

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



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**Ohio Students Once Again Fare Well at National Junior Science and Humanities Symposium**



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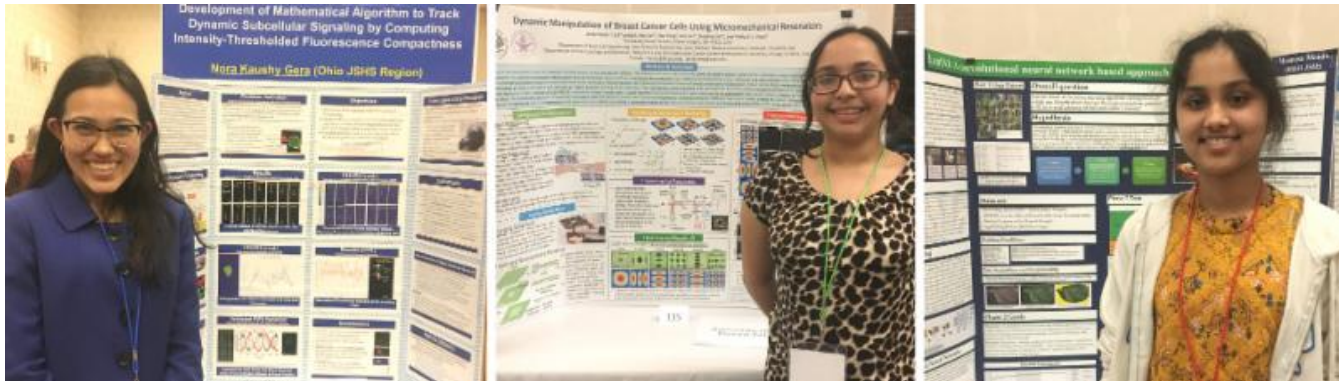
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The National Junior Science and Humanities Symposium (JSHS) is a Department of Defense (DoD) - U.S. Army, Navy and Air Force - STEM competition that brings together 230 high school students who qualify for attendance by their top performance at 47 regional symposia held on university campuses nationwide, in Puerto Rico, and in cooperation with the DoD Dependents Schools in Europe and the Pacific. JSHS encourages high school students to conduct original research in STEM and aims to prepare and support students to contribute as future scientists and engineers on behalf of or directly for the Department of Defense or to advance the nation's scientific and technological progress. The National JSHS was held in Baltimore in May, with students competing in both oral and poster research presentations. The event offered unique activities for JSHS participants which included:

- "DoD STEM Experiences," a session that allowed students and teachers to engage with DoD's world-class STEM professionals and provided exposure to the Department's cutting-edge research and technologies;
- Tours of U.S. Army Research Laboratory, U.S. Army Medical Research Institute, Walter Reed Army Institute of Research, Johns Hopkins Applied Physics Laboratory and others;
- Opportunities to attain a sense of achievement and self-confidence resulting from interaction with students from other schools and regions and with professional researchers and educators
- The Banquet and Awards Ceremony that featured recognition for all participants and the announcement of undergraduate, tuition-based scholarships awarded to 24 students in eight categories of National JSHS competition.



Five students from the Ohio JSHS earned the all-expense paid trip to National JSHS by placing in the Ohio region; Symposium held at Bowling Green State University on March 14-16.

The JSHS Program is a collaborative effort between the research offices of the United States Departments of the Army, Navy, and Air Force, the Academy of Applied Science, and leading research universities throughout the nation. The Department of Defense generously provides funding for the National Symposium and JSHS scholarships.

Four of the five students from Ohio won awards at the national competition:

**Oral research /Bioengineering; Behavioral Science**

1st place: Suraj Srinivasan - Strongsville HS, \$12,000 scholarship

"Development of a mosquito inspired insertion guide to prevent flexible intracortical microelectrodes from buckling during implantation

**Oral research/ Medicine and Health**

3rd place: Aru Goel - Sylvania Southview HS, \$4,000 scholarship

"Platelet Releasates Kill *C. albicans*"

**Poster /Mathematics and Computer Science**

1st place: Maanasa Mendu - William Mason HS, \$300

"LeafAL: A Convolutional Neural network based approach to plant disease diagnosis"

**Poster/ Biomedical**

3rd place: Nora Gera - Sylvania Northview

"Development of Mathematical Algorithm to track dynamic subcellular signaling by computing intensity thresholded fluorescence compactness"

For more information on JSHS and a complete list of winners, please visit: <http://www.jshs.org/about.html>. Ohio will hold the annual JSHS competition in March of 2019.

**Community STEM in the NEWS****Urban agriculture classes give TPS students a hands-on education**

By JAVONTE ANDERSON | BLADE STAFF WRITER

Photo credit: The Blade/Amy E. Voigt



Shaylin Jenkins grabs a water wand and showers a row of plants where leaves of coleus sprout from the plots in vibrant shades of scarlet, gold, and green.

"This is my home," she said.

The 16-year-old Start High School student spends most of her weekday mornings in the greenhouse where she studies urban agriculture.



Students from Toledo Public Schools take agriculture courses at the Natural Science Technology Center in South Toledo.

The two-year program is offered to juniors and seniors, and students can take classes in urban agriculture, animal care, wildlife and sustainability, and natural resources.

"We believe that we are turning out the next generation of stewards of the planet," instructor Bryan Ellis said. "We also believe that we are turning out responsible farmers and agricultural-minded scientists."

On a recent May morning, the sun has penetrated the glass panes of the greenhouse illuminating the colorful foliage.

Students are preparing for an upcoming plant sale.

The dirt residue on Shaylin's jeans ascends to her calves from her mixing up the soil with her feet.

"Granted, yes the work is hard. But it's good work, and it's fun work."

Students are scattered throughout the four greenhouses plantings seeds, watering flowers, and tending to the fish. Outside of the greenhouses are a host of animals - goats, pigs, chickens, rabbits, and a duck.

Whether in the greenhouse or outside with the animals, all the students are engaged. Students not only take care of plants, but also grow tomatoes, parsley, and other vegetables. The students are also learning about hydroponics - the process of growing plants without soil.

It's an unconventional school setting where the majority of the learning happens outside the classroom. Randi Hager, a 16-year-old Start High School student, said the program is one-of-a-kind.

"I like being able to learn hands-on," she said as she cradled a chicken in her arms.

"It's not like other classrooms where we sit and do lectures all day. We get to actually see what we're learning." Students not only learn how to grow and produce their food but go from beginning to end of a final product, something Mr. Ellis said is vitally important.

"They can see it, they take pride in it, and they have ownership of it," he said.

Instructor Laura Kubiak said her students focus on keeping the environment healthy and sustainable.

This school year her students have been testing water sources in northwest Ohio, and preparing to reintroduce Northern pike into Sandusky Bay.

"Hopefully they go into careers where they're finding solutions for our environmental problems," she said. "It's important students feel empowered and work to make our world a better place."

*This article is shared with permission from the Toledo Blade*

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## STEM Opportunities

### Code 4 her Computer Science Summer Camp for High School Girls

Brighten up her summer with this exciting, immersive day camp exposing her to various aspects of computer science from circuit boards to programming.

This camp is for rising **9th - 12th grade girls**. In addition, she will explore the BGSU campus and get a feel for being a college student.

Register today at <http://bit.ly/CODE4herSummer>



### Imagination Station "Let's Build" Summer Camp

Design, construction and playful exploration are part of the world. Campers will transform cardboard boxes into something extraordinary. From constructing space suits to vehicles, the possibilities are endless.

Campers receive:

- Daily instruction, 9am - 4:30pm
- Extended day available from 8am - 5:30pm at no additional cost
- Take home activities
- Camp T-shirt
- 2 snacks daily
- 4 complimentary admission tickets to Imagination Station's Extreme Science Demo on Friday, June 8

Age: Campers must be ages 6 - 13

Call **419.244.2674 ext. 250** for more information or go online at:

<http://imaginationstationtoledo.org/workshops-camps/summer-camp/off-site-summer-camp/bowling-green-science-camp>



## Google Education Updates

### G Suite Enterprise for Education: Now Available

G Suite Enterprise for Education is a new edition of G Suite for Education that offers additional enterprise-grade capabilities designed for large institutions and customized for education.

Learn more: <https://goo.gl/Mv6MPZ>



## The Toshiba America Foundation

The Toshiba America Foundation is accepting applications from teachers in **grades 6-12** who are passionate about making science and math more engaging for their students.



Proposals for grants of up to \$5,000 or less will be accepted on a rolling basis. However, the foundation considers larger grants twice a year - on August 1 and February 1. Summer projects or afterschool programs will not be considered, nor will grant proposals for salaries, facility maintenance, the purchase of textbooks, video production, audio-visual equipment (e.g., electronic whiteboards, Smartboards, document projectors, student response systems), and education research.

For more information, please see the website at: <http://www.toshiba.com/taf/612.jsp>

## GLOBE Mission EARTH Professional Development

### GLOBE Mission EARTH (formerly known as SATELLITES)

**Who:** Career Tech Education Teachers (grades 7-12)

**When:** June 11-June 15, 2018, 8:00 am to 5:00 pm each day

**Where:** The University of Toledo, Main Campus



Teachers will learn how to use kites to collect environmental observations through the GLOBE Program and then create a visualization of the data. They will receive additional GLOBE training in the protocols and connections to NASA resources applicable to their classroom.

If you have any questions, please contact Janet Struble at [Janet.struble2@utoledo.edu](mailto:Janet.struble2@utoledo.edu)

UT phone: 419-530-4120

Website: <https://www.facebook.com/globemissionearth/>

## Future City

Future City engages young minds and helps them develop 21st-century skills by applying math and science concepts to real-world problems. Here's your chance to participate in Future City 2018-2019 for free-and share a free registration with a friend!



Use promo code **CITY2018**, and ask a colleague to do the same. This code may be shared with educators, after-school program leaders, and other stakeholders.

Participation includes:

- Free registration for Future City 2018-2019
- Free registration for your friends using the same code
- A free handbook (a PDF and, upon request, a hard copy)
- Invaluable tools you need to build your students' critical thinking skills!

<http://discovere.org/register-for-future-city/>

## Free Professional Development

### Feed the World summer workshop



How is science contributing to the future of global food and energy security? Learn how advancing technologies help produce more with less. Educators can take part in inquiry-based, hands-on science labs with an engineering design edge covering these topics:

- Biotechnology
- Soil science
- Water quality
- Energy production
- Sustainable agricultural practices

These lessons address Ohio Science Standards in Middle School and High School.

**June 13 & 14 in Findlay.** Register at [ohiocorneducation.org/upcoming](http://ohiocorneducation.org/upcoming).

## Free Ag Biotech Academy Summer Workshop

**How can ag biotechnology contribute to food security?** Participate in this summer workshop to learn about the latest seed research and the impact of environmental issues and sustainability, participate in hands-on biology/chemistry labs, meet industry experts, tour an industry site, and get free classroom materials. Hotel and food costs are covered by the Ohio Soybean Council and DuPont Pioneer. Ashland graduate credit is available.



Learn biotech skills and how they are incorporated into agriculture, food science and biofuels. Industry speakers will emphasize the use of biotechnology tools in agricultural research and development. Each teacher will receive over \$300 worth of classroom lab supplies and 18 hrs of contact time.

**June 26 & 27 in Springfield, Ohio.** Register at [grownextgen.org/events](http://grownextgen.org/events)

## Tech in Ag Summer Workshops

### Free workshop for MS/HS science teachers

This workshop is sponsored by an OSU NIFA grant. By participating in this summer workshop educators will see the latest technology on farms such as auto-steer tractors and crop sensors, learn how farmers are using data to make sustainable decisions and hear about current research projects in agriculture at The Ohio State University. Activities include field and lab work. Each teacher will receive ready-to-use modules and access to a set of crop sensors for classroom use.

**July 9 & 10 in Columbus; July 23 & 24 in Custar**

Register at [grownnextgen.org/events](http://grownnextgen.org/events) or [ohiocorneducation.org/upcoming](http://ohiocorneducation.org/upcoming).

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## NWO STEM Activity

### A Swing and a Miss: The Mathematics of Baseball

*This month's STEM activity is an introduction to human reaction times and their role in hitting baseballs and brought to you by Rachel Clink.*

**Grade Level: 4-9**

#### What You Need:

- Ruler (one for each team of 2 students)
- Table to record student information



#### What To Do:

1. Divide the students into pairs. One student holds the ruler by its end between the other student's separated thumb and index finger. (Make sure the ruler is facing the same way for each attempt.)
2. The student releases the ruler and both carefully measure at what increment the second student is able to catch the ruler.
3. Do this ten times and calculate an average "time" (the inch or centimeter mark where the students caught the ruler).
4. All teams then share their data to find an average value for the entire class, for boys only, for girls only, or other parameters. Graph results in a scatter plot.

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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