

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



Vol. 10 Issue #7

July 2018

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The second annual northwest Ohio STEM Manufacturing Camp, "Making it!" was held on July 9th through 13th in Bowling Green, Ohio. Designed for boys and girls aged 11-14, 20 campers learned first-hand at how things are made with close-up tours at local manufacturing plants and sites in northwest Ohio. The concept of the camp was originated by Senator Sherrod Brown with the goal of exposing Ohio's youth to the valuable role that American manufacturing plays in building and maintaining the U.S. economy.

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The camp began on Monday with a learning session and hands-on solar activity from NASA, followed by a full day at Penta Career Center on Tuesday. Wednesday's activities included a tour of Owens-Illinois, a Fortune 500 glass manufacturer, and Northwood Industries, a precision manufacturing and fabrication company. Lubrizol, a manufacturer of specialty chemicals for transportation, industrial and consumer products located in Bowling Green was highlighted Thursday followed by a visit to Home Depot warehouse. The camp culminated on Friday with a classroom visit from First Solar for a hands-on activity about how solar panels work.

## NWO STEM Activity

Jodi Anderson of Bowling Green City Schools created a video recap of the week to view here: <https://youtu.be/Rh-bprna3w>

[Making Lemon Ice](#)

Sponsors of the event included: The Northwest Ohio Center for Excellence in STEM Education at BGSU, Wood County Economic Development Commission, Otsego Schools, Bowling Green City Schools, Wood County District Library, Penta Career Center, Wood County Educational Service Center, City of Bowling Green, and Senator Sherrod Brown's office.

## Community STEM in the NEWS

### STEM in the Park Adds New Flight Zone to Event

For the first time ever, "STEM in the Park" and the Wood County Air Fair will combine their events to make one large multi-site event on September 29 in Bowling Green. The ninth annual "STEM in the Park", which will be held at BGSU's Perry Field House, is a free family day of hands-on fun that features interactive displays and activities to engage children of all ages in the STEM fields. Meanwhile, all aspects of flight will be explored at the Wood County Regional Airport in partnership with BGSU's Flight Center with a shuttle service available to transport families to both locations.



Event Coordinator, Jenna Pollock stated her excitement for the new flight theme explaining, "we try to stay current and trendy with fresh ideas and themes. My son has been into flying drones lately and that is what sparked our new Flight Zone idea! Plus, we love to partner with other BGSU departments and community organizations!"

The FLIGHT ZONE will feature:

- C47, B25, and TBM Avenger Aircraft Displays
- Helicopter Rides by Intrepid Helicopters (for a fee)
- Hot Air Balloon Rides (weather permitting)
- Drone Racing
- Free Airplane Rides with the EAA Young Eagle Flight Program (ages 8-17)
- FAA Aviation Pilot and Aircraft Maintenance Seminars (Hosted by the Bowling Green Flight Center)
- Many Hands-On Activities
- FREE Admission, Parking, and Shuttle Service

"STEM in the Park" will run 9:30 am - 2:00 pm and the Wood County Airport event will be open from 8:00 am to 4:00 pm.

Back by popular demand at "STEM in the Park" are the Robotics Zone, the Food Science Zone, the Digital Media Zone, the Science of Sports Zone and the H<sub>2</sub>O Zone, which explores the science behind all of water's amazing uses. A Roots to STEM Pre-K-2 Zone is also back this year, featuring activities that cater specifically to younger children.

The STEM stage will once again feature super-sized demos from the Imagination Station and the Toledo Zoo.

Activity station hosts include BGSU's Marine Lab and Swim & Dive Team, SSOE, Verizon, Toledo GROWS, Wood County Park District, Penta Career Center and more than 80 other institutions and organizations.

For more information on "STEM in the Park", please visit: [www.steminthepark.org](http://www.steminthepark.org).

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## STEM Opportunities

### NWO SYMPOSIUM - Save the Date!

NWO Symposium on Science, Technology, Engineering and Mathematics Teaching

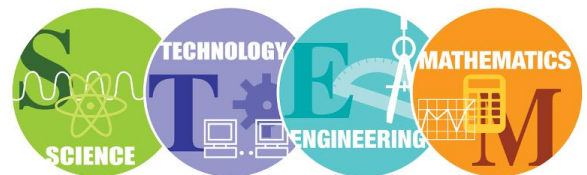
**November 17, 2018**

8:45 AM - 3 PM

Olscamp Hall @ BGSU

#### 2018 NWO Symposium Strands

1. STEM in the Community: Thinking Outside the Classroom
2. Putting Creativity to Work: Teaching STEM With Innovation
3. Integrating Technology in the Classroom
4. Teaching and Learning in SCIENCE
5. Teaching and Learning in MATHEMATICS
6. Teaching and Learning in ENGINEERING



Northwest Ohio Symposium on Science, Technology, Engineering, and Mathematics Teaching

For more information visit the Symposium website at: [bgsu.edu/nwoSymposium](http://bgsu.edu/nwoSymposium)

## BiG FAB LAB Offerings

### Coding for Beginners using SCRATCH (5th-8th grade)

In this 1-week overview class, students will learn the fundamentals of computer programming through a tool called Scratch. Scratch is a block-based tech that runs in web browsers, so no need to worry about installing new software. Students will



learn about concepts like loops, strings, functions, and more while making fun projects in this hands-on class. Projects include Pong, Apple Catcher, Disco Party, Chat Bot, and creating own project.



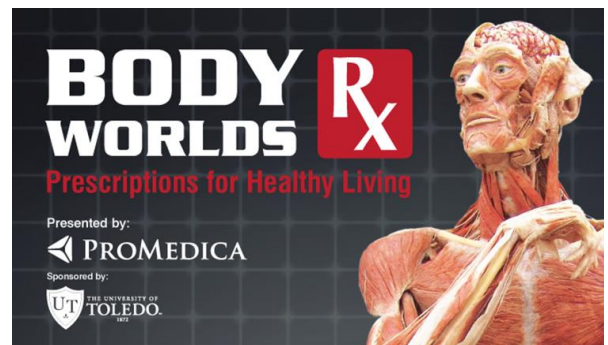
Other offerings include:

- PYTHON Programming for Beginners (5th - 8th grade) and High Schoolers
- Intro to JAVA Programming for High Schoolers and Adults

Come visit the BiG Fab Lab any Thursday from 6-8pm for Open House. Additional classes and special events can be found online at: [www.BiGFabLab.com](http://www.BiGFabLab.com)

## Imagination Station Field Trips

It's not too early to book a field trip for the beginning of the school year that includes a visit to BODY WORLDS Rx -- the exhibition will be in Toledo until Labor Day. Students will see the human body like never before in this stunning, temporary exhibition. They will view whole-body plastinates, organs, and translucent areas of the body, as well as the (delete a space between as the) effects of diet, exercise and lifestyle choices, common diseases, and afflictions. They will view whole-body plastinates, organs, and translucent areas of the body. Students will also learn how to make the most of the fragile and resilient human body and how to live a healthier, longer life.



BODY WORLDS Rx student guides and workbooks are available for download at the Imagination Station website. <https://www.imaginationstationtoledo.org/exhibits/body-worlds-rx>

## Link Engineering Educator Exchange

### Linking Pre-K - 12 to Expertise

Link Engineering offers a free Video Conversation series for easy and inspiring professional development. Web chats with leaders in PK-12 Engineering Education will be live, scheduled events with time for Q & A. A copy will be available for viewing at <https://www.linkengineering.org/Explore/55629.aspx>.



## NASA on YouTube

NASA's mission is to pioneer the future in space exploration, scientific discovery and aeronautics research. Their YouTube channel reflects that mission and features fun, interactive content that is both educational and engaging.



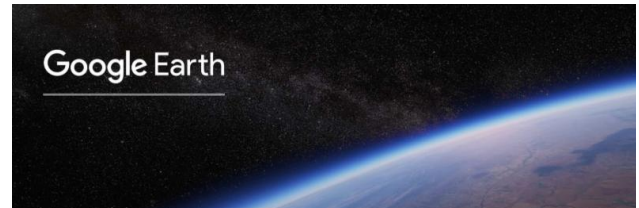


Please check website at: [https://www.youtube.com/channel/UCLA\\_DiR1FfKNvjuUpBHmylQ](https://www.youtube.com/channel/UCLA_DiR1FfKNvjuUpBHmylQ)

## Google Earth Citizen Science

**Introduce students to the impact of Citizen Science.**

iNaturalist and Google Earth have teamed up to create a Voyager story highlighting how anyone can contribute to scientific research and discovery simply by making observations and taking pictures of the natural world. The combination of curiosity and technology can expose students to a tremendous amount of biodiversity in their local community and beyond.



For more information: <https://goo.gl/EfAC4B>

## Google Science Fair

Teachers play a huge role in encouraging students to share their ideas, big or small. Google Science Fair is back, and Google has created a full library of teaching materials and exercises focused on the problem-solving process to get student ideas flowing. These materials have received an ISTE Seal of Alignment for Readiness, and are flexible enough to apply to virtually any subject or teaching style. Submissions will open in September, but classroom materials are available now:



<https://goo.gl/d7DqSe>

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## NWO STEM Activity

### Making Lemon Ice

*This month's hands-on activity is from the Siemens STEM Day website at: <https://goo.gl/eC4M9X>*

**Grade Level: 3-5**

**What You Need:**

- Ziploc Sandwich Bags
- Ziploc Gallon Bags
- Thermometers



- Ice cubes (school cafeteria can be very helpful in accessing ice)
- Ice Cream Salt (rock salt)
- Kool-Aid Lemonade or other brand
- Water Jugs
- Measuring Cups
- Stopwatches or clock
- Cooler or storage containers for ice
- Popsicle Sticks
- Pencils
- Worksheet
- Extension activity - kosher/table salt or sugar cubes

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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