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BY ALEXANDRA MESTER BLADE STAFF WRITER

Photo credit: The Blade/Amy E. Voigt

A good idea and months of hard work brought thousands of dollars to St. Ursula Academy.

A five-member team from the school's Science, Technology, Engineering, and

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## **NWO STEM Activity**

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Mathematics - or STEM - Club was named one of eight first-place winners earning \$15,000 last month in the Lexus Eco Challenge, a national competition for high school and middle school students tackling environmental issues.

"I think that it's really important for people to not underestimate high-schoolers," senior Maddie Kramer of Toledo said. "We have important work to be done, and we're gonna be the generation to get it done."

The all-female team, dubbed the "Soil Savers," includes Miss Kramer, senior Faith Carroll of Whitehouse, junior Hannah Haselhuhn of Ottawa Hills, senior Nuurah Parsons of Toledo, and senior Sara Taite-Trail of Toledo. They chose to examine how to repurpose dredge material removed from rivers to clear shipping channels and often deposited in Lake Erie. Recent legislation will soon forbid dredge material from being dumped in the lake.

The team won \$10,000 and one of 16 spots in the finals by growing radish plants in dredge material and local soil to show the plants grow well in both.

For the finals, they researched using dredge material to create a treatment wetland - a man-made wetland designed to filter phosphorous, bacteria, and sediment from runoff to the rivers and tributaries that feed Lake Erie. The ultimate goal is to help reduce and prevent potentially dangerous algal blooms in the lake.

"Our greatest role in this endeavor was to communicate this as a viable solution to the problem," teacher and club adviser Jackie Kane said. "We've had feedback from around the world."

The team consulted with the University of Toledo's Daryl Dwyer and doctoral student Ryan Jackwood, who are researching treatment wetlands using the man-made Wolf Creek Wetland at Maumee Bay State Park. They built a working model and contacted local, state, and national leaders about their idea.

"I think a lot of researchers in our area, who are already researching wetlands, are interested in considering the possibility of using dredge material to create them," Miss Haselhuhn said.

The combined \$25,000 in winnings has been divvied up between the students, Mrs. Kane, and the school. The students said they will use their winnings for college expenses, while Mrs. Kane said her funds and those awarded to the school will be reinvested in her classroom and the club.

Two grand-prize teams were awarded \$30,000 in the finals.

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

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## **Community STEM in the NEWS**

## Army Educational Outreach Project Offers Students Amazing Opportunity

A new grant program with the Army Educational Outreach Project (AEOP), where faculty and staff from Bowling Green State University's School of Teaching and Learning and the Northwest Ohio Center for Excellence in STEM Education worked with amazing, committed teachers and students in three schools in Toledo Public Schools. The participating schools were the Natural Science and Technology Center, Rogers High School, and the Toledo Technology Academy. The program provided funding for research supplies, professional development for teachers, and training for students. This elevated the students' capacity to create and conduct research projects that were suitable for presentation at the Ohio Junior Science and Humanities Symposium (OJSHS), a top tier symposium annually held at Bowling Green State University (BGSU). Under the guidance of BGSU faculty Dr. Emilio Duran, Associate Professor and Dr. Jodi Haney, Professor Emeritus, five teachers participated in workshops to learn the mechanics of what it takes to guide their students to create a research project of symposium caliber and forty-four high school students presented their projects at OJSHS.



The AEOP, in collaboration with Battelle, awarded grants to three organizations and institutions to expand student participation in enriching STEM exploration and learning, particularly for underrepresented students. AEOP offers students and teachers Army-sponsored programs that effectively engage, inspire and attract the next generation of STEM talent. The NWO project enabled the students to conduct real scientific research using the latest technology, analyze data, and present their work, gaining not only confidence and presentation skills, but research skills as well

The results were extremely positive with forty-four Toledo Public Schools students delving into research projects that included exploring water quality in Lake Erie, researching drone usage in agriculture, and examining the rate of quail growth, among others. The students presented their results in a poster showcase at OJSHS, and received praiseworthy critique and feedback on their work from a panel of judges. One student stated, "***This project is the one thing I've worked on the hardest my entire life and gave my senior year of high school meaning. It has changed my life.***" This same student and her teacher, Laura Schetter, arranged for a Skype



call with a NASA scientist who "pumped her up to take her project to the next level". Ms. Schetter went on to say, "This grant laid the groundwork to teach inquiry-based learning in a real world, hands-on, student-led format. The students I mentored took immense pride in both the completion and presentation of their projects. They improved their skills in research, presentation and public speaking. This gave them the opportunity to learn and utilize new technology." This project also laid groundwork to participate in more research symposiums. Two students will present at the Regional GLOBE Symposium at the University of Toledo, five at the GLOBE Midwest Research Symposium at Purdue University, and one in the GLOBE Virtual Science Symposium.

Schetter continued, "This was truly an experience that they would not have had otherwise. My students walked away from this experience feeling as though they had accomplished some very important science, and many of them are looking ahead to what they might do next year. From seeing their posters in print for the first time, to nervously anticipating the judging and then walking away feeling validated as science students, the experience was overwhelming. The work that we did in class was just that to them, more work that we were doing in class. That they were able to then come to this event and participate in a true science symposium made them finally see that what they were doing was so much more than school work. They were doing, thinking, and participating in science. Without the funding for materials and posters and the trip to BGSU; none of this would have meant the same to these students. More than that, they returned from this day discussing and excitedly anticipating college and a future of learning. ***That, is priceless***".

Audrie Hunt, a student who worked on a comparative water quality index exclaimed, "I thought it was a great opportunity and will be for anyone! The part I loved the most was working with people."

Dr. Duran, who also serves as the longtime director of OJSHS, always had the goal of including more students in the symposium. "We were thrilled with the results of these students' work and their amazing commitment to their projects. We hope we can offer this opportunity again next year. We are so proud of their work and achievements, as well as their enthusiasm! Many have said they will participate again next year, which makes it so worthwhile for us."



Through AEOP's suite of programs, which includes OJSHS, students from elementary school to college, representing all proficiency levels and ethnic, economic and academic backgrounds, participate in real-world experiences involving STEM disciplines. Scientists, technology experts, engineers and mathematicians, who act as mentors and guides, introduce students to the various opportunities in STEM fields through hands-on experiences and provide advice for technical skill development and career planning.

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## STEM Opportunities

### Society of Women Engineers "Hidden Figures" Giveaways

Every student needs to know the story of how "female computers" helped win the space race and put the first astronaut into orbit. The successful Hollywood movie "**Hidden Figures**" tells the untold story of these pioneering STEM women putting it in context of gender, race and professional roles. New teacher resources that harness the storytelling power of film are now available to broaden your students' world view of women in STEM that include vital life lessons in confidence, structural equity and academic excellence.



Designed primarily for social studies, the Journeys in Film free "**Hidden Figures**" teacher curriculum guide also includes two STEM lessons: (1) "Math of Space Travel" using geometry of orbits, scientific notation, and conic sections; and (2) "Computers Come of Age"

using physics and programming. All lessons are integrated into Common Core Math and Next Generation Science Standards. Please visit: <http://mailchi.mp/journeysinfilm/hiddenfigures>

Also, tell the untold story of the vital role women played in STEM history to your entire school. U.S. high schools, or educational establishments that include any of the grades 9 to 12, can obtain **one free complimentary** "Hidden Figures" movie DVD. <https://www.foxconnect.com/hiddenfiguresdvd>

## LEGO® Education Grants

When finding a grant opportunity, contact the appropriate LEGO® representative in your area

at: <https://education.lego.com/en-us/support/local-sales-rep> and ask to be

sent information to include in the grant application (i.e. standards addressed, quote on LEGO® Education letterhead, sample lesson, how it will help achieve outcomes). All software, curriculum, and E-Learning is now available for download at no charge. Please review the software and curriculum for all of the kits here: <https://education.lego.com/en-us/downloads>



## Woodland & Wildlife Educator Workshop!

The OSU Mansfield campus is situated on over 600 acres of woodlands with unique features such as wetlands and a diversity of plants and animals. Their goal is to provide information and activities (to use inside and outside of the classroom) that will help teachers to educate youth about Ohio's natural resources.

The workshop will focus on utilizing the amazing Project Learning Tree guides to explore:

- The status of Ohio's forests
- Wetlands and amphibians
- Climate and its impact on forests and wildlife
- The impacts of invasive species



Attendees will receive the Project Learning Tree Pre K - 8th grade Activity Guide, an additional activity guide for high school students, and access to the NEW Project Learning Tree E-Units (web-based curriculum guides).

**Price for this workshop:** \$60/person

<https://goo.gl/ejM09Q>



The **INFOhio Annual Boot Camp** is a launchpad for student learning! It's one day where INFOhio can provide sessions that will help teachers prepare to launch into the new school year. With keynotes on "Blended with a Media Twist" and "Using Digital Tools for Deeper Learning," along with other great sessions, teachers will be encouraged and confident utilizing the information and resources you need to help students "moon walk" their way to success.

Join in on **August 1, 2017**, beginning at **8:30 am**, for an out-of-this-world experience. Keep a look out for more information this summer as more details are posted about Boot Camp. Stay informed by signing up for the INFOhio iON Newsletter at <https://www.infohio.org/events/stay-connected>.

## Ohio Sea Grant and Stone Lab

Ohio Sea Grant and its partners offer a wide range of science curricula resources and information to classroom teachers for free about the Great Lakes, Climate Change, Solar Energy and other topics. Please visit the website at:

<http://ohioseagrant.osu.edu/education/resources>



## **A solar eclipse is coming August 21, 2017 A spectacular teaching opportunity!**

On Monday afternoon, August 21, millions of people across the United States will see nature's wondrous spectacle - **an eclipse of the Sun!** A total eclipse is a scene of unimaginable beauty; the Moon completely blocks the Sun, daytime becomes a deep twilight, and the Sun's corona shimmers in the darkened sky.

The total eclipse will not be visible from northwest Ohio, but we will see 80-90% coverage of the Sun during school hours. The Appold Planetarium has resources to help you make the most of this spectacular teaching opportunity:

- Planetarium shows to explain the science behind solar and lunar eclipses, with age-appropriate explanations and simulations. \$3 per student, \$4 per adult, with one free adult admission for every ten students. Our weather is always perfect!
- Eclipse glasses to view the sun safely, \$1 per pair.
- Free teacher resources on our webpage at [www.Lourdes.edu/Eclipse](http://www.Lourdes.edu/Eclipse)

For more information contact the Appold Planetarium \* 419-517-8897 or by email at [planetarium@lourdes.edu](mailto:planetarium@lourdes.edu)



**The National Academies of Sciences, Engineering, and Medicine's Board on Science Education** is hosting a public workshop on instructional materials to support the Framework for K-12 Science Education and the Next Generation Science Standards. The **two-day workshop** will take place **June 27 and 28** in Washington, D.C

For more information visit: <https://goo.gl/Lqxul9>

## Summer Learning Day

**National Summer Learning Day** is a national advocacy day aimed at elevating the importance of keeping kids learning, safe and healthy every summer, ensuring they return to school in the fall ready to succeed in the year. Your participation sends a powerful message across the nation that summers matter and offers an opportunity to showcase how summers can make a life-changing difference in the lives of young people.

<http://www.summerlearning.org/summer-learning-day/>



ASEE's annual Workshop on PreK-12 Engineering Education is a full day of authentic hands-on activities, networking opportunities, and curriculum sharing that teachers can immediately use in their classes. As state science consultants and educators, you understand the power of engineering to engage students and inspire deeper learning. This workshop offers teachers an opportunity to engage in similarly exciting open-ended challenges on topics ranging from wind harvesting to wearable tech.

There are 36 breakout sessions in total, most taught by engineering faculty from around the country, culminating in a curriculum exchange. Several sessions may be of particular interest to elementary teachers, including Novel Engineering (literacy & STEM), and Squishy Circuits, a design challenge that uses play dough to teach about electrical circuits. High school sessions include equity in project-based learning and precollege experiences that support success in first-year engineering.

**When:** Saturday, June 24

**Where:** Columbus Convention Center, Union Ballroom (and rooms A110-120)

**Time:** 7:30 a.m. - 5:00 p.m.

**Cost:** \$35 for PreK-12 teachers who are ASEE members; \$75 for teacher non-members (includes 1-year membership in ASEE and P-12 Division)

Here's the link to Register:

<https://www.asee.org/conferences-and-events/conferences/k12-workshop/2017/registration>



## Amplify learning with the integration of Google Apps For Education (GAPE)!

Join ITSCO Instructional Technology Services of Central Ohio) as they explore Google tools that focus on the core areas of 21st century learning skills: creativity, critical thinking, communication, and collaboration. The fun will include hits such as Drive, Mail, Calendar, Hangouts, Sites and so much more.



Learn more at [itscopd.org/52](http://itscopd.org/52)

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## NWO STEM Activity

*This month's Hands-on Activity is from Lourdes University*

### Static Electricity Balloon Experiments

#### What You Need

- 2 balloons
- Light string, thread, or curling ribbon
- Wool fabric (socks, mittens, or sweater)
- Gift tissue paper
- Aluminum can (empty, on its side)



#### What To Do

1. Blow up the balloons and tie a light string to each
2. Hold a balloon by the string (it should be hanging down) and bring the balloon close to each of the materials (the second balloon, the tissue paper, and the aluminum can). Observe what happens next to the second balloon, next to the tissue paper, next to the aluminum can.
3. Rub both balloons onto your hair or onto the wool fabric.
4. Hold a balloon by the string and bring the balloon close to each of the materials. Observe what happens. You may have to rub the balloon on your hair or wool again after a few minutes.
5. Bring the balloon close to a stream of running water from your kitchen sink. Make observations.
6. What can you conclude after looking at your data?

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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