint of a given activity.



Reference: <http://www.takepart.com/flashcards/what-is-a-carbon-footprint/index.html>

Carbon Footprint Activity

Use a calculator below to estimate your personal CO₂ Emissions. Share with your friends and discuss how you can reduce it.

<http://www.nature.org/greenliving/carboncalculator/>

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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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