

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



Vol. 10 Issue #12

December 2018

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K-16 STEM in the NEWS

Another Thrilling Falcon BEST

The final "Game Day" of the sixth annual Falcon BEST (Boosting Engineering, Science and Technology) Robotics competition was held at Bowling Green State University's Stroh Center on November 11, 2018. Thirteen 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.

The BEST Award is presented to the top three teams that exemplify the concept of BEST. Criteria include creativity, teamwork, sportsmanship, diversity of participation, application of the engineering design process, ethics, positive attitude/enthusiasm and school/community involvement. Awards are also presented to the top four robotics game teams, and to the top teams that compete in marketing presentations, educational displays, project engineering notebook and spirit/sportsmanship. Other award categories include Most Photogenic Machine, Best Web Page Design, Best CAD Design, Best Team Video and Best Rookie Team

BEST AWARD total points from engineering notebook, robotics competition, marketing, exhibit and spirit.

- 1st - Cardinal Stritch Catholic High School
- 2nd - St. Ursula Academy
- 3rd - Hamilton Southeastern High School

[Science and Engineering
Apprenticeship Program \(SEAP\)](#)

4th - Millstream Career Center
 5th - Maumee Valley Country Day School
 6th - Port Clinton High School
 7th - Huron High School
 8th - Wayne Trace Jr./Sr. High School
 9th - Batavia High School

NWO STEM Activity

[Poinsettia Chemistry](#)

ROBOTICS COMPETITION

1st - Maumee Valley Country Day School
 2nd - Cardinal Stritch Catholic High School
 3rd - St. Francis de Sales High School
 4th - Hamilton Southeastern High School

Founder's Award - Hamilton Southeastern High School
Most Robust Machine - Maumee Valley Country Day School
BEST Marketing Presentation - St. Ursula Academy
BEST Engineering Notebook - Hamilton Southeastern High School
BEST Exhibit & Interview - Maumee Valley Country Day
BEST Spirit & Sportsmanship - Cardinal Stritch Catholic High School
BEST T-Shirt Design - Batavia High School
BEST Team Video Design - Maumee Valley Country Day
BEST Web Page Design - Maumee Valley Country Day
BEST CAD Design - Millstream Career Center
Most Photogenic Machine - EHOVE Career Center

Teams Eligible for the Northern Plains Regional BEST Competition:

Cardinal Stritch Catholic High School
 Hamilton Southeastern High School
 Maumee Valley Country Day School
 St. Francis de Sales High School
 St. Ursula Academy

Regional Competition at Grove City College, Grove City, PA in March 2019.

Hosted by Bowling Green State University, the College of Technology, Architecture and Applied Engineering, 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.

More information and a photo gallery can be found on the Falcon BEST website at: <https://www.bgsu.edu/technology-architecture-and-applied-engineering/college-overview/falcon-best-robotics-competition/photo-gallery.html>



Community STEM in the NEWS

Matney recognized for excellence in math teaching

This article was reprinted with permission from BGSU



Each year, the Ohio Council of Teachers and Mathematic recognizes outstanding teachers, professors, emerging leaders and friends of mathematics. At this year's OCTM 68th annual conference held last month, Dr. Gabriel Matney, a professor in Bowling Green State University's School of Teaching and Learning, was the single mathematics professor in Ohio to receive the Kenneth Cummins Award of Excellence in Mathematics Teaching. The award for exemplary mathematics teaching is given by the OCTM to a college-level teacher of mathematics and/or mathematics education in the state of Ohio. To be considered for the award, the teacher must have been nominated by a member of OCTM. It is named after the late Dr. Kenneth Cummins, a mathematics faculty

member at Kent State University who was well known in the mathematics community for his outstanding teaching. He was widely known for conducting summer and academic year institutes for high school mathematics teachers in which he reached a large number of teachers throughout the state.

Like Cummins, Matney has been intensely involved in teacher professional development around Ohio. With his BGSU colleague Dr. Jonathan Bostic, he has used Ohio Department of Education grants to help Ohio math teachers deepen their own mathematics knowledge and their classroom skills to promote student learning and help them meet the Common Core state standards. Matney also spearheaded a 2013 memorandum of understanding with Thailand's Kamphaeng Phet Rajabhat University to exchange information between students and faculty on mathematical research projects, educational best practices and culture. This has resulted in visits by students and faculty between the two countries, greatly broadening BGSU students' perspectives on teaching and learning as well as their global understanding.

Matney has been a BGSU faculty member since 2011, with areas of expertise including K-12 mathematics education, authenticity and fluency, in addition to teacher professional development. He said he is humbled to receive the Kenneth Cummins award.

"We have many amazing college professors in Ohio, and to be honored among them is truly edifying," he said. "It was particularly special for me that my department chair, colleagues, 15 of my current BGSU students, and six BGSU alumni drove to Akron to sit with me at the awards banquet. My students offer me daily inspiration." He added that he is proud of College of Education and Human Development students who are world-class and make him "the happiest of mentors."

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STEM Opportunities

Kids Tech University @BGSU

Kids' Tech University (KTU) is a science outreach program now in its 8th season at BGSU that provides a true university experience for children by introducing them to scientist, and providing hands-on activities that let kids explore scientific concepts. The morning sessions feature a talk and extended question period with the invited speaker. Afternoon sessions will



include a series of hands-on activities relevant to the session topic that the children can participate in with their parents. Topics covered in this year's program will include the importance of human factors in the design of new technologies, the science behind our sense of taste, climate records in the earth's crust, and plant interactions with insects. To participate, children must be 9-12 years old as of Sept. 30, 2019. There is a \$100 registration fee to participate. However, scholarships support for registration fees are also available.

Please contact the KTU Program Director, Dr. Paul Morris, at: pmoris@BGSU.edu for more information.

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 rnatter@toledowalleye.com.

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/>.

Toshiba America Foundation Grants For Grades K - 5

K-5 grade teachers are invited to apply online for a \$1,000 Toshiba America Foundation grant to help bring an innovative hands-on project



into their own classroom.

With a Toshiba America Foundation grant, elementary teachers can bring their best new teaching ideas to life.

Grant applications are due on OCTOBER 1st each year.

[Click here for more information and to apply online.](#)

Science and Engineering Apprenticeship Program (SEAP)

Applications are open! Students can spend the summer getting first-hand research experience at university-affiliated Dept. of Defense laboratory.



Learn more about this apprenticeship program for high school students and apply today: <https://seap.asee.org>

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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 Pencil

What To Do

1. Start by putting on gloves and safety goggles.
2. Tear or cut the red poinsettia petals into strips, and place the strips into a beaker or glass jar.
3. Add boiling water, just enough to cover the plant material, or add cold water to the jar and microwave it for about one minute.
4. Allow the mixture to steep like tea for about thirty minutes.
5. Remove the plant matter from the jar so you are only left with the poinsettia solution. Alternatively, strain the solution into another container.
6. Soak a coffee filter or clean filter paper in the poinsettia solution for a few minutes.
7. Remove the filter paper and allow it to dry.
8. Cut the dry filter paper (which should be a shade of pink) with scissors to make pH test strips.

9. To test the pH of a liquid, use an eyedropper or toothpick to apply a little liquid to a test strip or dip your test strip into small amounts of liquid.
10. Start by using the vinegar and baking soda solution as the first two tests. Each liquid will create a different color on the pH strips.

What to do continued on pdf file

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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