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In This Issue

K-16 STEM in the NEWS

[Cardinal Stritch High School launches first STEMM initiative art program](#)

Community STEM in the NEWS

[Imagination Station saved by provisional votes](#)

STEM Opportunities

[STEMfest!](#)

[STEM Speaks! 2012-13 NWO STEM Education Inquiry Series](#)

[Ohio State Stone Lab Offers a Taste of College](#)

[Sesame Street Presents: The Body](#)

[KIDS TECH UNIVERSITY at BGSU](#)

[STEM is Elementary](#)

[NASA History of Winter](#)

K-16 STEM in the NEWS

Cardinal Stritch High School launches first STEMM initiative through innovative state of the art program

A local northwest Ohio parochial high school, Cardinal Stritch, is paving the way for future success for its students through the launching of an innovative, state of the art STEMM (Science, Technology, Engineering, Math and Medicine) initiative. This program is notable, in part, because of the invaluable community partnerships from nearby BP Husky, Toledo Refining Company, and two hospitals, that have enhanced the program providing additional resources. Mercy College, The Andersons, Owens Corning, and others are also on board. Originating from the concept to better prepare students for their futures and the demand for skilled workers in STEMM related fields, Father Eric Schild, president of Cardinal Stritch stated, "The goal of the program is to offer an educational experience to better prepare students for mission-critical careers. While we will never cease striving for excellence in the other academic subject areas, we must provide our students with the knowledge that will help them be ready for what lies ahead of them.



As a result of a remarkable fundraising campaign, the school built an engineering lab through renovation and added 20 new computer stations equipped with CAD (Computer Aided Design) software. All freshmen in the class of 2016 received an iPad in the fall, as utilizing one-to-one technology is one of the keys for success. Older students may take advantage of four

[GSFC 2013 High School Summer Internship Opportunities](#)

[Tell Imagination Station what you think](#)

laptop and iPad carts placed in classrooms and all teachers were given iPads prior to the start of the school year to increase engagement. More advanced classes such as robotics and molecular biology have been added, as these classes better train students in the growing job fields. Special lectures from experts in the various fields will be offered to engage students about the exciting opportunities in STEMM related fields.

[\(read more\)](#)

NWO Hands-On STEM Activity

[Learning about Elliptical Orbits](#)

Community STEM in the NEWS

Imagination Station saved by provisional votes

NWO partner Imagination Station's future was saved by a Nov. 26 count and ratification of provisional votes. Narrowly escaping defeat, the hands-on science center located in downtown Toledo will remain supported by Issue 26. Below is Chief Executive Officer Lori Hauser's thank you to constituents:



"Thank you Lucas County and thank you to everyone that supported Imagination Station throughout this levy renewal campaign. After the provisional ballots were counted, Issue 26 has passed, securing 5 more years of outstanding STEM educational opportunities for the children of Lucas County. This proves that every vote counts. To thank you for your support, we will continue to offer Lucas County residents the following special benefits:

- Free admission every Saturday for residents 12 and under
- Discounts on admission, every day
- Discounts on membership
- Discounts on school group rates

Imagination Station, in partnership with school districts, universities and local businesses, is committed to helping prepare future generations to enter STEM (Science, Technology, Engineering and Mathematics) career fields. Thirty of the fastest growing jobs in the United States require a background in STEM. At Imagination Station, our unique blend of hands-on exhibits and experiences, aligned to academic content standards in Ohio and Michigan, plant seeds that excite, engage and inspire our future leaders to pursue STEM careers. Your support of Issue 26 has enabled us to plan further into the future including a wide range of traveling exhibitions fit for the whole family. You can look forward to seeing: Grossology: The Impolite Science of the Human Body; Titanic: The Artifact Exhibition; Guitar: The Instrument that Rocked the World; Mythbusters: The Explosive Exhibition; and Design Zone, alongside an array of exciting special events, guests and experiences to come. On behalf of the Imagination Station board of directors, team and the children of Lucas County, we thank you!"

Lori Hauser

Chief Executive Officer

[\[back to top\]](#)

STEM Opportunities

STEMfest!

The Works in Newark, Ohio is sponsoring a STEMfest! and Problem Solving Challenge for middle and high school students in February 2013. STEMfest! is all about teaching middle and high school students the importance of real-world math and science and engineering problem solving. Local business and industry partners collaborate to develop 3 Problem Solving Challenges relating to their industries. Prior to the STEMfest! event, eager groups of high school and middle school students select one Problem Solving Challenge and develop a solution. Participation in STEMfest! is free to schools and students and all supplies are also provided to students free of charge. Both events are open to anyone in the state.



STEMfest! will be held February 23 & 24, 2013.

The Works is a family-friendly science, art, and history museum in Newark, Ohio, which is dedicated to linking Science, Technology, Engineering & Math by acting as a catalyst between local industry, schools, parents & children.

Contact Information:

For more information about STEMfest!, www.attheworks.org

E-Mail: RoriLeath@attheworks.org

Facebook: <http://www.facebook.com/attheworks>

Twitter: <http://twitter.com/attheworks>

STEM Speaks! 2012-13 NWO STEM Education Inquiry Series continues

January 8, 2013 ~ Susan Everett, co-author of *Everyday Engineering: Integrating Science and Engineering Activities*. This book's goal is to put the E in STEM Teaching and Learning, and is "an ideal way to spark students' fascination with the marvels of engineering behind the seemingly simple".

Please join us for this engaging event! [Click here](#) to register for the Jan. 8 Inquiry Series.

For more information please visit: <http://cosmos.bgsu.edu/inquiryseries/index.htm>

Upcoming Education Inquiry Series dates: February 12, and March 12, 2013.

As always, if you are interested in getting contact hours for watching the video and reflecting on the ideas

presented, please contact nwo@bgsu.edu for more information.

Ohio State Stone Lab Offers High School Students a Taste of College

Stone Lab, Ohio State's Island Campus on Lake Erie, offers high school sophomores, juniors and seniors a taste of college classes with summer science courses on Lake Erie's Gibraltar Island. Students get to know professors who could serve as references on college applications, and earn college credit that could cover undergraduate course requirements before they even start freshman year!

These classes (one week, 2 semester credits) are open to high school students who have completed one course of high school biology or environmental science:

- Ecology and Conservation of Birds (June 9 - June 15)
- Introduction to Biological Studies - Aquatic Biology (June 9 - June 15, July 21 - July 27, July 28 - Aug 3)
- Lake Erie Sport Fishing (June 9 - June 15)
- Field-Based Introduction to Oceanography (July 21 - July 27)
- Introduction to Biological Studies - Local Plants (July 28 - August 3)
- Introductory Insect Field Biology (July 28 - August 3)

More information is available on the Stone Lab website: <http://stonelab.osu.edu>, or by emailing stonelab@osu.edu. Course information: <http://stonelab.osu.edu/courses/intro/>.

Most students taking for-credit classes are eligible for scholarships: <http://stonelab.osu.edu/costs/>.



Imagination station, located in downtown Toledo, continues Sesame Street Presents: The Body, featuring three different education zones related to the human body. **This exhibit ends January 27, 2013**, and is an interactive showcase all about the human body. Imagination Station has special holiday hours while children are off school! More info: <http://www.imaginationstationtoledo.org>

KIDS TECH UNIVERSITY at BGSU

Following the successful launch of the Kid Tech University (KTU) program last year we are excited to announce the invited speakers for the 2013 program of KTU at BGSU. This spring semester event will be for

kids between the ages of 9 and 12 (by September 30, 2012) who live within one hour driving distance of BGSU. KTU is held in the same campus lecture halls used by BGSU students. The morning session features a talk and extended question period with the invited speaker. The afternoon sessions will include a series of hands on activities, relevant to the session topic that the children can participate in with their parents. Registration will be limited to 150 children, and starts at 6:00pm on December 10, 2012. **Registration is online at the KTU web site:** http://kidstechuniversity-bgsu.vbi.vt.edu/county_registration.php

Feb. 9, 2013

Dr. Jennifer Kay, National Center for Climate Research, Boulder, Co
<http://www.cgd.ucar.edu/staff/jenkay/>

"Bright Blankets And Boating Bonanzas: How Do Clouds And Ice Affect Our Planet?"

Feb 16, 2013

Dr. Craig Zirbel,
Professor Mathematics and Statistics, Bowling Green State University, Bowling Green OH.
<http://www-math.bgsu.edu/z/> "Practical Math For The Digital Age."

April 6, 2013

Dr. Brett Tyler
Director, Center for Genome Research and Biocomputing, Oregon state Univ., Eugene OR.
<http://bpp.oregonstate.edu/tyler> "Why My Banana Doesn't Get The Flu"

April13, 2013

Dr. Ron Woodruff, Distinguished Research Professor, Biological Sciences, BGSU
<http://www.bgsu.edu/departments/biology/people/woodruff.html>
"What Can Flies Tell Us About Human Health and Evolution?"

"STEM is Elementary" Opportunities:

- The Children's Council of the International Technology and Engineering Educators Association is sponsoring a paper engineering contest for all U.S. students in grades PreK-6. Winning entries will get an autographed copy of world-famous paper engineer artist David Carter.
- There is a free workshop on integrating STEM into the elementary language arts/social studies curriculum. It is A Children's Council sponsored workshop that precedes the ITEEA national conference will be held Wednesday March 6 from 5 to 6:30 PM. Dr. Susan Holland, retired gifted and technology education teacher from Westerville (OH) Schools will be the presenter.
- The ITEEA national conference will be held in Columbus, OH March 7-9, 2013 at the Columbus Convention Center. Many sessions will be specifically for elementary level educators. Deadline for early registration is February 1, 2013.

More information is available at: <http://www.stemiselementary.com/> or <http://www.tecchome.org/index.html>

NASA History of Winter 2013: An Immersive Cryosphere Science Training Camp

Secondary STEM teachers, STEM pre-service teachers, Higher Education faculty in STEM/STEM Education, and Informal Education partners are invited to participate in History of Winter training at Lake Placid, NY on February 10-16, 2013.

This week of training places teachers in the role of scientists, working side-by-side with professional scientists and technologists. Learning by doing, teachers gain a better understanding of scientific inquiry through field research experience as well as a firsthand understanding of the study of snow and ice as indicators of climate change. Central to this week are studies of:

- Training in field protocols for snow and ice study
- The Global Snowflake Network (GSN) - an interactive online data resource for science and education
- Thermochron Mission - unique technology that records temperature data used as a means to encourage inquiry
- Effective use of technology to record and share data
- Pre and post components for classroom integration of content

GSFC 2013 High School Summer Internship Opportunities

NASA Goddard Space Flight Center High School Summer Intern Programs engage interns in applications of science, technology, engineering, and math (STEM) in a research-focused work environment at Goddard. Student interns learn and apply research protocols and processes related to Earth & space-systems science, computer science, engineering, and technology. More info: <https://intern.nasa.gov>

Interested students may create a profile and apply to a project(s) anytime during the open registration period, November 1, 2012-March 15, 2013. Projects will be added to the database on a continuing basis.

Tell Imagination Station what you think and be entered to win a Kindle Fire HD!

Imagination Station, Toledo's science center, wants to hear from you. We're always working to provide the best possible experience for area students and educators. That's why we are conducting a short survey to find out what educators think about the job we're doing. Even if you've never visited, we'd love to get your thoughts! We're also organizing focus groups for January. Participants will receive a **\$25 gift certificate** to Meijer for their time. Sign up today and we'll be in touch!



Click on this link <<http://www.imaginationstationtoledo.org/content/2012/12/imagination-station-teacher-survey->

[2012/](#)> to take the survey and to **enter to win a Kindle Fire HD!**

[\[back to top\]](#)

NWO Hands-On STEM Activity

Better Lesson (<http://betterlesson.com/>) is an online social network which allows teachers to share classroom resources, and was founded by a group of teachers from Atlanta and Boston public schools to connect educators and help them create, organize, and share their curricula. They are focused on aggregating and scaling the most innovative content and practices from high-performing teachers across the country.

LEARNING ABOUT ELLIPTICAL ORBITS

Recommended for grades 9-12

To a rough approximation, everything in the sky seems to move in circles around Earth - the Sun, the Moon, the planets, and even the stars. For thousands of years, astronomers tried to model the motion of the planets using circles or combinations of circles - partly because the circle was such a "perfect" shape. In 1543, Polish astronomer Nicholas Copernicus told us that Earth and the other planets actually orbit the Sun, and that the Moon orbits Earth. But he still described these orbits as circular. Then in 1609, German astronomer Johannes Kepler proved that the actual shape of Mars' orbit is an ellipse. It followed that all of the planets follow elliptical orbits around the Sun, with the Sun at one focus point.



Download a pdf of the complete hands-on activity by [clicking here!](#)

[\[back to top\]](#)

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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