

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



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**K-16 STEM in the NEWS**

**BGSU hosts The Ohio Junior Science & Humanities Symposium (Ohio JSHS)**

BGSU once again served as the host university for the Ohio Junior Science & Humanities Symposium (OJSHS) on March 14 - 16, 2018. This statewide event annually showcases the outstanding work of high school students in the state of Ohio who have accomplished cutting-edge research in the areas of science, technology, engineering, and mathematics (STEM).

Ohio's top high school science students presented the results of their original research during the 55th Annual Ohio JSHS in both paper and poster sessions. The Ohio JSHS is patterned after research sessions at professional meetings where both paper and poster sessions take place.

Over 250 students from throughout the state of Ohio presented their own original research on topics from all areas of science. The eight paper sessions took place on Thursday and Friday where a distinguished panel of judges listened to 24 paper presenters and selected the top eight winners. Poster judging occurred concurrently on Thursday, where each poster presenter interacted on a one-to-one basis with a faculty member in the discipline



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of the student's research endeavor.

In addition to the student presentations, student participants and their teachers attended the symposium's activities to network, share, and gain knowledge on cutting-edge research. Faculty members from BGSU, Lourdes University, and the University of Toledo, and staff from the United States Department of Agriculture, Forest Service served as judges for the competition. Undergraduate students served as session presiders with Jenna Pollock, NWO Education Program Manager, serving as the moderator for the paper sessions.

At stake was more than \$18,000 in scholarship money and cash awards for the awardees of the Ohio JSHS. The top three paper presenters all received scholarships from the Department of Defense and the top five presenters receive an all-expense paid trip to the National JSHS to take place in Hunt Valley, MD from May 2 - 5.

The top two Ohio presenters will have the opportunity to present their research in the paper sessions at the National JSHS for more scholarship opportunities. The third through fifth place paper awardees at the Ohio JSHS will represent Ohio in the Poster Session of the National JSHS.

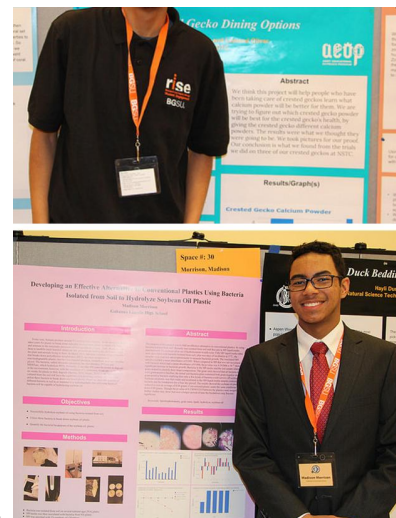
The United States Air Force, Army, and Navy, as well as the the Academy of Applied Science sponsor and organize the National JSHS as well as the 48 regional symposia held across the country and Department of Defense schools in Europe and Asia

For the second year, The Army Educational Outreach Program (AEOP) provided the opportunity through a strategic outreach grant project for students from Toledo Public Schools and Springfield High School to conduct scientific research, analyze data, and present their work in the poster format of Ohio JSHS. One of the goals of the grant project is to broaden the participation of students in scientific research. The AEOP, in collaboration with Battelle, awarded grants to organizations and institutions to expand student participation in enriching STEM exploration and learning, particularly for underserved students. AEOP offers students and teachers Army-sponsored programs that effectively engage, inspire and attract the next generation of STEM talent.

BGSU's Pershing Rifles Color Guard initiated the program on Thursday morning with the presentation of the colors. Opening remarks were given by: Dr. Rodney Rogers, BGSU President; LTC Steven Hopingardner, U.S. Army, Commander /Professor, Military Science, BGSU; and Dr. Emilio Duran, Regional Director of Ohio JSHS.

Many special events were also planned for the participants of the symposium. Students had the opportunity to tour laboratory research facilities and interact with university faculty and BGSU students.

On Thursday evening, the keynote speaker was Dr. Mike McKay, Ryan Professor of Biology and Director of the BGSU Marine Program.



"I love this event," stated Jessica Belcher, Associate Director of Finance and Operations at NWO, coordinator of Ohio JSHS. "It is great to see all the amazing research from these students."

Dr. Emilio Duran, longtime Ohio JSHS Director and BGSU Associate Professor stated, "It's always a pleasure to hold this competition each year and to see what these students have accomplished. We also enjoyed hosting all of the students from TPS and Springfield and their teachers. All the students are winners with bright futures, and we are already looking forward to next year!"

Please visit: [www.ojshs.org](http://www.ojshs.org) for information on the program and a complete list of winners for 2018 and for photos from the event.

## Community STEM in the NEWS

### BGSU to Celebrate Earth Week April 16-24

*This article was reprinted with permission from BGSU*



Bowling Green State University will celebrate Earth Week 2018 April 16-24 with a series of free events intended to encourage participants to "Embrace This Place."

The week kicks off at 7:30 p.m. April 16 with the annual Lamb Peace Lecture in the Bowen-Thompson Student Union Theater. The lecture is titled "Policy, Politics and Pollution in the Great Lakes Basin: If Protections Are Good Why Are Regulations Bad?" with Lana Pollack, chair of the U.S. section, International Joint Commission (IJC). The IJC was established by the U.S. and Canada to address issues related to boundary waters including the Great Lakes.

A tree planting on the west side of the Bowen-Thompson Student Union will also be held April 16, at 1:30 p.m.

Tools and gloves will be provided to anyone who would like to help add to the campus' native tree population.

In addition, the annual When You Move Out, Don't Throw It Out collection begins April 16 on campus. Bins will be located in the residence halls and lobby of the Bowen-Thompson Student Union. All items will go to local food pantries and shelters. The collection has helped needy community members while keeping tons of material out of the landfills.

At 7 p.m. April 17 in the Bowen-Thompson Student Union Theater, guests can view the film "The Call of the Scenic River: An Ohio Journey" and learn about the Ohio Scenic Rivers program, the first such program in the United States, now celebrating its 50-year anniversary. Christina Kuchle, Ohio Department of Natural Resources Scenic Rivers program manager, will answer questions and share how participants can be part of protecting, preserving and enjoying these vital water resources.



On April 18, guests can stop by tables from environment- and sustainability-related organizations from both on and off campus at the Eco-Fair in the Union Oval. Tree seedlings and plants, reusable bags, involvement opportunities and more will be available from 11 a.m. to 2 p.m. In case of rain, the event will be held in the Memorial Hall lobby.

At 7 p.m., also on April 18, there will be a Rights of Nature Panel/Forum organized by the Environmental Action Group/UPSA. The panel, which will be held in 113 Olscamp Hall, will include faculty members from biology, environment and sustainability, economics, philosophy and geology.

Guests can register for an April 20 tour of the DG AMP Solar Field on Carter Road. This is the largest solar field in the state. Vans will leave at 1:30 p.m. from the Union parking lot (Lot 7). Registration is required by emailing [greenbg@bgsu.edu](mailto:greenbg@bgsu.edu) with "Solar Tour registration" as the subject line by April 17.

Later in the day, volunteers can help reduce BGSU emissions by participating in Friday Night Lights. Volunteers should meet at 6:30 p.m. in the Union Theater (Room 206) before venturing out to turn off lights in selected buildings. Volunteers will receive Earth Week treats, and a special guest will introduce the evening's program.

The final event of the week, "Values-Based Investing: The Environment, Social Responsibility, Corporate Governance and Our Portfolios," will be held at 7:30 p.m. April 24 in 201 Union. Industry experts will explain the origins and current status of the ESG (environment, social responsibility and governance) investing industry. Investment managers will be on hand to discuss environmental and faith-based investment portfolios.

The [Office of Campus Sustainability](#) and the [Department of the Environment and Sustainability](#) co-sponsor Earth Week; events are free and open to the public. More information is available on the [Earth Week flyer](#).

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## STEM Opportunities

## Literacy in the Park

Perry Field House, Bowling Green State University  
 SATURDAY, APRIL 21, 2018  
 10 A.M. TO 2 P.M.  
**FREE FAMILY EVENT**



Enjoy a snack and literacy-based activities for the entire family  
 Each family receives a goodie bag with a free book by Don Tate  
 Two presentations by Don Tate  
 New exciting booths, activities and entertainment  
 Prizes and crafts

For more information and to pre-register: <https://www.bgsu.edu/events/literacy-in-the-park.html>



## Teachers!

Free ACT Math PREP materials are available at the following link: <http://greatercincsystem.org/act-math-prep/>

## State Science Day 2018

**State Science Day** will take place on **Saturday, May 12, 2018**. Approximately, 1,100 students will compete for nearly \$500,000 in sponsored awards and scholarship. State Science Day takes place at Ohio State University in Columbus and is in need of judges and volunteers!

### REGISTER TO BECOME A STATE SCIENCE DAY JUDGE

[https://statescienceday.stemwizard.com/public\\_site/judge\\_register](https://statescienceday.stemwizard.com/public_site/judge_register)

### REGISTER TO BECOME A STATE SCIENCE DAY VOLUNTEER

[https://statescienceday.stemwizard.com/public\\_site/volunteer\\_register](https://statescienceday.stemwizard.com/public_site/volunteer_register)

## Ohio Lesson Study Conference for the Mathematical Proficiency of Students

Professional Development for Ohio K - 12 Teachers and Administrators

This conference will feature:

- Keynote Presentations by international lesson study experts: Maitree Inprasitha from Thailand and Masami Isoda from Japan.
- A 4th grade mathematics demonstration lesson taught by a Japanese teacher proficient in lesson study.
- A panel of experts who will share their ideas about the demonstration lesson.
- Presentations throughout the day from teams of teachers who have conducted lesson studies.

**Wednesday, June 20, 2018 @ 8:30 am- 4:00 pm**

Bowling Green State University, Olscamp Hall

Registration Fee: \$10

Registration info: <https://goo.gl/forms/YwvoyWkf2XVapGGr2>

## Project-Based Learning Ohio Institute

This summer, teachers can be students too at the Project-Based Learning Ohio Institute, July 25-27, on the campus of New Albany-Plain Local Schools near Columbus. The institute is an internationally attended academy that gives teachers a chance to learn and create new ways of educating and engaging students to get them ready for college and careers. The Educational Service Center of Central Ohio has partnered with the Buck Institute for Education to offer four different academies, all taught by nationally certified Buck Institute for Education staff.

Below please find opportunities offered only at the PBL Ohio Institute:

### July 24:

"Project Slice" - engage as a learner in an immersive PBL experience, a "slice" of a project

### July 25 - 27:

PBL 101 K-5 STEM - created specifically for K-5 STEM teachers

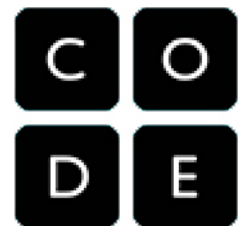
PBL 101 6-12 STEM - for grades 6-12 STEM teachers

PBL 101 Career Pathways (NEW!) - for school and districts that have a graduate profile, clearly defined pathway outcomes, and interdisciplinary career pathway teams already in place.

For information, contact: [Teresa.Dempsey@escoco.org](mailto:Teresa.Dempsey@escoco.org)

## STEMcoding Project Offers Free Coding Activities and Professional Development for Physics and Physical Science Teachers

The STEMcoding Project at The Ohio State University is working to create FREE, simple coding activities that illustrate physics and physical science concepts. Coding tutorials for physics, and eventually chemistry and math. This summer, the STEMcoding Project is offering a mostly-online professional development course. FREE graduate credits will be available to high school physics and physical science teachers.



Workshops are available at no cost for teachers in Ohio. Applications are currently open for the Summer 2018 Professional Learning Program for middle and high school teachers.

Code.org partners with Battelle, who will be running workshops July 16-20, 2018, in Columbus, with follow-up workshops on four Professional Saturdays throughout the school year.

Please see the website for more information: <https://code.org/educate/professional-learning-2018/>

## Music, Maps, and Minds: Digital Learning Beyond Classroom Walls

Thursday, May 3, 2018 at 3:30pm



Explore outside the classroom, in the classroom! Discover how students can use Google tools and a blended learning environment to internalize topics. Resources utilized will include Google Earth, Google Maps, G Suite, and YouTube.

[Click here](#) for more information.

## Stone Lab Field Trip Scholarships

Ohio Sea Grant and Stone Laboratory are offering scholarships for grades 5-12 teachers and students to take part in a one-day hands-on scientific experience in the Fall of 2018. Six needs-based scholarships are available for teachers in Wood and Lucas counties.

The Stone Laboratory Field Trip Scholarship will include full funding for:

- 30 people to attend a one-day field trip (24 students and 6 chaperones)
- Lunch on the island
- Ferry transportation from the Miller Ferry in Port Clinton to South Bass Island
- Island transportation from the Miller Ferry dock on South Bass Island to Stone Laboratory
- Lakefront Lines roundtrip transportation from school to the Miller Ferry dock

Reimbursement for substitute teacher payment for the day of your field trip is also available. Any science teachers in grades 5-12 may apply.

Field trips will be scheduled for October 19 through October 26, 2018. Please plan on arriving to board the 10:30 a.m. ferry and then leaving on the 5:00 p.m. ferry.

For more information, please visit:

<http://ohioseagrant.osu.edu/news/calendar/2018/04/30/5z7c0/2018-field-trip-scholarships>

## Imagination Station

**Flight: The Sky's the Limit**

Imagination Station is taking their permanent exhibits to new heights with Flight: The Sky's the Limit. Visitors can hop into the actual cockpit of a real Saab 340 and test their aviation skills. While flying the friendly skies, students will learn about the science of



flight and many of the dynamic and varied careers in aviation.

<https://www.imaginationstationtoledo.org/exhibits/flight>



## Google for Education Certified Innovator Applications Now Open!

The Google for Education Certified Innovator Program is a 12-month professional development experience -- including mentorship, online learning activities, and an in-person Innovation Academy focused on helping new Innovators launch a transformative project.



Google for Education

Applications are now open for the for the Los Angeles cohort. Attendance at the Innovation Academy in Venice, CA on July 9th - 11th is required.

<https://goo.gl/LLEmC7>

## BGSU Summer Camps



### ROBOTICS CAMP - June 11-13, 2018 | July 23-25, 2018

The College of Technology, Architecture and Applied Engineering at BGSU is hosting a three-day robotics camp for students.

#### Campus Activities:

- Design and build your very own robot with the help of BGSU professors! No previous experience necessary
- Use your robot, which is yours to take home, to compete in a game of "Corn-Hole" like you have never done before.
- Explore careers in engineering and robotics.
- Discover more about Bowling Green State University.

#### Register Now:

[Register for June 11th - 13th, 2018](#)

[Register for July 23rd - 25th, 2018](#)

### EAT 2 COMPETE DAY CAMP - June 25-29

Did you know that foods can affect athletic performance? Thousands of elite athletes enhance their performance with proper nutrition. Discover how to prepare nutritious meals and snacks and how to use nutrition to up your game. Eat 2 Compete Camp is designed for students in ninth to twelfth grade and camp activities are as follows:



- Take classes at BGSU's recreational center led by certified instructors.
- Prepare meals and snacks in BGSU's food lab. Develop personal performance nutrition plan for success.
- Climb BGSU's rock wall

**Camp Information:**

The BGSU Eat 2 Compete Camp is for students who will be in ninth through twelfth grade in the fall of 2018. The registration fee of \$125 includes lunch and all materials.

Camp check-in begins on Monday, June 25 and runs through Friday, June 29.

[REGISTER NOW](#)

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**FARM 2 FORK CAMP - JULY 9-13**

Does your child want to know more about where food comes from? In this camp, children will explore the route food takes from the farm to the table and how to use food to fuel for their bodies. Farm 2 Fork camp is designed for those in fourth, fifth and sixth grade and the camp activities are as follows:

- Taste new foods.
- Prepare healthy meals and snacks using foods from the garden.
- Use senses to describe the characteristics of fruits and vegetables.

**Camp Information:**

The BGSU Farm 2 Fork Camp is for students who were in fourth, fifth or sixth grade during the 2017-2018 school year.

The registration fee of \$125 includes lunch and all materials.

Camp check-in begins each day by 8:15

[REGISTER NOW](#)

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**MEDIA PRODUCTION CAMP- June 18 - 22, 2018**

BGSU Media Production Camp is for rising 9th to 12th grade students during Fall 2018 who are interested in studio and video film production, audio recording and editing, and radio broadcasting and podcasting. Experience a hands-on, unique learning opportunity with state-of-the-art equipment and world-class educators.

Students will get to spend time in the newly renovated Kuhlin Center which is the home for the School of Media and Communication. Inside this building, students will actively participate in the video and audio production suites with advanced technology equipment. Students will get the chance to see a "live reporting" space. Green screens along the walls and floors of the different staging areas to allow students to produce a background fit for their production. The audio production studio incorporates a "floating floor" concept that offers top-quality soundproofing and sound shaping.

**Camp Activities**

- Field video production and studio production
- Radio production and audio production
- Video and audio post production
- Camp Projects & Productions
- Closing Program - Featuring Camp Projects

[REGISTER NOW](#)

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### **AQUATIC EXPLORERS CAMP - July 9-13, 2018**

The BGSU Aquatic Explorers Camp is for students who will be rising 8th and 9th grade students for the 2018-2019 school year.

#### **Camp Description**

While Bowling Green State University is not known for its beautiful ocean shore, we are still lucky enough to have a phenomenal marine biology and aquatic science program that we want to share with your student. Each student will have a unique chance to understand marine ecology by working closely with the University's extensive collection of saltwater specimen. Students will also have the opportunity to explore our own Lake Erie habitats by engaging in research projects both in the laboratory and on the water in aquatic research vessels. We will take trip to the Stone Lab facility on South Bass Island and explore behind the scenes at the Aquatic Center at the Toledo Zoo.

#### **Camp Learning**

Throughout multiple hands-on activities, students will explore how marine animals live and adapt to various environments. They will also be able to examine the anatomy; both structure and function, of marine animals allow them to live in their water filled worlds. In order to help the students practice what they learn, they will observe live sea life in the Marine Lab at BGSU and conduct habitat experiments based on their observations. Learning will be done through lab experiments and related activities such as, caring for various aquatic tanks, field trips to local streams, and a fun-filled day at the Toledo Zoo & Aquarium.

[REGISTER NOW](#)

For more information on the above and other BGSU camps [visit the website here!](#)

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## **NWO STEM Activity**

### **Compost in a Bottle**

*This activity celebrates Earth Day and can be found on Pinterest:*

<https://www.pinterest.com/pin/203436108144741775/>

For Kindergarten - 2nd grade

### Supplies

- Empty clear 2 liter plastic soda bottle,
- 2 cups of fruit/vegetable scraps cut up
- 1 cup of grass clippings and leaves
- 2 cups of garden soil
- 1 tablespoon fertilizer
- 1 cup of torn newspaper
- Spray bottle with water
- Spoons, packing tape
- Permanent marker



### Description

**LEARNING OBJECTIVE:** To teach young children about reducing and reusing food waste, and how food scraps can be turned into something useful for the environment. This is great during an overall theme on conservation and recycling or during a project that involves gardening. Children will also learn some great vocabulary words like compost, conservation, decompose.

This is a great science project to do in your classroom that children can observe over the course of a few weeks. For a couple of days, have children place their leftover fruit and vegetable scraps from their lunches into a container (or ask for these items from home).

Start by cutting an empty plastic soda bottle in half (or using a plastic bottle that has a wide opening). Have children help you tear strips of newspaper. Then, layer the bottle with soil - and then layer all the materials in this order:

- soil
- fruit/vegetable scraps
- fertilizer
- leaves & grass
- soil
- fertilizer
- newspaper
- soil
- fertilizer
- fruit/vegetable scraps
- soil
- fertilizer

Be sure to spray soil with water as you layer (children will love taking turns with the spray bottle!). Allow children to help you fill the bottle with the fruit and vegetable pieces and newspaper. When finished, tape the top of the bottle onto the base (or tape closed your opening). Mark the height of the compost on the bottle with a marker. Put the bottle in a sunny place.

Every week for 3-4 weeks, mark the soil level changes. If the compost seems too dry, remove tape and spray with water. If it seems too moist, remove the tape to let it dry out a little.

When all the materials have decomposed, use it in a school garden (or donate it to a local farm for their use). This is a great learning experience for everyone!

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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](mailto:nwo@bgsu.edu). We are always looking for great STEM education stories to feature in upcoming newsletters.

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