

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



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Over 300 young women from northwest Ohio middle schools attended the 35th annual Women in STEM program Oct. 31 at Bowling Green State University.

Students spent the day exploring and performing experiments and hands-on activities in physics and astronomy, chemistry, biology, engineering, mathematics and technology 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. Forty students from underrepresented populations attended the event through sponsorship from BP.

One student stated, "Women in STEM really opened my eyes to the opportunities and jobs I could do in STEM. I loved the fun activities that we did!"

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Workshop session titles included: "Engineering Design and Rockets!", "Code like a Girl", "Life on the Beach in Ohio - 390 Million Years Ago!" and "Be a Plant Scientist for a Day".

When asked about her perception on the impact of the event, one presenter stated, "One of the best days of my year. I thoroughly enjoy working with the girls and supporting this event!"



Another one of the over thirty presenters stated, "From my experience, "Women in STEM" plays a significant role in developing girls' interest in and identity as scientists and engineers not only by exposing them to a variety of career options but by providing in-person experiences with women in STEM careers. It makes learning fun, accessible and provides students with real-life applications for STEM."

The Northwest Ohio Center for Excellence in STEM Education at BGSU (NWO) annually organizes 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 35th annual Women in STEM program were BGSU, BP, and NWO. Susan Stearns of NWO stated, "Women in STEM is a program that showcases female role models who have careers in the STEM fields. 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. We are thrilled to hold this event every year, demonstrating to this age group a rewarding career in STEM is more than possible."

For more information and photos of the event, please see our website at:

<https://www.bgsu.edu/nwo/programs/women-in-stem.html>

Community STEM in the NEWS

Toledo Public Schools Natural Science Technology Center Showcases Renovations



Toledo Public Schools recently announced in a press conference enhancements made to the Natural Science and Technology Center (NSTC), an area school that offers programs in urban agriculture, hydroponics and animal science. Renovations included energy-efficient enhancements of its greenhouses, as well as a hydroponics facility and other features designed for this career tech program. Given the urban student population that attends the NSTC, this program can not only provide students excellent preparation for rewarding and stimulating careers, it can also help to contribute to alleviating some of the challenges found in some inner cities such as so called "food deserts" where there is very little healthy, affordable food available.

The NSTC teaching staff is devoted to project-based learning and hands-on inquiry as the primary mode of instruction and engage students in work-based frameworks. Students conduct projects that have real value for themselves and their local communities, which enhances their learning. Adding to student incentives for participating in the program, the Chief of Operations for Metroparks Toledo stated at the press conference that they expect to hire graduates of the program for various aspects of their operation in the future.

Also attending the news conference was U.S. Rep. Marcy Kaptur (D., Toledo), who spoke on the significance of urban agriculture education to the region. TPS Superintendent, Dr. Romulus Durant, cited the important role that graduates could play helping to address the problems of harmful algal blooms that represent a huge challenge to the economy of Ohio surrounding western Lake Erie.

Along with urban agriculture, NSTC offers classes in animal sciences, forestry, and wildlife and sustainability. Students from all Toledo Public School district neighborhoods with an interest in these areas may apply to enroll at NSTC.

For more information on NSTC, please see: <https://www.tps.org/find-your-school/career-tech/natural-science-technology-center.html>

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STEM Opportunities

STEM Night at Toledo Walleye

Join the Toledo Walleye and Penta Career Center as they host STEM Night on February 1, 2019. Penta Career Center and other community partners will have interactive displays throughout the Aquarium and main concourse including Robotics, Welding, Automotive and more! The event will take place at 5pm and run throughout the Walleye game. Everyone who pre-registers by January 25th will receive a FREE meal voucher!



Tickets are \$15 each, which includes STEM Night, Walleye game and a meal voucher. Purchase tickets as an individual or a group online by visiting: toledowalleye.com/stemnight. Have questions? Contact Rita Natter at 419-725-9258 or email natter@toledowalleye.com

Imagination Station Field Trip Discounts

When teachers book a field trip and visit before **December 31, 2018**, they will get **10% off** the cost of the field trip! Please call a Reservation Specialist at **419.244.2674 ext. 250** to book a



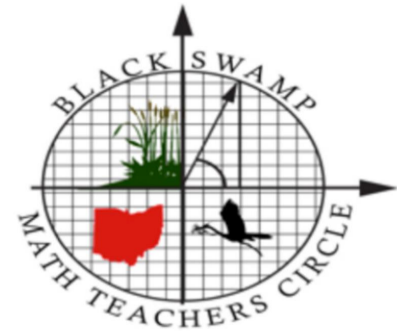
field trip and receive the discount.

<https://www.imaginationstationtoledo.org/educator/field-trips>

Black Swamp Math Teachers' Circle

Math Teachers' Circles bring together teachers and mathematicians to enrich the teachers' experience of mathematical problem-solving. The last 2018 session is 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 at BGSU in the Business Administration Building, Room 115.

- Monday, November 26, 2018

You can register for the session 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.

Science Education Council of Ohio Annual Symposium

Raising the Science Standards of Excellence Through EmPOWERed Teachers

Dates: January 29-30, 2019
Nationwide Hotel and Conference Center
100 Green Meadows Drive South
Lewis Center, OH 43035



**Science Education
Council of Ohio**
The Ohio chapter of the National Science Teachers Association

Symposium strands:

- P**- Practical Applications in Life, Earth and Space, and Physical Science
- O**- Outcome Based
- W**- Web-Based Learning
- E**- Engaging Learners Through Literacy in Science
- R**- Resources in STEM and Scientific Inquiry

SECO is the Ohio chapter of the National Science Teachers Association

For more information: <https://scienceeducationofohio1.wildapricot.org/>

National STEM Competition Looking For Teachers to Join #ecyber19

eCYBERMISSION is a web-based STEM competition for students in grades 6-9. As a community-based STEM program students are encouraged to explore how STEM positively impacts the world around them. We are looking for teachers to participate as Team Advisors.

eCM fits well into classroom curriculum and meets state science standards. **Don't miss our early registration deadline on November 21st.** All students registered to a team by this date receive a FREE STEM Kit. Registration which is free for teachers closes in December and projects are due in February. All students who submit a project are recognized for their accomplishment and compete for state, regional and national awards. eCYBERMISSION is sponsored by the U.S. Army Educational Outreach Program (AEOP).

Registration is easy. Please visit ecybermission.com today!

Please direct registration questions to missioncontrol@ecybermission.com or call 1-866-GO-CYBER (462-9237).

Google Education Opportunities

Science Journal Drive integration

Google's Science Journal is integrating with Google Drive.

Now, all experiments will be accessible through user's accounts. New to Science Journal? Watch as it transforms devices into a pocket-size science tool that encourages students to explore the world.



Google Science Fair is now open for submissions

Encourage students to share their ideas to solve a real-world problem using science, technology, engineering and math - now through December 12th. This year, Google has created a full library of teaching resources and classroom materials focused on the problem-solving process to help teachers & students through every step of the process.

Visit <https://edu.google.com> for more information.

Spread The Word About #hourofcode With Your Ideas On Creativity

In just a few weeks, we'll kick off the Hour of Code Challenge during Computer Science Education Week, December 3-9th. This week is designed to encourage students and teachers to try an hour of Computer Science.

Computer science is about more than technical knowledge, it's also about creativity. That's why this year's theme for [#HourofCode](#) is creativity.

To inspire people to think creatively, we've gathered some ideas of creativity from familiar Ohio faces. Want to join in? Follow the steps below:

- Step 1: Brainstorm on the question: "What does creativity mean to you?"
- Step 2: Take a quick selfie video recording the following:
 - "Creativity is (your brainstorm above captured in 8-20 words) What will you create?"
- Step 3: By November 16th, upload your video to [this Google drive folder](#) and label it with your name and brief job title. (e.g. "Teacher" or "5th grader")
- Step 4: On Monday, November 17th, watch [@OSLN](#) for a tweet featuring your video and others in a special

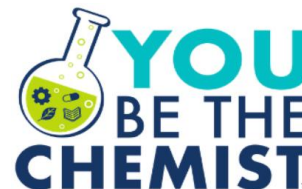
round-up with educators and community leaders from around the state.

Visit OSLN for more information: <https://www.osln.org>

You Be The Chemist Activity Guides

FREE activity guides for teachers that are fun, hands-on science experiences that help develop students' abilities to engage in sustained scientific inquiry.

The downloadable resources include editable Word documents for all student-facing materials, so it's easier than ever to facilitate activities with learners. Each activity uses common, inexpensive household items that give students the feel of working in a lab - without the expense.



<https://www.chemed.org/programs/activity-guides/>

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NWO STEM Activity

Toothpick Star

This month's activity is provided by the Toledo MetroParks

What You Need

- 5 Toothpicks
- Water
- Eyedropper



What To Do

1. Break 5 toothpicks in half, so they are still connected at the middle.
2. Arrange the toothpicks so they are touching with the broken piece in the middle of the star.
3. Using the eyedropper add water droplets one at a time to the center of the star and watch what happens!

The Science

Capillary action is the movement of water up a tube or through a material, usually defying gravity. Plants use capillary action to bring water up the roots and stems to the rest of the plant. Just like any other plant material the wooden toothpicks absorb water through capillary action. As the broken toothpick absorbs the water, the wooden fibers expand and try to straighten out. As the toothpicks try to straighten, they push against the other toothpicks and form a star.

Extension: Visit Metroparks Toledo and take a look at all of the different plants that use capillary action.

Additional Notes: Adult supervision required for young children as toothpicks pose a choking hazard

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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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