

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



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K-16 STEM in the NEWS

McKinley STEMM 7th graders Advance to District Qualifier in First Lego League

McKinley STEMM 7th graders participated in the First Lego League competition during the 2019 school year, and have advanced to the Regional Competition to be held in January, 2020. During the competition they investigated a community transportation problem with TARTA (Toledo Area Regional Transit Authority), a public transit agency that has been transporting people in the Toledo area of Ohio since 1971.



Students noticed that the fixed-line buses were not working for people with disabilities. Most people with disabilities use the special paratransit (TARPS) however they are expensive to run and not always convenient for riders, because rides have to be scheduled in advance. The students were also concerned that of the over 2,400 bus stops in Toledo, only 35 of them have shelters. While working on the project, students met with the TARTA superintendent to learn more about how TARTA operates. They also met with an architect from SSOE, which is a local architecture, engineering, and

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construction management firm. Through the information gained during these meetings, students were able to design a bus stop that allows all riders, including those with disabilities, to ride a fixed-line TARTA bus rather than TARPS. Students designed a bus stop with a concrete pad and shelter to protect from the weather. These stops are equipped with a scissor lift that is buried in the ground, so people can walk over it. When the bus arrives, the driver will have a Bluetooth remote that can activate the lift. Someone in a wheelchair could easily be lifted up with the scissor jack onto the bus. Yarder Manufacturing, Hale Performance, American Manufacturing and RMF/Nooter were all sponsors for this project. Students met with representatives from these manufacturing companies on a regular basis and they worked together to build the competition table, the robot and the design of the bus stop and the scissor jack.

The ten-member team describes themselves as a "rookie" team, as each student is new to participating in the First Lego League competition. The team stated on their Team Information Sheet: "We worked hard to get business sponsors, and have invited them in to see our progress throughout the season. We loved interviewing the superintendent of TARTA and an architect from SSOE as part of our problem and solution process in the project. We are proud that we chose a project focus that affects us and so many other people. Public buses help so many people, and our bus stop design will be more inclusive to everyone."

Principal Christina Ramsey stated, "We are very excited to have made it to the next round in the competition! As a rookie team this is a really big honor for us!"

The Stranger Bots team members are Zaahir Williams, Shai'Yuan Mickels, Nevaeh Summers, Katrina Alipao, Kailynn Butts, Karynn Waites, Amiya Roberson, Kamare Galloway, Tay'Vion Price, and Tay'lah McKinley.

Coaches and mentors are McKinley teachers Cynthia Madanski, Matt Lefevre and Team Administrator Matt Yarder.

Community STEM in the NEWS

Teachers go inside STEM industries with the Manufacturing and Engineering Externship Program

This article is from the Ohio STEM Learning Network Blog

STEM educators know it can be difficult showing students how classroom learning can lead to real-world jobs. Professionals with STEM-related careers might not be available for school visits. And taking a whole class on a factory tour is not always feasible. But what if the teacher takes the factory tour, learning about and documenting the job opportunities, and carries that knowledge back to the classroom? That's the goal of the Manufacturing and Engineering Externship Program (MEEP).



Funded by a grant from the Navy's Office of Naval Research, MEEP offers paid summer externships to K-12 educators who spend three to five days at a local STEM-based industry. The educators then develop a curriculum unit exposing their students to that industry's skills and career opportunities. MEEP is coming to Ohio, after its

success in Tennessee.

Interested in applying to the program? Teachers can sign up [here](#). Could your business host an educator? [Register here](#).

View the entire article here: <https://osln.org/2019/11/teachers-go-inside-stem-industries-with-the-manufacturing-and-engineering-externship-program/>

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STEM Opportunities

Ohio Junior Science & Humanities Symposium

March 11-13, 2020

JSHS is a Tri-Service - U.S. Army, Navy and Air Force –program that encourages high school students to conduct original research in the STEM fields. JSHS is a collaborative effort between the research arm of the Department of Defense and nationwide colleges and universities. JSHS aims to prepare and support students to contribute as future scientists and engineers, conducting STEM research on behalf of or directly for the Department of Defense (DoD), federal research laboratories to help advance the nation's scientific and technological progress.



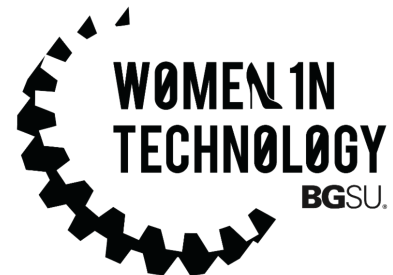
Registration for OJSHS to take place on the campus of Bowling Green State University is now OPEN!

Click here to register: <http://www.cvent.com/d/6hq2c5>

Information and guidelines can be found on the OJSHS website: www.ojshs.org

Women in Technology Day at BGSU

Introducing the first annual **Women in Technology Day** for northwest Ohio high school females offered by BGSU's College of Technology, Architecture and Applied Engineering. A day of fun-filled and interactive learning experiences for young women led by area STEM professionals! Each school is limited to 10 students. Women in Technology Day provides them the opportunity to learn and interact with successful STEM role models while on BGSU's campus.



Please click on the link below to register students.

<https://docs.google.com/forms/d/e/1FAIpQLSdqOHaxjX0VUuFVPDrr-1mTX8epN6VyU7NEL2wZKS2ZV8oTg/viewform>

Registration deadline is February 14, 2020

New Session! Let **HER** learn to program with Lego EV3 Robots

CODE4her is a computer science mentorship program for girls in **grades 5 through 8** organized by the Bowling Green Computer Science Department and the BG Women in Computing (BGWIC) student organization, under the direction of faculty advisor Jadwiga A. Carlson.



The "Let **HER** learn to program with Lego EV3 Robots" mentoring sessions will be held at BGSU in Hayes Hall on the following five Sundays in 2020.

Let **HER** learn to program with Lego EV3 Robots at these five 2.5 hour mentoring meetings held in Hayes Hall 020 on BGSU campus:

Five Sundays 1:30- 4:00 pm:

- February 2
- February 23
- March 15
- April 5
- April 26

Each girl (5th through 8th grade) will work with the same BGSU student mentor and member of BG Women in Computing student organization.

Cost: \$125.00 (missed meetings cannot be made up).

Registrations are accepted on a first-come, first-served basis!

Please see: code4her.org for more information



Let It Snow! INFOhio Blizzard Bags in Educator Tools

When the world is covered in a blanket of snow, INFOhio has lessons that students can complete from wherever they spend their snow day.



Complete with activities, differentiation strategies, and formative assessments, each bag is aligned to Ohio's Learning Standards for ELA, Math, Science, and Social Studies and is updated with high to low tech options.

Download the free lesson plans for teachers and register online today!

<https://www.infohio.org/educator-tools>

eCybermission Needs Volunteers

Please consider the benefits of volunteering as an eCYBERMISSION Virtual Judge, Ambassador or Cyber Guide!



eCYBERMISSION is a web-based STEM competition for students in grades 6-9 that enables all students to recognize the real-life applications of STEM and find solutions to problems they identify in their communities.

eCYBERMISSION is the perfect volunteer opportunity for educators, school officials or STEM professionals interested in STEM and passionate about promoting STEM careers and education, Register by February 27: <https://www.ecybermission.com/>

Bowling Green State University Summer Camps



Registration is [NOW OPEN](#) for a wide variety of summer camp opportunities on the campus of BGSU.

Astronomy: Hunting for Exoplanets
Design for Social Good
Exploring Architecture
Farm 2 Fork
Forensic Science
Future Med: Exploring Health Careers
HATCH: The Next Big Idea
Ignite Mathematics Camp
Kids Camp
Marine Biology: Aquarium Sciences

Marine Biology: Life at sea
Manufacturing Camp
Media Production Camp
Nutrition and Fitness
Pre-Law
Summer Music Institute
Tech Trek
Veterinary Science
Young Falcon Financiers
Young Women in Business

[Click here](#) to download a flyer (pdf).

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NWO STEM Activity

Acetic Acid

This month's activity was featured at STEM in the Park and is brought to you by the Anthony Wayne FFA

Objective

To learn how different types of common acids affect food composition.

What You Need

- Lemon juice
- White vinegar
- Water
- Pasta
- Potato
- Cheddar cheese
- 6 jars



What To Do

1. Obtain the 6 jars and fill 3 with Lemon juice and 3 with white vinegar.
2. Dilute all three jars with 50% water and 50% of the acid (fill jar 1/2 way)
3. Put pasta in one jar with lemon juice and one with white vinegar, and do the same with
4. the potato and cheddar cheese.
5. Observe the foods for 8 days while taking notes on how the acid affects each food.

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. We are always looking for great STEM education stories to feature in upcoming newsletters.

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