

**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 13 - 15, 2019. 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 56th 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 100 students from throughout the state of Ohio presented their own original research on topics from all areas of STEM. Twenty-four students presented in eight paper sessions on Thursday and Friday where a distinguished panel of judges selected the outstanding presentations. Poster judging occurred concurrently where

[GROW NEXT GEN New Summer Workshop](#)

approximately 55 student poster presenters interacted on a one-to-one basis with a faculty professor in the discipline of the student's research endeavor.

[State Science Day](#)

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 and Lourdes University and staff from the United States Department of Agriculture, Forest Service served as judges for the competition. Undergraduate and graduate students served as session presiders with Jenna Pollock, NWO Education Program Manager serving as the moderator for the paper sessions.

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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 and the top five presenters receive an all-expense paid trip to the National JSHS to take place in Albuquerque, NM from April 24-28th.

**NWO STEM Activity**

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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 place paper awardee at the Ohio JSHS will represent Ohio in the Poster Session of the National JSHS.

The Army Educational Outreach Program (AEOP) and the Academy of Applied Science sponsor the National JSHS as well as the 48 regional symposia held across the country.

As part of a grant project extension with The Army Educational Outreach Program (AEOP) six students from Toledo Public Schools also participated in Ohio JSHS, with one qualifying for the paper session. Two of the students earned awards in the poster competition. One of the goals of the grant project is to further the reach of students exposed to 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.



After an evening at the BGSU Ice Rink on Wednesday evening, the program continued on both Thursday and Friday. BGSU's Pershing Rifles Color Guard initiated the program on Thursday morning with the presentation of the colors.

Opening remarks were given by:

Dean of the College of Arts and Sciences BGSU, Dr. Raymond Craig and Major Dallen Army, U.S. Army, Commander /Professor, Military Science, BGSU.

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 at the Ohio JSHS banquet was Dr. Jon Sprague, Director of the Ohio Attorney General Center for the Future of Forensic Sciences at BGSU and Ohio Bureau of Criminal Investigation Eminent Scholar.

Dr. Emilio Duran, Ohio JSHS Director for the past 17 years and BGSU Associate Professor stated, "It's always a pleasure to hold this competition each year and to see what these students have accomplished. All of 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 2019 and <http://www.bgsu.edu/nwo/programs/ohio-junior-science-and-humanities-symposium.html> for photos from the event.

## Community STEM in the NEWS

### Toledo Zoo holds Climate Change Symposium

The Toledo Zoo recently held a Climate Change Symposium for participants to learn about the on-going effects of global warming. The Symposium included live presentations by experts from the Toledo Zoo and area universities on the many facets of climate change, including Dr. Ryan Walsh of the Toledo Zoo, Dr. Kevin Czajkowski of the University of Toledo and Dr. Shannon Pelini of Bowling Green State University. Virtual presentations by scientists from Polar Bears International in Churchill, Manitoba, Canada and the Alaska Sea Life Center in Seward, Alaska were also part of the Symposium.



Dr. Pelini was involved in one of the largest climate change studies in the world and spoke on the concept. She explained, "Invertebrates' actions are a good indicator of what is going on in the climate, and that new communities of bugs are evolving."

Dr. Czajkowski presented an engaging hands-on activity with a large beach ball depicting the earth that groups of students tossed around and tilted toward the sun. He states, "It's a misconception that holes in the ozone layer are causing climate change as ozone depletion and climate change are separate issues." He discussed other weather and climate misconceptions and asked participants to look further into studies about climate change being caused by greenhouse gas increases.

The program also included opportunities for the audience to ask questions of the presenters, and was geared toward middle and high school students and teachers, as well as the general public.

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## STEM Opportunities

## Leveraging the TI-84 Plus CE Graphing Calculator for ACT<sup>®</sup> Test Success

This workshop is designed for **mathematics educators** who want to learn to leverage TI-84 Plus CE technology skills to drive student success on the ACT<sup>®</sup> test by exploring released test items. Educators will cover the main elements of the ACT<sup>®</sup> test, discuss strategies for helping students to better understand key topics, and emphasize techniques for teaching with TI-84 Plus CE technology.



By the end of the workshop, participants should feel comfortable with:

- Leveraging the TI-84 Plus CE graphing calculator for exam questions in key categories such as Number & Quantity, Algebra, Functions, Geometry, and Statistics & Probability
- Highlighting the key content areas on the ACT<sup>®</sup> test and adjusting mathematics instruction accordingly
- Implementing test preparation strategies in the mathematics classroom and using pre-made activities that reinforce technology skills and deepen student understanding of key topics

**Location:** NWO: Northwest Ohio Center for Excellence in STEM Education at BGSU (room location TBD)

**Date:** June 4-June 5, 2019

**Time:** 8:00am -3:00pm

**Host:** Jenna Pollock, [jpolloc@bgsu.edu](mailto:jpolloc@bgsu.edu)

**Cost:** \$350 with technology included, \$300 without technology

**Register:** <https://education.ti.com/en/professional-development/teachers-and-teams/summer-workshops/leverage-ti-84-act-bowling-green>

## STEM-related Lessons and Ideas Conference!

The STEM Education Center at Cleveland State University in collaboration with the Ohio STEM Learning Network (OSLN) would like to invite you an exciting two-day conference!!

We are very pleased to offer you the opportunity to engage and learn with other K-12 educators with hands-on, interactive STEM-related lessons and ideas for each of the K-4, 5-8, and 9 -12 grade band levels. There will be something for everybody!

**When:** June 12 10:00 am - 4:15 pm

June 13 9:00 am - 2:30 pm

**Where:** Cleveland State University - Wolstein Center

**Conference Registration Cost:** \$30

Registration cost will cover breakfast, lunch and parking for both days.

**Conference registration will close May 15.**

Please see link below for more information:

<https://www.campusce.net/csucasal/course/course.aspx?C=1409&pc=17&mc=&sc>

## GROW NEXT GEN New Summer Workshop



The Ohio Soybean Council is partnering with [CIFT, the Center for Innovative Food Technology](#), to bring you a great new summer workshop called [Experience Food Science: Field to Package](#). This workshop, sponsored by the Ohio Soybean Council and CIFT with a grant from [AgCredit](#), will allow teachers to experience the research, development, processing, packaging and distribution of food products that are safe and secure.



For more information: [https://grownnextgen.org/news/our-new-partner-brings-a-lot-to-the-table?mc\\_cid=a897e9bde8&mc\\_eid=7be753003a](https://grownnextgen.org/news/our-new-partner-brings-a-lot-to-the-table?mc_cid=a897e9bde8&mc_eid=7be753003a)

## State Science Day

### *Ohio Academy of Science State Science Day Needs Volunteer Judges*

The Ohio Academy of Science takes place Saturday, May 11, 2019, French Field House at The Ohio State University, Columbus, Ohio. Now in its 71st year, State Science Day remains one of the largest fairs in the country! Nearly 1,200 students will compete for \$500,000 in sponsored awards and scholarships. This event is the pinnacle of student-focused, inquiry-based science research and underscores the need to "practice" science and learn to build prototype solutions. For more complete information, please visit: <http://www.ohiosci.org/ssd-judge/>

THE OHIO ACADEMY  
OF SCIENCE



**This event requires approximately 600 judges.**

Judge Registration is through STEM Wizard, please visit: [https://statescienceday.stemwizard.com/public\\_site/judge\\_register](https://statescienceday.stemwizard.com/public_site/judge_register)

## BGSU Planetarium BG FEST 2019

BG-Fest 2019 is a festival of classic Planetarium shows running through the third week of May. The Planetarium is in the Physical Sciences Building. A \$1 donation is suggested.

Show times are 7:30 p.m. Sundays, 8 p.m. Tuesdays and Fridays, and 2 p.m. Saturdays, except for special children's shows.

- April 14-20 "Dinosaur Light," a unique trip out in space and back in time
- April 21-27 "Alphabet Universe," an astronomical sampler with a bit of everything
- April 28-May 4 "Is This the End of the World?" an astronomer's look at the "end of the world"

For more information: <https://www.bgsu.edu/arts-and-sciences/physics-and-astronomy/bgsu-planetarium.html>



## Ohio Elementary STEM Educators

The Ohio Elementary STEM Educators' mission is to build a collaborative network of educators who share the vision of promoting the integrated study of STEM in every K-6 classroom. Please consider joining this network of

teachers to share resources and ideas.

Please see: <https://openspace.infohio.org/groups/ohio-elementary-stem-educators/8/>

## Battelle and Ohio STEM Learning Network Announce "Greater than STEM" Podcast Opportunity

### Greater Than STEM transcript of Episode 1: Ocean Pollution

Greater Than STEM is a new podcast that tells the story of one student solving one problem. We learn why it matters to them, why it should matter to us, and what we can all do to help. With some help from an expert in the field, we tackle topics like ocean pollution, foster care, and food insecurity in about 20 minutes. STEM students and professionals agree: to solve real-world problems, it takes more than good grades in four subjects. Tune in to the first four episodes the first Monday of every month. This is in combination with the Greater than STEM essay contest:

<https://www.osln.org/2019/04/2019-greater-than-stem-essay-contest-for-students/>

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## NWO STEM Activity

### Explore Your Soil

*In honor of Earth Day on April 22, below please find a hands-on activity to Explore Your Soil. This activity is brought to you by the St Ursula Academy STEM Club*

#### What You Need

- Transparent (see-through) jar with lid
- \* ½ jar amount of your soil
- \* Water
- \* Sponge
- \* Sun or oven
- \* Flashlight (Optional)



#### What To Do

See how water separates soil particles (Part A) and how a sponge can model the way water behaves in soil (Part B).

#### Part A: Exploring Your Soil

1. Scoop up a ½ cup of soil from your garden or yard and place in a clear jar that has a lid, like an empty peanut butter container or jam jar.
2. Mark the level of the soil with a marker, piece of tape or a post-it note. Add water with a spoon

several times and see if the level of the soil goes up.

3. Add more water starts until the jar is about  $\frac{3}{4}$  full. Put the lid on the jar and shake up the water and soil. Put it down on the counter to watch it settle into layers. Use the flashlight to see better.

### Part B: Sponge Model of Soil Moisture

1. Dry a sponge in the hot sun or in a low-temperature oven (~100 degrees) until it dries out
2. Place the sponge in a shallow bowl. Pour water on your dried sponge to see how much water it can hold before making a puddle.
3. Pour more water until the water level just covers the sponge.
4. Push your fingers on the sponge. Look for bubbles
5. Pick up the soggy sponge and carefully squeeze the water out into a measuring cup.
6. Feel the sponge for dampness.

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

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