

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



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## K-16 STEM in the NEWS

### Food Security is the Ohio STEM Learning Network's 2019 Ohio Design Challenge Topic

Ohio is a huge producer of food, but each day one in three Ohioans does not know where their next meal will come from. This is called food insecurity-not having access to sufficient, healthy food. Food security is the opposite-having access to sufficient quantity of affordable, nutritious food. As the world population grows, this problem will become more and more prevalent. Scientists predict that there will be 9 billion people on earth by 2050, and so it is vital to consider how populations grow, transport, and consume food to ensure that billions of people will have food security as the population grows.

For the past two years, the Ohio STEM Learning Network (OSLN) has invited Ohio's K-12 students to participate in a statewide design challenge, and this year they've announced the design challenge will be around food insecurity. OSLN has partnered with the [Ohio Soybean Farmers](#) and [Ohio Corn and Wheat](#) to provide a variety of supports for teachers and students participating in this challenge.

This year's challenge is to:

**Work as a team to imagine, design and prototype a solution to increase food security in one's own life, community, or world.**

[Black Swamp Math Teachers' Circles](#)

Improving local access to food will prepare for the greater challenge of feeding 9 billion people by 2050. Solving this challenge will require thinking beyond opening more grocery stores. Heather Sherman of OSLN stated, "We are asking students to consider systemic approaches to food production from biotechnology, food production and environmental considerations."

[Girls Who Code Lesson Plans](#)

[Safety Third Racing Academy \(S3RA\)](#)

At OSLN, they know that teachers are the bridge to the future, equipping students with the skills to solve the problems of tomorrow. "We are excited to see what your students can achieve and hope to shine a light on the great work that you do in classrooms all across Ohio," stated Ms. Sherman.

[Toledo GROWs Educational Programs](#)

[Imagination Station Popnology](#)

This design challenge can be completed as a part of a single class, or as an interdisciplinary activity. Students will use the design process to:

[Education Projects Professional Development](#)

1. Define the problem
2. Conduct background research
3. Brainstorm solutions
4. Choose the best solution
5. Build a prototype
6. Test and redesign the solution

[BGSU Planetarium](#)

[The Conrad Challenge](#)

## **NWO STEM Activity**

Once students have their solutions, they will present them at a school-wide showcase. Each school will then have the opportunity to send students to the statewide showcase in Columbus in May.

[Sprout House](#)

## **There are plenty of resources to help get students started:**

### **Farm Science Review**

Sept 19, London, OH, 9 am to 3 pm

- Talk to industry experts
- Explore careers
- See and explore technology and equipment used on farms today
- Learn how agriculture is feeding the world

Topics available:

- Organic v conventional farming
- How biotechnology has improved yield/sustainability
- Commodity concerns
- Water quality management strategies

[https://grownextgen.org/events?mc\\_cid=0125ef10d6&mc\\_eid=7be753003a](https://grownextgen.org/events?mc_cid=0125ef10d6&mc_eid=7be753003a)

### **Attend the OSLN Fall Convening**

October 18, Columbus, OH, 9:30 am to 3:30 pm

- Why food security matters to Ohio students
- Agriculture's role in Food Security

- Aligning the design challenge to your content standards
- Designing and creating prototypes
- Visit Waterman Farm, Ohio State University's working research farm

There are many other resources available with more than 60 different links: <https://www.osln.org/about/resources-educators/design-challenge-resources/>.

OSLN will follow up with blog posts outlining successful design challenges from the past, interviews with subject matter experts on topics like biotechnology and agriculture systems, and tips on how to support students as they work through this challenge.

For more information visit: <http://bit.ly/2wpP6da>

## Community STEM in the NEWS

### Chase STEMM Teacher Awarded OCTM Teacher of the Year for Northwest Ohio

Each year, the Ohio Council of Teachers of Mathematics (OCTM) recognizes outstanding elementary and secondary teachers of Mathematics in each of its eight districts in Ohio.

Jack Hunter, principal of the Chase STEMM Academy in Toledo Public Schools, nominated Tara Urbanyi, a teacher who has been a part of the Chase STEMM teaching staff for 21 years.. He exclaimed, "Over the past three years more than 75% of Tara's students have passed the Ohio Standards Test in mathematics and over 90% in the past two years!" Tara was named the OCTM Teacher of the Year for northwest Ohio for 2018, and will receive her award at a ceremony in October at the annual OCTM conference in Akron.



Tara began her teaching career teaching Language Arts until her principal challenged her to help raise the fourth grade math scores at Chase. It was then Tara decided to change some of her teaching practices, incorporating the "Simple Solutions" math program into her lesson plans. This program provides daily review lessons across multiple standards. She stated, "Through the use of these daily review lessons I was able to track individual standards that students were struggling with. I realized immediately that many of our students lacked pre-requisite skills when entering fourth grade. I began working on individualizing assignments based on the standards that students were struggling with and working with them during math centers to provide additional instruction."

In addition, she also dedicated more instruction time to math that allowed for students to work through math problems individually and as a group, followed by a daily word problem or writing prompt and small group work. Last year Tara introduced mastery level learning, where students master individual content standards and strive to attain mastery levels, with each level increasing in difficulty. Tara went on to say, "This is still a work in progress, but it has excited students to take ownership of their learning. Students are eager to show their learning on mastery quizzes and respond well to feedback, so that they can show improvement the next time. I have witnessed students who have hated math in the beginning of the year to proclaiming that it is now their favorite subject!"

Mr. Hunter has high accolades for Tara, explaining she is also involved in many activities at Chase STEMM,

including the Intervention Response Team, Building Leadership Team, Girls on the Run facilitator, Summer School RAISE teacher, YMCA tutor, and student teacher and methods teacher mentor. He stated, "Tara's classroom culture is amazing and she is the most requested teacher in the building."

Chase STEMM Academy's mission is to provide innovative experiences in Science, Technology, Engineering, Mathematics and Medicine to cultivate critical thinkers and problem solvers to be life-long learners in the 21st century.

OCTM promotes quality teaching and learning of mathematics in Ohio by supporting educators and their professional growth, fostering collaboration, and advocating for informed public policy. For more information on OCTM: <http://www.ohioctm.org/>.

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## STEM Opportunities

### STEM in the Park

**SATURDAY, SEPTEMBER 29, 2018**

9:30 a.m. - 2:00 p.m.

Perry Field House @ BGSU

**SAVE TIME... Pre-Register Online!**

[Click here](#) to Pre-Register

***"Take Flight with STEM"***

Soar to the **FLIGHT ZONE** with **STEM in the Park** and the **Wood County Air Fair** as they Take-Off Together!

For the first year ever, **STEM in the Park** and the **Wood County Air Fair** will combine their events to make one large multi-site event! Join us as we explore all aspects of FLIGHT at the Wood County Regional Airport and MAN other STEM ZONES at BGSU (Perry Field House).

*A shuttle service will be available to transport families to both locations.*

STEM in the Park will feature interactive displays and activities created by area universities, community partners, and local businesses to engage children of all ages in science, technology, engineering, and mathematics.

For more information visit: [www.STEMinthePark.org](http://www.STEMinthePark.org)

## NWO SYMPOSIUM - Registration is now OPEN!

NWO Symposium on Science, Technology, Engineering and Mathematics Teaching

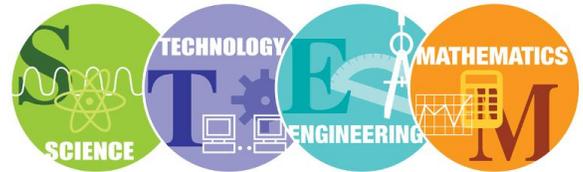
**November 17, 2018**

8:45 AM - 3 PM



**FLIGHTZONE**

Oiscamp Hall @ BGSU



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

### 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

### NEW Highlight for 2018

The Symposium will host an Education Resource Fair, where local educational resource providers will showcase classroom resources and services available for teachers and students.

[Click Here To register!](#)

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

## Xcite Learning hosting Engaging, Inspiring, & Practical Professional Development in a BEAUTIFUL Retreat Setting

### Two-Day Professional Development Retreats

**COST:** \$300/teacher or \$275/teacher if 2+ teachers/district

**LOCATION:** The 577 Foundation, Perrysburg, Ohio. A beautiful retreat & conference setting.



**WHAT TO EXPECT:** All workshop participants receive:

- high-quality professional development that respects and honors your teaching experience and know-how!
- \$40 in classroom-ready teaching materials/resources to jump-start your implementation of workshop ideas/strategies
- a CEU certificate for 15 hours of PD
- Plenty of good food & great conversation
- Graduate credit available [additional cost]
- Small, intimate PD setting, with a maximum of 24 participants

**October 22 & 23, 2018**

### Mindset 101

Mindset is a theory developed by Carol Dweck, Ph.D. regarding the psychology of success. Dweck makes the case that people with a GROWTH vs. FIXED mindset are much more apt to fulfill their potential, persevere when faced with adversity, and take on more challenging tasks. Join us to examine the theory and use it as a theoretical framework to develop teaching materials, routines, and practices that support the psychology of success for implementation into your classroom, team, school, and/or home. All participants will receive a copy of the book Growth Mindset Coach (or other) along with other

ready to use classroom materials. Bring a team and develop an interdisciplinary growth mindset action plan for your group [team discounts available].  
8:00 - 3:00 pm each day. [SIGN UP TODAY](#)

### November 5 & 6, 2018

#### Project Based Learning

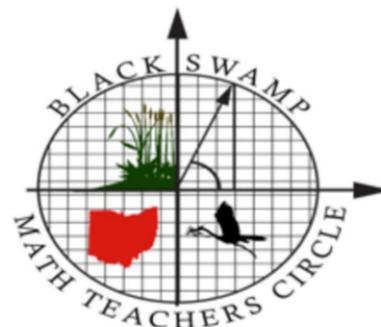
Project Based Learning (PBL). Join us in discovering PBL as a powerful and effective inquiry-based learning framework for K-16 classrooms across all disciplines. Find ready-to-use PBL units for your grade level and design your own PBL units. Participants will each receive the book "Hacking PBL" along with other ready to use classroom materials. All participants will leave with a draft PBL design for immediate implementation into their classroom. Bring a team and develop an interdisciplinary PBL unit [team discounts available]. 8:00 - 3:00 pm each day. [SIGN UP TODAY](#)

For more information visit Xcite Learning at: <http://www.xcitelearning.com/>

## Black Swamp Math Teachers' Circles

Math Teachers' Circles bring together teachers and mathematicians to enrich the teachers' experience of mathematical problem solving. The 2018 sessions are FREE and open to K - 12 math teachers and college faculty/staff in northwest Ohio. Space is limited and participants will receive:

- Great professional development.
- Networking with mathematicians, higher education faculty and other classroom teachers.



BS-MTC meets from 6:30 - 8:30 PM on the following dates: (no need to attend both). Meetings will be held at BGSU in Business Administration Building Room 115

- Monday, October 22, 2018
- Monday, November 26, 2018

You can register for the sessions at: <http://www.bgsu.edu/nwo/programs/bs-mtc.html>.

For more information, please contact Dr. Debra Gallagher, Bowling Green State University, at [dqallag@bgsu.edu](mailto:dqallag@bgsu.edu) c 419-704-1920.

## Girls Who Code Lesson Plans

Girls Who Code is offering their first-ever in-school resource: Women in Tech Lesson Plans are available for download. Teachers can download free lesson plans and posters on the Girls Who Code website. The lessons provide content profiling contemporary and historical women in STEM for educators across the country.



Please visit: <https://girlswhocode.com/women-in-tech-lessonplans/>

## Safety Third Racing Academy (S3RA)

Safety Third Racing is a nationally recognized (First Person View) FPV Drone Racing organization. The diverse community of makers and pilots in NY, NJ, PA, OH advance FPV sport through inclusive education, open innovation, and competitive racing. For more information on drone racing in schools: <https://safetythirdracing.com/academy.html>



S3RA provides a guide for interested schools to form Drone Racing Teams - Getting Started:

Info for Interested Schools: <https://goo.gl/2Ehv7c>

## Toledo GROWS Educational Programs

Toledo GROWS is a grassroots effort dedicated to the continued growth and success of community-based gardens in the City of Toledo and the surrounding area. As a statewide and regional leader in community gardening, Toledo GROWS offers organizational resources and technical assistance to support the development of sustainable garden projects that serve people of diverse ages and abilities. Toledo GROWS offers field trips and in-class programming for area K-12th grade schools to "nurture the joy of growing" through hands on learning and educational programming.



<http://www.toledogrows.org/educational-programs/>

## Imagination Station Popnology

Teachers! Imagination Station's newest exhibit opens September 28 and will be available for class field trips. Students can: Land a Mars Rover; immerse themselves in nine different 3-D environments; meet the galaxy's most beloved droid, R2-D2; take a pic with a replica of Doc's DeLorean from "Back to the Future"; test drive robotics and more.



Please see: <https://www.imaginationstationtoledo.org/exhibits/popnology> for more information.

## Education Projects Professional Development

EducationProjects.org is offering PD around the Ohio STEM Learning Network Design Challenge on Food Insecurity (see article above) on the following dates:

**Sept 19, 2018, 9 am to 3 pm**  
Come to the Farm Science Review!

**education  
projects.org**  
connecting industry  
to the classroom

**Oct 2, 2018, 9 am to 3 pm**

Visit Waterman Ag and Natural Resources Lab!

**Oct 19, 9 am to 3 pm**

Feed the World: Focus on Water Quality and Soil Science

A complete listing and more information can be found on the website: <http://educationprojects.org/teachers>

## BGSU Planetarium

The Planetarium at Bowling Green State University announces its fall programs:

**Black Holes** - now through October 13.

**From Earth to the Universe** - October 14 through November 18.

**Secret of the Star** - November 30 through December 14.

For more information: <https://www.bgsu.edu/arts-and-sciences/physics-and-astronomy/bgsu-planetarium.html>

## The Conrad Challenge

The Conrad Challenge gives students between the ages of 13-18 the chance to become entrepreneurs and apply innovation, science and technology to solve problems with global impact. Guided by teachers and industry experts, the competition becomes a master class in collaboration, creativity, critical thinking and communication. The result: students develop skills needed to thrive in the 21st century workforce and bring to life commercially-viable innovations that have the potential to change life for the better on the individual, national and global levels. Register by October 19.



For more information: <https://www.conradchallenge.org/conrad-challenge>

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## NWO STEM Activity

### Sprout House

*This month's hands-on activity is from BGSU Dining Services*

Combining engineering and science into one awesome project is a motivating way to learn about germination. It definitely brings a whole new meaning to the word "greenhouse"!

**What You Need:**

- 4 plain sponges in various colors
- Ruler
- Permanent marker
- Scissors
- Toothpicks
- Plate
- Spray bottle of water
- seeds (wheatgrass, chia, alfalfa or whatever you can find/want)

**What To Do:**

1. Make sure the new sponges are clean by rinsing them with plenty of clean water. Wring out, but do not dry fully.
2. Draw shapes to cut on the sponges using the marker.
3. Cut out shapes using the scissors.
4. Build the house using the toothpicks.
5. Once built, give the house a good spray so that it's damp but not soaking
6. Put each of the seeds that are going to be used in a bowl of water. Mix.
7. Spread seeds on the roof and "grass."
8. Add a little extra spray of water to the seeds.
9. Water daily and once your seeds have sprouted, use them however you want. You could use them in a smoothie or in a salad, whatever you come up with will be perfect.

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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