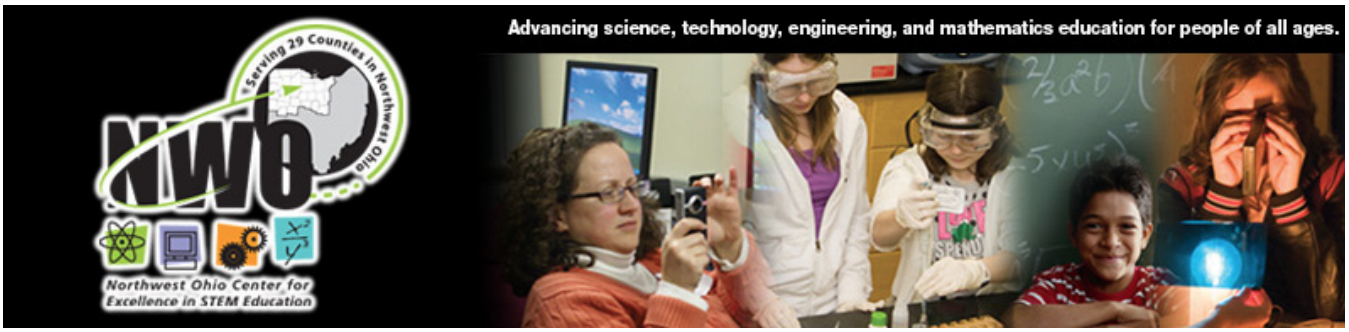


Vol. 6 Issue #12 December 2014

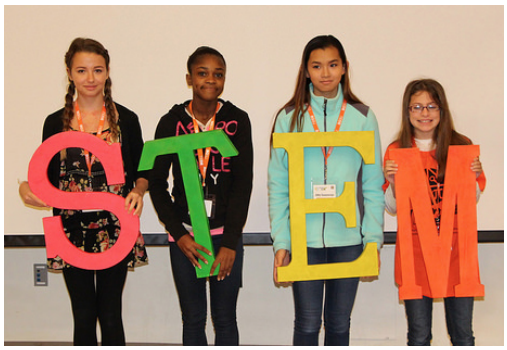
In This Issue

K-16 STEM in the NEWS

30th annual Women in STEM Empowered Young Women

"Empowering young women in science, technology, engineering, and mathematics, while fostering confidence and a can-do attitude," was the theme of the 30th annual "**Women in STEM**" program, held at BGSU on Nov. 21.

Over 200 hundred sixth through eighth grade girls from regional schools attended, enjoying an entire day on campus. The day begin with a welcome from BGSU President Mary Ellen Mazey, followed by an inspirational keynote from Dr. Jodi Haney, an accomplished science educator and recently retired BGSU faculty member.



The title of her lively and interactive presentation was "Roots to STEM: Seeking creative problem solvers and critical thinkers to LEAD the way and CHANGE the world!"

Her presentation kicked the day off to a great start, as it was followed by the girls attending three different hands-on STEM workshops, exposing them to a wide variety of STEM careers. Workshops included sessions on Marine Biology, Geology, Forensic Science, Engineering, Solar Energy, Architecture, and many more.

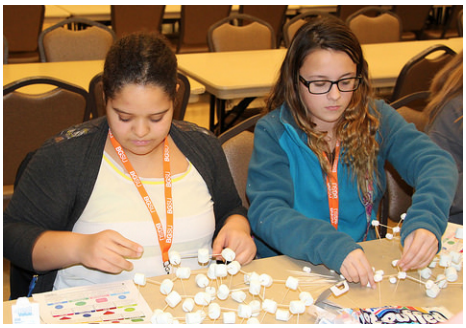
[PreK-8 Pre-Service Teacher Action Research Grant]

[CSEdOhio]

NWO Hands-On STEM Activity

[Poinsettia Chemistry]

One presenter stated, "We presented reptiles and amphibians to these girls. I think this was a great chance to show them how cool they really are because too many girls are afraid to be interested in things that are considered "boyish." I think this whole program is magnificent in this sense. It gives girls a chance to get a look at things they wouldn't normally be able to. I think this program has a great, lasting impact."



One of the goals of the program was to engage the girls in fun and exciting STEM activities from many female role models, while exposing them to a college campus, many for the very first time.

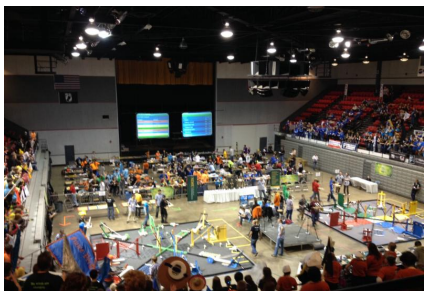
A teacher who brought students from Archbold stated, "We had a LOT of positive feedback not only from the students but also from parents that commented that all their daughter could talk about when they got home was how much they enjoyed the sessions. One 7th grade girl after participating in one of the chemistry sessions said to her mother..."I think I really like chemistry." With our school serving a rural population and not being near a university, this was the first time for most of our students to be on a college campus and see some application of science to everyday life. Thank you!!"

In addition, the girls were treated to lunch and a commemorative 30th annual Women in STEM t-shirt, and the day ended with a friendly and lively visit from BGSU mascots Frieda and Freddy, and many girls enjoyed taking selfies with the energetic and well loved birds.

Joetta Kynard, who coordinated the program stated, " Watching students engaged in learning while having fun, observing STEM professionals sharing their passion, and witnessing true volunteerism in action was priceless!"

Community STEM in the NEWS

Falcon BEST Teams Regional Competition Update



The BEST Robotics Northern Plains Regional competition was held this past weekend in Fargo, North Dakota with **five Falcon BEST teams competing from Ohio**: Anthony Wayne, Cardinal Stritch, Maumee Valley, St. Ursula and Port Clinton. All schools competed very well with Port Clinton earning the BEST Simulink software design award and St. Ursula placing into the wildcard competition. This competition has involved a

large number of students from 16 high schools in Ohio, impacting student motivation and engagement in robotics and STEM fields. Sherri Orwick Ogden, Falcon BEST Event Coordinator who attended the regional competition had this to say, " We congratulate all of our teams for their hard work, professionalism, and sportsmanship in this year's competitions. Falcon BEST has been represented in the best light and we are very proud!"

BGSU and the College of Technology, Architecture and Applied Engineering with the Northwest Ohio Center for Excellence in STEM Education established the Falcon BEST Robotics Hub in early 2013 and it is the first and only BEST Robotics hub in the state of Ohio. The next competition will be announced in early 2015, with the theme "Paydirt".

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STEM Opportunities

2014 - 15 NWO Inquiry Series Presents the...

Are you searching for ways to go beyond simple science activities and further engage your students with supercharged science inquiry lessons that integrate powerful literacy strategies?

Are you looking to better prepare your students for the more rigorous learning and assessment expectations that exist today?

Do you need strategies for grasping your students' understanding of concepts in order to promote higher achievement in your classroom?

If so, you will want to be a part of this four evening Science Mini-Series!

Dates and Times: All dates will be from 4:30-7:30pm (3 hours per evening)

- January 8, 2015
- January 15, 2015
- February 3, 2015
- February 12, 2015

Price and Space Limitations:
$160.00 total for all four events. Teacher's must sign up and commit to all four meetings. Meals and snacks provided for all events. *Space is limited to 40 participants*

For more information or to register go to: http://cosmos.bgsu.edu/inquiryseries/scienceminiseries.htm

You be the Chemist is a **FUN & INNOVATIVE** academic competition engaging students in learning about important chemistry concepts, discoveries, and chemical safety.

CHALLENGE COMPETITIONS take place across the country and encourage collaboration among community organizations, schools, and the chemical industry, as together, they educate students about the benefits and value of chemistry.

The **WINNER** of the State Challenge will qualify for an all expenses paid trip to the National Competition in Philadelphia, PA in June.

Interested students will take a qualifying exam to participate, which will enable the top-scoring students at each school and/or grade level to participate in the State Challenge. The qualifying exam is a multiple-choice exam that is supplied by the district along with an answer key. Teachers are responsible for scoring the qualifying exam.

Please email Bob Mendenhall (Toledo Public Schools) at rmendenh@tps.org or call (419) 671-8320 for more information. In the email include the following information: (**RETURN BY DECEMBER 19, 2014**)

Teacher Name:
Principal Name:
School Address (include County):

Number of Students Participating:

Please visit http://www.chemed.org/ybtc/ for more information.

The Space Telescope Science Institute STEM Innovation Project

The Office of Public Outreach at the Space Telescope Science Institute home of the Hubble and future James Webb Space Telescope (JSWT) is initiating the James Webb **STEM Innovation Project** (SIP). The SIP is an interdisciplinary project that focuses on the engineering aspects and potential scientific discoveries of the Webb telescope.

Students and teachers are invited to participate in the SIP. Project parameters include:

1. Requirements for student projects are flexible and at the teacher's discretion. Students can research an aspect of JWST's design or potential science and create physical models, illustrated essays, poems or musical performances, videos, or other technology-based projects to demonstrate learning.
2. The Institute will provide science and education support materials.
3. The Institute will display photographs of exemplary student work.
4. In recognition of students' participation, schools will receive a 3 ft. by 4 ft. museum-quality image of the Webb telescope for display at your school.
5. The time commitment for this project may be as short or as long as deemed appropriate.

Please contact **Julie Taylor**, for more information about the JWST Project and to receive a folder that contains lithos, bookmarks, Electromagnetic Spectrum Poster, and assorted other informational fact sheets. **Best of all, the program is free for schools.**

Julie Taylor
James Webb Space Telescope STEM Innovation Project
Educational Consultant for Space Telescope Science Institute
PO Box 214
Victorville, CA 92393-0214
760 953 7344
julie_taylor@eee.org or jtaylor@stsci.edu

Imagination Station

Imagination Station, Toledo's Science Center, offers hundreds of hands-on STEM Education exhibits this winter season.

Frostology: the science of the season explores the slippery science of snow and more. Visit Imagination Station and discover the science of the season.

For more information: http://imaginationstationtoledo.org/content/2014/04/25408/

The Cisco Internet of Things World Forum Young Women's Innovation Grand Challenge

The program is designed to encourage young women (between the ages of 13 and 18) to drive innovation and promote interest in science, technology, engineering, art, and math (STEAM) fields. The aim of the challenge is to recognize, promote, and reward young innovators as they come up with new uses for Internet of Things technologies.

The Challenge is to come up with new ideas on how technologies from the Internet of Things can improve education, health care, manufacturing, energy, retail, transportation, or smart cities, or to find new solutions that can cut through many industries. Read the FAQs HERE.

First-round submissions are due March 25, 2015. Winners will be announced in May 2015.

Visit http://iotchallenge-cisco.younoodle.com/ for more information.

Generating enough energy to heat and cool homes, fuel industries, and sustain the world's 7 billion people is one of society's grand challenges. And breakthrough ideas can come from anywhere - including from students! "The Power of Engineering," the theme of this year's TEAMS (Tests of Engineering Aptitude, Mathematics and Science) competition, gives middle and high school students the chance to investigate and solve real-world problems related to energy and engineering. Working in groups of four to eight, students apply their science and math knowledge to tackle scenarios involving solar, nuclear, and electrical power as well as biofuels.

TEAMS is a program of the Technology Student Association, a national nonprofit organization for students

engaged in STEM academic areas. Past TEAMS competitions have focused on such topics as improving cities, including ensuring adequate fresh water supplies. The goal is to provide an integrated STEM learning experience that gives students an inside look at the way engineers address problems and increased their self-confidence and teamwork skills.

Teams compete at their own school or at a host university during a **one-day competition held between February 9 and March 21, 2015**. High school teams vie to complete 80 multiple-choice questions and five short essays in two 90-minute sessions. Middle school students have an hour to complete 40 multiple-choice questions, and another hour to finish four short essays.

Top ranking teams are invited to compete at the **TEAMS national contest**, which will take place **June 28 - July 2, 2015, in Dallas, Texas**, during the national TSA conference. More than 6,800 students and educators participated in last year's conference, with middle and high school members competing in 60 events that included agricultural engineering, music production, and video-game design.

Registration for the 2015 TEAMS competition is now open. Find out more about TEAMS today at teams.tsaweb.org or contact Sandy Honour, TEAMS Manager, at shonour@tsaweb.org or call toll free at (888) 860-9010.

NCTM Invites Proposals for PreK-8 Pre-Service Teacher Action Research Grant

The National Council of Teachers of Mathematics is inviting proposals from pre-K teachers to support a collaborative action research project by university faculty, pre-service teachers, and classroom teachers seeking to improve their understanding of mathematics in preK-8 classrooms.

Primary emphasis will be placed on collaboration among a team of researchers consisting of university, elementary/middle school teachers, and pre-service teachers from the undergraduate ranks. Research should be designed, implemented, and completed with a focus on enhancing the teaching and/or learning of mathematics in grades preK-8.

A single grant of up to **$3,000** will be awarded. Grant funds should be used to support project expenses to plan and carry out the research.

For complete program guidelines and application instructions, see the NCTM website.

http://www.nctm.org/resources/content.aspx?id=15479

Cleveland State University, in collaboration with the **University of California, San Diego**, is offering an exciting professional development program to train teachers on a new AP course in Computer Science entitled Computer Science: Principles course.

Teachers who participate in the program will receive curriculum materials for the course, as well as a stipend of $2,000 in addition to another $1,000 in program materials and travel support. Teachers will be required to attend two workshops in Summer 2015, and then required to teach the CS Principles course during the 2015-16 academic year.

For further information about the program, please visit http://www.csedohio.org.

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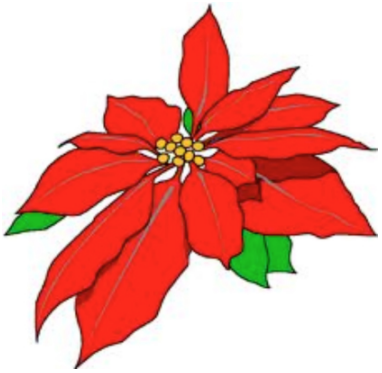
NWO Hands-On STEM Activity

Poinsettia Chemistry

Make Your Own PH Paper



Ohio Standards Alignment
Grades 9-12 (Current Ohio ACS - Physical Sciences)
Grades 7-12 (Ohio Revised Standards - Physical Sciences)

What You Need (for each group of students):

- Poinsettia plant (several leaves for each group)
- 400 mL Beaker Or 16 oz. Glass Jar
- Boiling Water Or Microwave Oven
- Toothpicks Or Eyedropper
- Scissors

- Coffee Filters Or Filter Paper
- Vinegar
- Baking Soda Solution (2g / 200ml Water)
- Rubber Gloves
- Safety Goggles
- Paper
- Colored Pencils

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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Find Even More Ohio STEM Education Resources

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

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