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K-16 STEM in the NEWS**Robotics Competition for Elementary Students Held at BGSU**

On Saturday, January 10, over 300 fourth through eighth graders from the northwest Ohio region and beyond competed in the the FIRST® Lego League district robotics tournament at Bowling Green State University. This event was partly sponsored by the Sylvania STEM Center, a nonprofit educational science center. The theme was "Trash Trek", and projects included production of websites and five-minute educational videos on improving ways to dispose of trash while utilizing Lego robots.



The competition involved 3 facets that 18 teams worked on prior to the intense contest:

1. Project Innovation: Teams identified a problem related to trash, developed a solution for it, and presented a marketing plan on how to share it with the community.
2. Robot Design: The teams built an EV-3 "Mindstorms" robot and practiced "missions" on a competition board. Each team's robot design, strategy, and programming were judged.
3. CORE Values: This portion focused on how the team collaborated to solve a problem and how team members contributed to their teams.

The program was created by the Lego Company and FIRST (For Inspiration and Recognition of Science and Technology), a nonprofit organization founded by entrepreneur Dean Kamen. Six of the 18 participating teams advanced to the state tournament to be held in February at the Nutter

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Community STEM in the NEWS

Teacher Honored for Ecology Efforts

Water district cites mentoring, leading conservation projects

BY KYLE ROWLAND
BLADE STAFF WRITER

A local teacher who has been a catalyst in the Toledo area's environmental education has been honored for her efforts. Michelle Bogue, an environmental sciences teacher at Sylvania's Northview High School, has received the 2015 Conservation Educator of the Year award from the Lucas Soil and Water Conservation District. The award recognizes several of her projects with students, including

Center on the campus of Wright State University in Dayton. All teams had to qualify for Saturday's event by placing at a regional tournament held last month.

According to their website, the Sylvania STEM Center is a regional gathering place for STEM education and exploration, and was born out of a small elementary school robotics program. Teacher and parent Crystal



Burnworth introduced extracurricular STEM education to the Sylvania Schools district through FIRST® LEGO League programs. Teams quickly expanded as interest grew, opening up opportunity for more and more students throughout Sylvania City Schools.

Sylvania STEM Center is open to all public, private and homeschool

STEM-based teams throughout northwest Ohio and southeast Michigan. Individuals interested in joining a team can contact the center at: <http://www.sylvaniastem.org/>.



- Running Northview's recycling program in cooperation with Keep Toledo-Lucas County Beautiful
- Collecting data for 18 years from Ten Mile Creek as part of the Toledo Metropolitan Council of Governments' Northwest Ohio Student Watershed Watch Program
- Mentoring teams of students to participate in the Ohio Federation of Soil Water Conservation Districts' Area 1 Envirothon, and
- Helping students prepare research projects for the district and state science fairs.



"I am quite honored by the Conservation Educator of the Year Award," Ms. Bogue said, "knowing the company that I keep in receiving the award. I admire many of the past recipients and all that they have done bringing environmental awareness into their students' lives. I am happy to follow in their footsteps in helping Sylvania students be more aware of their impact on the environment and working to make changes for the better in their community."

Ms. Bogue is active in the Green Ribbon Initiative, giving input for lesson plans about the Oak Openings Region. For seven years she has worked with the University of Toledo and the National Science Foundation in a land-lake ecology collaboration, bringing graduate fellows into the her classroom to work with high school students on research and ecology issues in the area.

She also brought an Advanced Placement environmental science course to the Northview curriculum. The course focuses on research and teaching students about ecological health.

Among the targets of Ms. Bogue's student projects has been the emerald ash borer, an invasive beetle native to Asia that has devastated ash trees in southeast Michigan and northwest Ohio since its discovery in Michigan in 2002.

Northwest Ohio parks have battled the bug for a decade, and Ms. Bogue's students helped design and unveil a sign at Harroun Park, near the banks of the Ottawa River, to help educate visitors on the ash borer. More than 1,000 white ash trees were removed from the 26-acre park after becoming infested.

"Michelle's skill set and passion nicely blends a combination of teaching young people how to conduct academic research while instilling in them a love for science and respect for our planet," said Northview principal Steve Swaggerty.

Ms. Bogue has been at Northview for 18 of her 21 years. She also spent three years at Toledo Public Schools in the floriculture /greenhouse-management program of what is now the Natural Science Technology Center. "Michelle's love of science and caring nature towards her students is reflective of why she received the Teacher of the Year award," Sylvania Superintendent Scott Nelson said.

Photo:

Michelle Bogue, an environmental sciences teacher at Northview, received the 2015 Conservation Educator of the Year award from Lucas Soil and Water Conservation District.

This article reprinted with permission from The Blade

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STEM Opportunities

Ohio JSHS

Registration for the Ohio Junior Science and Humanities Symposium is now open and will once again be hosted by **BGSU on March 16-18**. This program is sponsored by the United States Army, Air Force, and Navy and is annually hosted by BGSU. During the Symposium, the students will present their research and have the opportunity to interact with their peers and with BGSU's distinguished faculty. This competition brings some of the most accomplished and remarkable high school students in the state to present and celebrate their amazing research accomplishments with their peers, faculty, families, and friends. A total of \$4,500 in undergraduate tuition scholarships is awarded, and five students will receive expense-paid trips to compete in the national competition.



Registration information is available on our website at: http://cosmos.bgsu.edu/nwo_ojshs/.

BiG FAB LAB

The BiG FAB LAB in Bowling Green has many opportunities in January. Here is a sampling of the some of the upcoming offerings. Please consult their website for more information at: <http://bigfablab.com/>

- Jan 18:** Intro to Laser Engraving and cutting
- Jan 19:** Intro to MIG Welding
- Jan 21:** Intro to Laser Engraver Rotary Attachment



The Math in ACTION Tutoring Hub

The High School **Math in ACTION Tutoring Hub** will be available to ALL students taking high school Math courses such as Pre-Algebra, Algebra I, Geometry, Algebra II, Pre-Calculus, Calculus, Statistics, or any other Math course your school offers.



When:
Mondays - Thursdays:
3:30-10 p.m.
Sundays: 4-9 p.m.
Where:
BGSU's Main Campus



Olscamp Hall Room 120

Contact Information:

419-372-1493

rhack@bgsu.edu OR

llapp@bgsu.edu

FREE Online Tutoring Via SKYPE. Call for more information: **(419) 372.1493**

You Be the Chemist Challenge

The Chemical Education Foundation has announced that registration for the annual **"You Be the Chemist Challenge"** is now open. This interactive academic contest tests students in grades 5-8 on their knowledge of chemistry concepts, their real-world applications, and other topics that are included in standard science curriculum.

Participating schools have the opportunity to receive national recognition, scholarships, and prizes. The program grows each year and last year involved 34 states and 40,000 students.



Registration closes on **February 15, 2016** and more information is available at: <http://www.chemed.org/state/ohio/>. The date of the northwest Ohio competition is yet to be determined but will be announced soon.

ASSET STEM Education STEM Scholarship Program

This program, which has served more than 275 educators and 7,600 students since its inception, provides hands-on STEM classroom materials and educator professional development to underfunded schools and educational organizations. Any school district, private or charter school or educational organization may apply for a scholarship.



Apply today on ASSET's website: <https://assetinc.org/stem-resources/stem-scholarship>

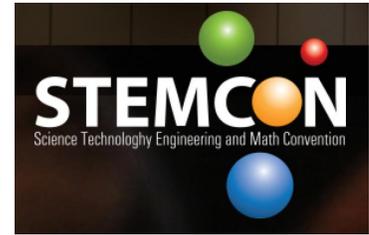
2016 Tennessee STEM Innovation Summit

May 17-18 in Nashville, TN - Early bird registration is now open. The Innovation Summit features interactive learning sessions designed to stimulate participants' thinking around a broad range of strategies used to integrate STEM in the classroom. The learning sessions are intended to provide attendees opportunities to interact with educational leaders and practitioners that are seeing success with STEM practices designed to raise student interest and achievement in STEM education.

<http://thetsin.org/summit/>

STEM CON 2016

The STEM Conference is designed so that participants return to classrooms with a toolkit full of new and tested strategies for offering better and more innovative STEM education in their schools.



This year's conference tracks will include:

- Skill-Ready STEM Teachers: Teacher Preparation and In-Service Training
- It Starts at the Top: Effective STEM Education Leadership
- Starting STEM Early: Early Childhood, Kindergarten, and Elementary School, Middle School
- Post-High School Paths to STEM Careers
- Ensuring Equal Access to STEM Education and Careers for Women and Minorities
- Public and Private Partnerships: Get Help Implementing a STEM Program

The STEM Conference 2016 will take place **April 8, 2016 in Cleveland, OH**, at the Cleveland Convention Center. <http://www.stemcon.net>

The National Council of Teachers of Mathematics

Applications from prospective middle school mathematics teachers for Teacher Coursework scholarships are now being accepted.



The purpose of this scholarship is to provide financial support to college or university students preparing for teaching middle school mathematics. For 2015-16, one scholarship with a maximum value of \$3,000 will be awarded to a person currently completing his or her junior year of college or university, scheduling for full-time study at a four- or five-year college or university in the next academic year, and pursuing a career goal of becoming a certified teacher of middle school mathematics.

Visit the NCTM website for complete program guidelines, information about past recipients, and application instructions.

<http://www.nctm.org/Grants-and-Awards/Grants/Prospective-Middle-School-Mathematics-Teacher-Course-Work-Scholarships/>

American Chemical Society

Innovative Projects Grant Program

The **American Chemical Society** is seeking applications to its Local Section Innovative Projects Grants

program.

The biannual program encourages local **ACS** sections to conceive and implement innovative projects aimed at strengthening the functioning of the local section. Projects must be new to the applying local section, stimulate local section member involvement, and be pilot projects for a continuing section activity or take advantage of a unique upcoming opportunity for the local section.

Projects that support interaction with other ACS local sections, ACS divisions, ACS committees, other professional associations, or community groups are especially encouraged, as are programs that foster inclusiveness and participation of diverse section membership or segments of the general public. Award amounts will range up to \$3,000 per project.

See the **ACS** website at <http://www.acs.org/content/acs/en.html> for complete program guidelines and application instructions.

Picture-Perfect Science

Using Children's Books to Guide Inquiry, K-5

Online workshops through ZOOM video conferencing will be held on **Wednesdays, from 4:00pm-6:00 pm (PST), Feb. 10th- March 9th**. Teachers nationwide can participate in this online program!



The course supports teachers in integrating science and literacy using children's books, with NGSS aligned lessons that follow the 5E model. <http://pictureperfectscience.com>

register here: <https://pictureperfectsciencewinter2016.eventbrite.com> by **January 29th**, for \$170, which includes their choice of one eBook of Picture-Perfect Science. One (1) graduate credit is also available for \$60.

Modeling Workshops for Summer 2016

Modeling™ Instruction was developed under the leadership of Dr. David Hestenes when a high school teacher realized that his students, after successfully passing his physics class, had no genuine and deep understanding of the concepts. In the traditional physics classroom, the students are exposed to many formulas and theories and will practice solving problems. In the Modeling classroom, students will do experiments and analyze the collected data to find relationships which will be presented in graphical, mathematical and pictorial representations. The students will 'discover' the relations themselves and will have a deeper understanding of the concepts taught.

Modeling Instruction was developed for high school physics teachers and has since expanded to physical science, chemistry, biology, and middle school. Each year, Modeling workshops are held at universities and high schools across the United States. Last year, more than 60 Modeling workshops were offered to high

school and middle school teachers in more than 20 states.

For information on the 2016 Modeling workshops, please visit the American Modeling Teachers Association (AMTA) website: <http://modelinginstruction.org/>. Information on the workshops can be found on <http://modelinginstruction.org/workshops-2016/>.

As of January, 2016, two workshops in Ohio are scheduled.

Summer Teacher Seminar

REAL WORLD SCIENCE-YESTERDAY, TODAY, AND TOMORROW

How Necessity Creates Innovation in Science and Technology
July 17-22, 2016 New Orleans, LA

The National WWII Museum announces a week-long professional development opportunity to take place in the summer of 2016 for middle school science teachers. Twenty eight teachers from across the country will come to New Orleans to experience hands-on how necessity, knowledge, perseverance and skill lead to inventions, innovation, and careers in STEM, just like in World War II.

WHO CAN PARTICIPATE: The seminar application is open to any science teacher (public, public charter, private, and parochial) with between 2 and 10 years of teaching experience in 5th-8th grade science, and who will be teaching a science course to students in the same age group in the 2016-2017 school year. Applications will be evaluated through a competitive process that will include information on teaching experience, a short written statement, and two letters of recommendation.

COST: This seminar is supported by a grant from the Northrop Grumman Foundation. Teachers will receive free room and board in New Orleans, a travel stipend, and all seminar materials free of charge.
<http://www.nationalww2museum.org/learn/education/for-teachers/summer-teacher-seminar.html>

Research Forum In The Oak Openings Region

The Oak Openings Research Forum, **January 30 from 9:30 a.m. to 4:30 p.m.**, is an opportunity to catch up on a year's worth of research in the fascinating, outdoor laboratory called the Oak Openings Region. The one-day conference will be held in the McMaster Center at Main Branch Library in downtown Toledo. Toledo Metroparks is proud to partner with the Toledo Lucas-County Public Library to present this program focusing on the Oak Openings Region of northwest Ohio. http://www.metroparkstoledo.com/metro/getconnected/item.asp?item_id=6204



The DuPont Challenge Science Essay Competition grades K-5 and 6-12

Project submission consists of the creation of a PowerPoint presentation. Each presentation is comprised of visuals and text used to showcase the project. **Deadline March 1, 2016.**

<http://thechallenge.dupont.com/elementary/challenges/grade3.php>

2016 Mickelson ExxonMobil Teachers Academy

The Mickelson ExxonMobil Teachers Academy, a partnership among professional golfer Phil Mickelson, ExxonMobil, NSTA, and Math Solutions, will take place at the Liberty Science Center in Jersey City, New Jersey, in July 2016 for third- to fifth-grade teachers. Applications are currently being accepted!



This unique program provides third- to fifth-grade teachers with an all-expense-paid, week-long professional learning experience that equips them with new ways to inspire their students in math and science.

For more information and to apply to the Academy-or nominate a fellow teacher-go to www.sendmyteacher.com.

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NWO Hands-On STEM Activity

Visit the Polar Bear Capital of the World

This month's STEM Activity is from Google Classroom. Students can explore Canada's polar bear capital of the world!

[Take a Google Street View trek](#) with your students to Churchill, Canada. This quiet town, set on the shores of western Hudson Bay, is a place where polar bears and humans coexist.



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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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