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K-16 STEM in the NEWS

Second Annual Tech Trek is Held at BGSU

The second annual Tech Trek, a STEM camp for girls, was held on the campus of BGSU this past June. Once again, nearly fifty 8th grade girls from all over northwest Ohio, through a competitive



selection process, were provided with a weeklong camp exploring the STEM fields. STEM professionals and faculty from all over the campus taught a wide variety of fun and engaging activities. Beth Pinheiro of BGSU's AAUW (American Association of University Women) served as the director of the camp, and was very pleased to offer the camp. "It was fantastic," Beth stated, "another amazing event, especially with the enthusiasm of the girls and the tons of volunteerism we receive."

Activities included: Dissecting sharks, making "Psi Wheels", learning about neurogenesis brain function and memory, conducting forensic experiments, and working to solve Rube Goldberg's puzzles using a "rubeWorks" app. The girls also went on a wind turbine field trip, and had fun with team building exercises at night while staying in the dorms. Ms. Pinheiro said it's an excellent experience for girls as it allows them the opportunity for exposure to STEM fields within a safe environment, where exploration is encouraged. Campers also get a "good look at college life" by living in a dorm, eating in dining halls, and being introduced to a university and all a campus has to offer. "It's a wonderful experience they will always remember," she stated.

This one-week STEM camp for rising eighth-grade girls began 15 years ago with AAUW, and is growing across the country. In 2013, Tech Trek was expanded to four states, which included Ohio, and three more states were added this year. The cost to the campers is \$50 with the remaining fees raised

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through sponsorships and grants. The campers are nominated by a teacher and must write an essay explaining why they want to attend the camp. Finalists are then interviewed and selected.

AAUW values the importance of supporting girls in STEM as part of their mission to break through barriers for women and girls. The research, policy, and nationwide programs encourage members to work from their own communities to ensure that equity is reached in these important fields. AAUW created Tech Trek to introduce girls to successful female role models in STEM, breaking down stereotypes surrounding these traditionally male-dominated fields and teaching girls that intellectual skills grow over time, regardless of gender. AAUW's goal is to: "Immerse girls in a world that empowers and encourages them to think about themselves as future scientists, engineers, mathematicians, and computer specialists."



Community of Educators

Ohio Department of Education Changes

Changes have been made to the Ohio Teacher Evaluation System for 2014-2015. House Bill 362 passed the Ohio legislature on June 3, bringing changes to the Ohio Teacher Evaluation System for the 2014-2015 school year and beyond.

The first change will allow less frequent evaluation of teachers receiving skilled and accomplished ratings beginning next year, while still providing teachers with feedback on their work.

The second change will allow districts a choice between a new alternative teacher evaluation structure and the current (original) structure. The alternative structure includes an additional measure for student growth and observation in a teacher's evaluation as 15 percent of the evaluation.

Additional information will appear on the Ohio Department of Education Web pages in the near future.

<http://education.ohio.gov>

<https://education.ohio.gov/getattachment/Topics/Teaching/TEACHER-EVALUATION-FACTSHEET.pdf.aspx> provides more details on House Bill 362.

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STEM Opportunities



Toledo Museum of Art - The Art of Video Games

Striking visuals and the creative use of technology take center stage in The Art of Video Games, which opened last month in the Canaday Gallery. This groundbreaking exhibition, organized by the Smithsonian American Art Museum, is the first to examine video games as an art form. Playable games, such as Pac-Man, Super Mario Brothers and Flower, video interviews with key game developers and artists, and interactive kiosks with an extensive selection of home consoles from the Atari VCS to the PlayStation 3 are featured. **Admission is free.** www.toledomuseum.org

NSTA Conference

Register Now for NSTA Virtual Conference: Connecting Literacy and Science. This NGSS and Common Core Science class provides the perfect context for practicing the crucial skills of reading, writing, and argumentation. NSTA is pleased to offer a second NSTA Virtual Conference on August 6. During this virtual conference, leading educators will show teachers how to use the NGSS to make better use of the science-literacy connection in instruction and improve literacy skills among students. More than 600 educators took advantage of the first NGSS virtual conference, so register early for this informative and highly interactive day-long experience, during which science educators will:



- Explore the connections among NGSS and the Common Core for Literacy in Science and Technical Subjects;

- Learn specific strategies for integrating literacy and science instruction;
- Ask questions of NGSS experts; and
- Engage in dialogue with educators from across the country

Date: Wednesday, August 6, 2014

Time: 10 a.m.-6 p.m. EST

NSTA Member price: \$79

Nonmember price: \$99

https://learningcenter.nsta.org/products/online_courses/VirtualConference.aspx

Verizon Mobile Learning Academy

Verizon announces a free professional development course for educators!

Verizon Foundation, in partnership with the International Society for Technology Education (ISTE) and the Johns Hopkins University's Center for Technology in Education, is launching the Verizon Mobile Learning Academy, a virtual, moderated professional development course offered to teams of educators for **free**.



The course, based on promising results produced by the professional development model delivered in the Verizon Innovate Learning Schools, includes five modules developed around ISTE standards. Course modules are designed to help teachers, administrators and tech coaches implement effective mobile learning initiatives in their schools and classrooms. Continuing Education Units (CEUs) from Johns Hopkins University will be offered to teachers completing the Verizon Mobile Learning Academy courses.

- Course 1: Evaluating and planning for the mobile learning landscape
- Course 2: Developing digital fluency
- Course 3: Seamless mobile technology integration
- Course 4: Implementing effective mobile practices
- Course 5: Digital age students

Registration for the Verizon Mobile Learning Academy will open in Fall 2014.

<http://responsibility.verizon.com/learning-academy>

National Council of Teachers of Mathematics



NCTM works to ensure equitable mathematics learning of the highest quality for all students through the vision, leadership, and professional development of mathematics teachers.



To that end, NCTM is accepting applications for its Connecting Mathematics to Other Subject Areas Grants for Grades 9-12 Teachers program, which supports high school classroom materials or lessons that connect mathematics to other fields.

For 2015-16, grants of up to \$4,000 will be awarded to persons currently teaching mathematics in grades 9-12. Materials may be in the form of books, visual displays, computer programs or displays, slide shows, videotapes, or other appropriate media. The focus of these materials should be on showing the connectivity of mathematics to other fields or to the world around us.

To be eligible, applicants must be current NCTM members (on or before October 15, 2014) and currently teach mathematics in grades 9-12 at least 50 percent of the school day.

For complete program guidelines and application instructions, visit the NCTM website at: www.nctm.org

Join us for STEM in the Park!

**Saturday, September 27, 2014, 10:00am - 2:00pm
in the Perry Field House @ BGSU.**

A free event for all northwest Ohio families and the entire community. STEM in the Park features:

- Four hours of engaging, hands-on STEM activities from over 60 area businesses, schools and organizations,
- Free lunch and other refreshments (while supplies last),
- Free take-home activities,
- Free STEM materials, and best of all:
- Fun for the whole family!



Visit the website for more info at www.STEMinthepark.org

NCTM Emerging Leaders Grants

NCTM is accepting application for its ***Emerging Teacher-Leaders in Elementary School Mathematics Grants*** for Grades PreK-5 Teachers program. The grant aims to increase the breadth and depth of the mathematics content knowledge of one elementary school teacher who has a demonstrated commitment to

mathematics teaching and learning. Grants of up to \$6,000 will be awarded for the professional development of an elementary school mathematics teacher with mathematics content expertise. Grantees will be expected to provide ongoing professional development to teachers within the school or district to strengthen their mathematical understanding and instructional practices. This must include sustained in-service programs focused on improving the content knowledge of the elementary teachers within the school or district and working with teachers in their classrooms through demonstration teaching or co-teaching.

To be eligible, applicants must be current NCTM members (on or before October 15, 2014); be a classroom (elementary school) teacher with at least three years of experience; and have mathematics as a regular teaching responsibility. In addition, the applicant must have the support of the school principal in becoming a mathematics teacher-leader within her or his school or district.

For complete program guidelines and application instructions, visit the NCTM website at: www.nctm.org



Google has announced a three-year, \$50 million commitment in support of **Made with Code**, a new initiative to inspire girls to learn to code.

Launched in partnership with several organizations, including the National Center for Women & Information Technology, the MIT Media Lab, and TechCrunch, the initiative aims to help girls see coding as a means to pursue their career dreams and connect them with mentors and other girls interested in computer science. The initiative includes Blockly-based coding projects such as designing a bracelet for 3D-printing, creating animated GIFs, and building beats for a music track; collaborations with Girls Inc. and Girl Scouts of the USA; and Google's commitment to support programs that encourage girls to study computer science. A pilot project with DonorsChoose.org will reward teachers who support girls who sign up for CS courses with Codecademy or Khan Academy, while a joint effort with the Science and Entertainment Exchange will seek to boost the number of female engineers depicted in television and film.

<https://www.madewithcode.com>

Code.org offers courses and the Hour of Code

Code.org will offer these courses in the fall:

- 3 levels of elementary courses (K-1, 2-3, 4-5)
- Free, one-day curriculum workshops for elementary teachers beginning in September. Sign up to be notified when a workshop is scheduled in your area.



- Middle school programming activities for math and science classes.



Check the current courses for a preview of what's to come: **all free, open source and available worldwide.**

<http://code.org/educate>

The Hour of Code is coming... again!

December 8-14, 2014

Thanks to many educators, last year's Hour of Code movement just keeps growing. By now, 37 million students have tried computer science for the first time with the Hour of Code!

We hope to make this December's campaign even BIGGER. Mark your school calendar now for the Hour of Code 2014, coming December 8-14. <http://code.org/educate>

Target Field Trip Grants

Some of the best learning opportunities happen outside the classroom. Target supports students with once-in-a-lifetime learning experiences through memorable field trips. As part of the program, **Target stores award Field Trip Grants to K-12 schools nationwide.** Each grant is valued up to \$700.



Grant applications are accepted between noon CST Aug. 1 and noon CST Sept. 30.

Target's Field Trip Grants program will begin accepting applications on August 1. <http://corporate.target.com/corporate-responsibility/grants/field-trip-grants>

Summer Monarch Butterfly Teacher Workshop

Teaching and Learning with Monarch Butterflies

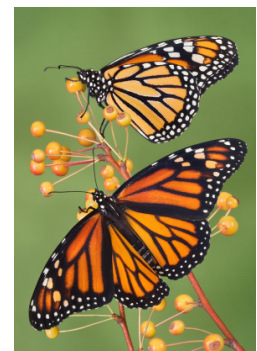
July 31-August 1, 2014

Brookside Elementary School

Worthington, OH

Registration form: http://ocess.files.wordpress.com/2014/05/mtn_ohio_2014.pdf

"Teaching and Learning With Monarch Butterflies" is a two-day teacher workshop combining classroom and field experiences. It enables pre-K through 12th grade educators to teach essential skills in literacy, math, science, geography, technology, Spanish, the arts and social studies... through the captivating story of monarchs.



Teachers complete the workshop with all the materials they need to bring this exciting and dynamic subject into their classrooms.

COSI Professional Development Opportunities in Columbus

Bridging the Gap - Life Science for grades 4-8; July 28-29, 2014

Examine the new Ohio science content standards for Life Science in grades 4-8 and discover ways to integrate engaging activities and inquiry experiences into existing curriculum.

Bridging the Gap - Elementary Science Content for grades K-3 *NEW this year!; July 31-August 1, 2014

Examine the new Ohio science content standards for grades K-3 and discover ways to integrate engaging activities and inquiry experiences into existing curriculum.

Bridging the Gap to the Ohio CORE for Science grades 4-8; July 21-25, 2014

Examine the new Ohio science content standards for Life, Earth, & Physical Science in grades 4-8 and discover ways to integrate engaging activities and inquiry experiences into existing curriculum.

<http://www.cosi.org/educators/professional-development/resources>

Imagination Station - Science Camps with space still available

Behind the Mask - New!

July 21 - 25

Take a behind-the-mask look into the powers of favorite superheroes and the science behind them. How does superman fly? Where does a superhero's super strength come from? Which superheroes are great innovators? Each day will be focused on a different superhero, and how they use science to their advantage. Students will also discover their superpowers and even create their own superhero gadget!



Survival Science

July 28 - August 1

August 4 - 8

August 11 - 15

If you've ever watched the TV show Survivor and thought, "Hey, I can do that!," then Survival Science Summer Camp is for you! It'll test survival skills and prepare participants for unusual situations should such a moment ever arise. This camp will challenge students mentally and physically to be a survivor while having a fun, unforgettable time. Teams will learn how to build a shelter and a model raft, collect rainwater and so much more!

<http://imaginationstationtoledo.org/content/summer-camp>

FALCON BEST ROBOTICS

Registration for the FalconBEST 2014 BLADERUNNER Robotics Competition is open!

FalconBEST is a robotics competition and much, much more! Dates and registration instructions are below!

Registration Instructions

Go to <http://www.bestinc.org/>
Click the "Get Involved" link
Select "Register as a team"
Select 2014 FalconBEST Season Team Registration
Follow the instructions to register

Schedule of Events

Teacher Workshop - August 11, 2014
Kickoff - Sat, Sep 27, 2014, 2:30pm - 5:00pm, Miletti Alumni Center, BGSU, Bowling Green
Practice Day - Sat, Oct. 25, 2014 - 10:00am - 2:00pm, Woodland Mall, Bowling Green
Contest Day - Sat, Nov. 8, 2014, 9:00am - 4:00pm, Stroh Center, BGSU, Bowling Green

For more information visit the website at: <http://bit.ly/Falconbest>

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NWO Hands-On STEM Activity

Pinterest (<http://www.pinterest.com/pin/235313149254068297>) is a pinboard-style photo-sharing website that allows users to create and manage theme-based image collections such as events, interests, and hobbies.

Ocean Zones in a jar

This month's Hands On Activity is from Pinterest.

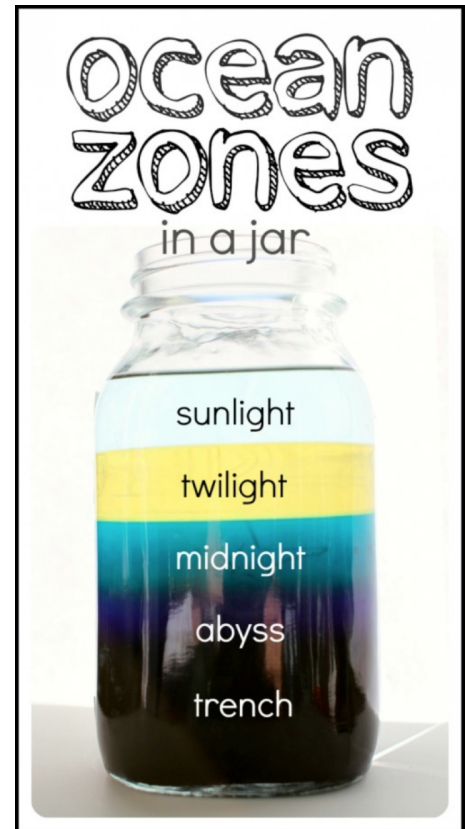
Learn about the 5 layers of an ocean (also called ocean zones) with this hands-on activity!

Teach the five layers of an ocean (also called ocean zones) by creating this layered jar. This is the perfect union of two science experiments: a lesson on liquid density and learning about ocean zones.

The depth is characterized by the amount of light that each zone receives. The amazing thing about the ocean is that there are creatures/organisms that live in each of these zones, although most all living creatures/plants live in the sunlight zone.

Here's what you'll need:

- A clear jar
- food coloring
- corn syrup
- oil
- dish soap
- water
- rubbing alcohol
- funnels



Pour 3/4 cup of each liquid into your glass jar for each ocean layer (or less for a smaller jar). Going from the bottom to the top:

- Trench Zone (Hadalpelagic Zone): Corn Syrup (tinted black)
- Abyss (Abyssopelagic Zone): Dish soap (tinted purple)
- Midnight Zone (Bathypelagic Zone): Water (tinted dark green)
- Twilight Zone (Mesopelagic Zone): Oil (tinted dark blue)
- Sunlight Zone (Epipelagic Zone): Rubbing Alcohol (tinted light blue)

1. Add some black food coloring to 3/4 cup of corn syrup and pour into the bottom of the glass jar.
2. Mix blue food coloring into 3/4 cup of dish soap. Add it to the jar using a funnel.
3. Put blue food coloring in 3/4 cup of water and use a funnel to slowly and carefully layer it on top of the dish soap.

4. Next, add the oil.
5. Finally, add 3/4 cup of rubbing alcohol. Use a dropper to slowly add it to the top of the oil, making sure not to break the barrier between the oil and water.

Add some labels and put in front of a light source to see the layers best! Do some research and investigate the creatures that live at each of the depths of the ocean!

<http://www.pinterest.com/pin/211174957557763/>

<http://www.icanteachmychild.com/2014/05/make-ocean-zones-jar/>

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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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Find Even More Ohio STEM Education Resources

Visit our STEM clearinghouse, nwostemresources.org, for more STEM activities, programs, and information.

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