



Vol. 6 Issue #4

April 2014

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BGSU hosted the 51st Ohio Junior Science and Humanities Symposium (OJSHS) on March 19-21, 2014. This statewide event showcased outstanding high school and eighth grade science



students from across the state of Ohio. These students have accomplished cutting-edge research in the areas of science, technology, engineering, and mathematics (STEM). Over 100 students participated in this three-day symposium, which featured 24 research paper presentations and 71 research poster presentations. Twenty-eight BGSU faculty from the Colleges of Arts and Sciences, Education and Human Development, and Technology, Architecture and Applied Engineering served as judges and shared their research expertise with these young scientists. The top two paper winners, Bluye' DeMessie and Aditya Jog, both from William Mason High School in Mason, OH, will present their research at the National Junior Science and Humanities Symposium in Washington D.C. later this month.



The OJSHS student participants also took in tours of several BGSU research labs and state of

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the art buildings, including the Gold LEED certified Stroh Center.

The symposium is sponsored by BGSU's Northwest Ohio Center for

Excellence in STEM Education (NWO)/COSMOS in cooperation with The Academy of Applied Science and with the support of the Departments of the Army, Navy, and Air Force. The BGSU College of Arts and Sciences, College of Education and Human Development, Department of Biological Sciences, Department of Chemistry, Department of Physics and Astronomy, and the School of Teaching and Learning sponsored research paper awards.



Emilio Duran, longtime Director of the event stated, "Once again we were enormously impressed with the fine work presented by the students. It is indeed a pleasure to be part of this event which showcases the best and brightest in the state of Ohio."

For a full listing of winners and additional information and photos: http://cosmos.bgsu.edu/nwo_ojshs

Community STEM in the NEWS/Time For Summer STEM Camp Sign Ups!

Armstrong Air And Space Museum Camp

Monday 08/04/2014 (All day) - Friday 08/08/2014 (All day)

www.armstrongmuseum.org

Children's Discovery Center Summer Camp

Children's Discovery Center: provides unique opportunity for children ages 6 to 10 to enjoy a summer filled with adventure, learning and fun. Summer of Wonder curriculum introduces children to the wonders of weather and nature. Please check the website for a full listing of camps and registration details.

www.childrensdiscoverycenters.com

Circle Pines

Circle Pines Center teaches peace, social justice, environmental stewardship and cooperation. Please check the website for a full listing of camps and registration details. www.circlepinescenter.org

Imagination Station Summer Camps

While it's HOT and steamy outside, enjoy fun-filled, week long summer camps loaded with COOL science to experience. Choose from three exciting camps:

- Super Splatter Science!
- Behind the Mask - NEW THIS SUMMER!
- Survival Science Camp

For kids ages 7 - 12 (2nd - 7th grade in the fall)

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

Lourdes University Summer Camp

Lourdes University summer camp focuses on exploring nature's hidden mysteries through science. Examine habitats with biology, make crystals using chemistry, zoom in on patterns of wings, shells and leaves to create your own art, build a tree using engineering and more. A great fun-filled mix of science in one camp!

Exploring Nature's Mysteries

June 16-June 20, 9 a.m.-noon. Registration deadline is May 20.

<http://www.lourdes.edu/Home/Academics/CollegeofArtsandSciences/ChemistryandPhysicalSciences/SummerCamp.aspx> or **Contact 800-878-3210** for more information.

Maumee Valley Country Day School Summer Program

Summer activities available for PreK - 12 students and includes a wide variety of STEAM (Science, Technology, Engineering, Art and Math) activities. www.maumeevalleysummertime.org

Mercy College Of Ohio: Camp Scrubs Healthcare And Science Fun

Campers will enjoy a week of hands-on activities and behind the scenes medical adventures.
To register call **(419) 251-1799**.

Toledo Area MetroParks Spring Break & Summer Camps

Toledo Area MetroParks has a wide variety of camps to choose from, please check website.

Wee workshop (ages 3-15)
Explorers (ages 5-7)
Nature Camp (ages 8-12)
Teen Camp (ages 13-16)
Art Camp (ages 8-14)
Family Camp (ages 5 and up)
Overnight Camp
Camp Expedition (Adults)

http://www.metroparkstoledo.com/metro/whattodo/index.asp?page_id=720

Penta Career Center Summer STEM Camp

<http://www.pentacareercenter.org/Downloads/STEMCamp-Broch2014.pdf>

National Computer Camp At John Carroll University

National computer camp at John Carroll University focuses on 2D and 3D video game design, digital video production, networking, web page design, computer programming and software applications.

www.Nccamp.com

Toledo Zoo Summer Safari Camps

The Toledo Zoo has a wide variety of camps to choose from, please check the website for a full listing of camps and registration details. http://www.toledozoo.org/site/page/summer_safari_camps

Toledo Botanical Gardens Summer Camps

The Toledo Botanical Gardens offers Children's Educational Summer Programs, please check the website for a full listing of camps and registration details. <http://www.toledogarden.org/summer2014>

Area High Schools Offering Summer STEM Day Camps

St. Johns Jesuit: www.sjtitans.org

Notre Dame Academy: www.nda.org

St. Francis Desales: www.sfstoledo.org

St. Ursula Academy: www.toledosua.org

Toledo Area Humane Society Summer Camps

Animal Tails Summer Camps for ages 5-14, please check the website for a full listing of camps and registration details. https://www.toledohumane.org/index.php?option=com_chronoforms&chronoform=SummerCampRegistration or www.toledohumane.org

Toledo YMCA/JCC

Specialty day camps, please check the website for a full listing of camps and registration details.

www.ymcatoledo.org/summercamp

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Special Feature

Get Your Molecules In Motion!

How to Get Started with Molecular Workbench

By David Erickson and Neocles Leontis, BGSU Chemistry Dept.

Do you find it challenging to convince your beginning chemistry and biology students that atoms and molecules are always moving, and moving randomly, except of course when the temperature approaches

absolute zero! We did until we discovered Molecular Workbench (MW) (<http://mw.concord.org/modeler/>). With MW students can accurately simulate melting and evaporation, diffusion, osmosis, solubility, etc. and even simple chemical reactions. With your guidance, the students can experiment to see how changes in parameters like temperature, pressure, molecular mass and size, and electrical charge affect what molecules do.

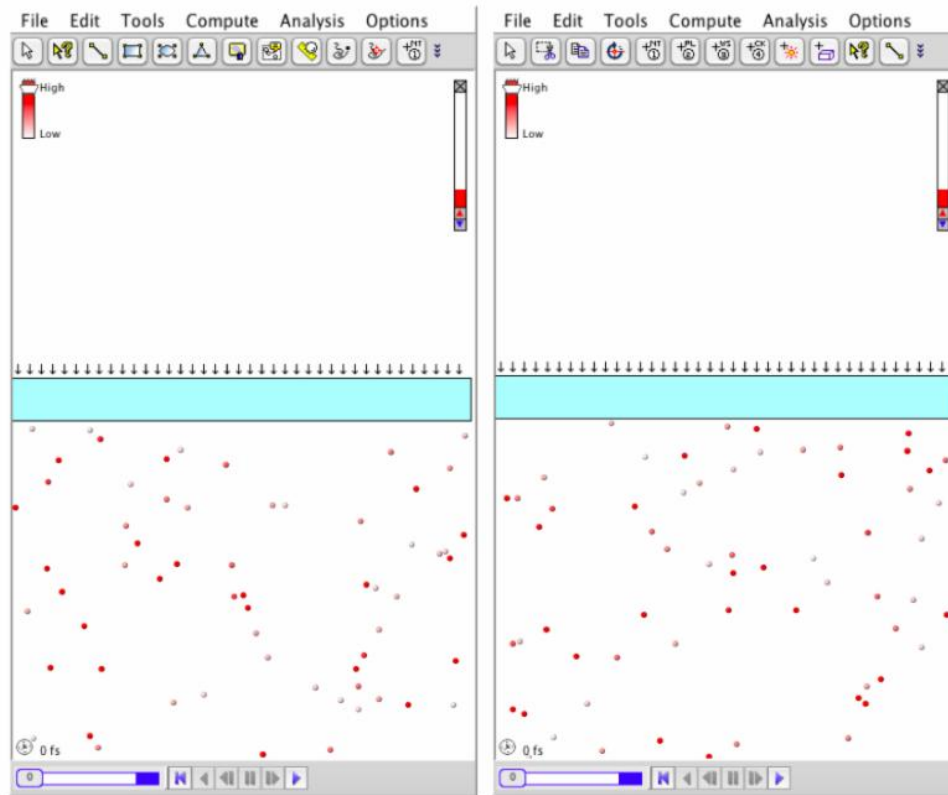
How many times have you taught gas laws but weren't sure students were really getting it? Try this hands-on activity with your students to see what we mean. This is an activity we built with other teachers in a workshop we held. You can use it as is or modify with the tools provided by MW.

Let's get started:

1. First download Molecular Workbench from this link: <http://mw.concord.org/modeler/>
2. Follow instructions to install on your computer.
3. Next paste this link into your favorite web browser to download and launch the activity:
<http://mw2.concord.org/tmp.jnlp?address=http://mw2.concord.org/model/144c1b3d0fe/Idea%20vs.%20Real%20Gases.cml>

You will see two identical simulation windows side by side so you and your students can do controlled experiments. The one on the left can serve as the "ideal gas" while you change parameters on the right side: Try changing molecular parameters like **size** of gas molecules, their masses, their interactions (click on a particle to get the pop-up window) or global parameters like temperature and pressure. Additional instructions are given in the activity.

In this space we will provide each month a new activity for you to try. Please let us know how you used this and modified it to suit your needs.



Additional instructions are given in the activity.

In this space we will provide each month a new activity for you to try. Please contact us or post comments below on how you used this and modified to suit your needs.

To learn more about using MW to create your own activities and simulations, please visit our tutorial page: <http://tinyurl.com/MW-workshop-2014>

STEM Opportunities

The Green Fun'd Run!

Saturday, May 3rd

10:00 am - 12:00 pm

on the campus of BGSU

5K Run/Walk starts at 10:00 am outside Memorial Hall.

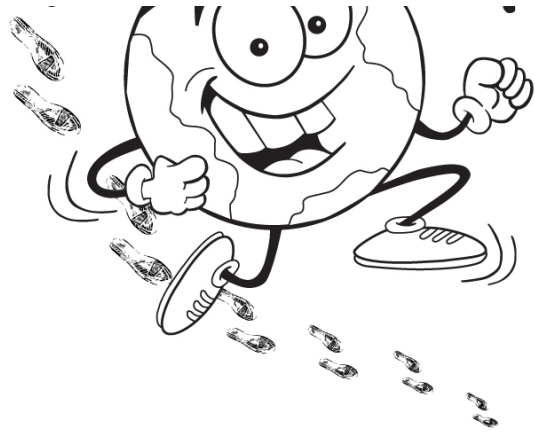


Green Fest to follow! Prize Raffle at 11:45 am

Registration Fee \$10/student; \$15/non-student

Register today to be sure get a t-shirt and water bottle (available while supplies last) Pre-Registration closes on April 18, 2014

The Green Fun'd Run is a 5K (3.1 mile) run/walk for BGSU students, faculty, staff, and the local community to raise awareness for the BGSU Green Fund and promote campus and community sustainability efforts. During the run/walk, you will see important messages about environmental sustainability. At end of the race, take an "online" quiz over these ideas and visit sustainability activity booths at the Green Fest. For your participation at each activity, you will get a raffle ticket for green prizes (silent auction style). Enjoy music, a healthy snack, hang out, and talk sustainability. At 11:45 am, Sam Evans, Science Teacher at Maumee High School and Climate Change Leader, will give a high energy 15 minute talk followed by the prize drawings. This is NOT A TIMED race, but check your time using the big clock at the finish line. Recycled art trophies will be awarded for the top male and female participants in five age brackets. Register early and get an organic cotton t-shirt and a water bottle (made from 100% recycled materials) (while supplies last).



Registration is now OPEN!

Runner/Walker Registration: https://docs.google.com/forms/d/1p1YLS1Ha3DRKXKeJkfgfWcLydxMM5A_CL-wFyRINhTk/viewform

Pre-Registration closes on April 18, 2014.

Race day registration is available from 9:00 AM - 9:50 AM on May 3.

Visit website for more information: <http://cosmos.bgsu.edu/GreenFundRun/index.htm>

PRESENTED BY: Office of Sustainability, Green Fund, Department of The Environment and Sustainability, & NWO/COSMOS

#Run4Change@BGSU

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, featuring: 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.nwocenter.org/STEMinPark

EGGstreme Science At Imagination Station

Spring into Imagination Station, and explore the science of eggs. Stand eggs on end, pull eggs into a bottle and make naked eggs. Make sure to EGGsperience all the EGGciting EGGperiments during EGGstreme Science. Learn more about EGGstreme Science and upcoming science weeks.

***The science center is open on Monday, April 21. Closed on Easter Sunday, April 20.**

For more information visit the website: <http://imaginationstationtoledo.org/content/2013/08/eggstreme-science-3>



Community Resources Workshop for K- 12 Teachers

Registration is now open for this week-long workshop that features activities addressing the new common core standards, STEM learning, and 21st Century skills. It will be held June 16-20, 2014 at local community partner sites.

The cost to attend the workshop is \$150 and includes a contact hour certificate, most meals, all materials, parking, entrance fees and much more. Please visit <http://cosmos.bgsu.edu/CRW/CRWhome.htm> for details and registration.





Announcing the National Science Foundation's award-winning Science360 for iPad app, which brings thousands of engaging images and videos of science, engineering and mathematics to iPads.

For more information visit the website: <http://science360.gov/ipad/about>



The Google Science Fair is an online science competition open to students ages 13 to 18 from around the globe. It encourages them to change the world through scientific inquiry. They'll learn about their chosen topic and develop key skills along the way.

Every year, teachers play a huge role in the Google Science Fair. Many past finalists and winners credit their teachers with telling them about the competition in the first place and supporting their participation. Google has put together resources so teachers can involve students, build on existing classroom learning and contribute positively to their experience.

Join Google in helping to champion a new generation of innovators. **Deadline to apply is May 12**

<https://www.google-sciencefair.com/en/>

<https://sites.google.com/site/gsf2014educatorsite/>

American Psychological Foundation Pre-College Psychology Grants

These grants are intended to support the science and application of psychological science among talented high school students. APF wants to support high-quality education in psychology and to nurture the next generation of psychologists, with up to \$20,000 for projects that support the goals of the program. The **deadline for applications is May 1, 2014**. For more information, go to the <http://www.apa.org/monitor/2012/04/pre-college.aspx>.

NCTM In-Service Training Grants For Grades PreK-5 Teachers

The purpose of this grant is to provide financial assistance to elementary schools for in-service education in mathematics. For 2014-2015, grants of a maximum of \$4,000 each will be awarded to elementary schools. Only schools with a current (on or before April 25, 2014) NCTM PreK-8 school membership are eligible to apply for this grant. **The deadline is May 2, 2014**. For more information: <http://www.nctm.org/resources/>

Thacher Environmental Research Contest

The Thacher Environmental Research Contest is a national competition for secondary school students founded by IGES in honor of former IGES board member Peter Thacher, who died in 1999. Peter Thacher was a former Assistant Secretary General of the United Nations (UN), Deputy Executive Director of the UN Environment Programme (UNEP), NASA Advisor and, at the time of his death, president of the Earth Council Foundation/U.S. He was a leader in promoting the use of satellite remote sensing.



Prizes are awarded annually to secondary school students (grades 9-12) designing and conducting the best projects using satellite remote sensing of the Earth. Three cash awards will be given - 1st place - \$2,000, 2nd place - \$1,000 and 3rd place - \$500.

For more information visit: <http://strategies.org/education/student-contests/thacher-contest/>

Ohio Geological Survey "Hands-On Earth Science" Activities Now Correlated To New Ohio Science Standards

The Ohio Geological Survey has correlated all of its Hands-On Earth Science activities to the new State of Ohio Revised Science Standards. Teachers and educators can use these activities to address topics in the recently updated standards and model curriculum, which feature expanded requirements for Earth science and

geology.

Hands On activities can be applied from PreK through high school grade levels and deal with various content standards, including Earth and space science, chemistry, physical science and life science. Students can learn about and develop a greater understanding of various geologic concepts, such as geologic time, rocks and minerals, fossils and even plate tectonics.

The series offers an interactive approach to teaching and learning and can be utilized both in the classroom and at home, where parents can engage in learning with their children. Many of these activities can be utilized with other educational resources available from the Ohio Geological Survey, including the Ohio Rock and Mineral sets, Ohio's Geological Walk Through Time and educational leaflets.

Teachers may also find the hands-on activities useful for other subject areas. For example, some activities can be used to teach fourth graders about the role of industrial minerals in Ohio's development as a state from flint used and traded by Native Americans and early settlers to limestone used today for making concrete and other products.

All hands-on activity sheets are available for [free download here](#). For more information, contact the Ohio Geological Survey at (614) 265-6576 or geo.survey@dnr.state.oh.us.

2014 Summer High School Corrosion Research Academy

June 9 - August 1, 2014

The Corrosion Research Academy gives superior high school students considering a career in engineering hands-on research experience by working on research projects with University of Akron professors doing research on corrosion and materials performance. The research program will take place during the university's summer session and is funded by the National Center for Education and Research on Corrosion and Materials Performance (NCERCAMP). Students work in teams of two under the supervision of professors and graduate students at the University of Akron.

Students will:

- Participate in laboratory research
- Prepare a collegiate scientific poster
- Learn about corrosion engineering as a major and career
- Gain valuable experience prior to attending college

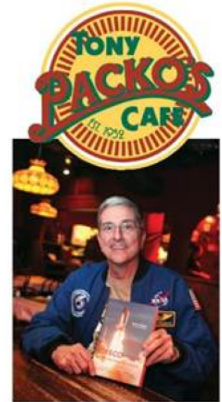
More information and applications may be found at: <http://www.uakron.edu/corrosion/ncercamp/education.dot>
Space is limited. Apply by May 5!

Astronaut - Author Don Thomas To Visit Tony Packo's®

The Andersons and Tony Packo's will be welcoming **Astronaut Don Thomas** for a book signing at their Maumee location on **Saturday, April 26th from 11AM - 1:30PM**. Mr. Thomas authored and recently released "Orbit of Discovery: The All-Ohio Space Shuttle Mission". A fascinating insight of NASA Space Missions and a story of a young boy's perseverance to fulfill the dream of becoming an Astronaut.

Shortly after the July 1995 Mission, Don spoke at Glenwood Elementary School in Rossford and then visited the Original Tony Packo's. It was his first experience with Toledo's iconic restaurant. He fell in love with the food and made sure the Hot Dog Sauce was included on his next two Shuttle Missions.

With each visit to Toledo, which Don calls his second Hometown, he always stops at Packo's for his favorite meal, their famous Hot Dogs. He has signed a bun, posed for pictures and even donated a photograph taken in space with three cans of Hot Dog Sauce floating in front of him. **Books to be sold while supplies last for \$20.**



Ohio STEM Learning Network Akron Hub Offer Summer STEM Workshops

Innovative STEM Leadership Workshop

[Click here](#) for more information



Akron Hub

Problem-Based Learning Design Workshop

[Click here](#) for more information

Professional Learning Communities for Curriculum Assessment and Instruction for 21st Century Learners

[Click here](#) for more information

PD Opportunity In Bioenergy And Bioproducts

The National Bioenergy and Bioproducts Education Program (NBBEP) is a USDA-NIFA-AFRI funded, multi-institution, multi-state initiative that connects classroom educators to major sustainable bioenergy research initiatives. The program includes intensive teacher training in Bioenergy & Bioproducts STEM disciplines, including agriculture. Pre-service and In-service Science, Technology, Engineering, Math and Agriculture Educators (teaching grades 6 through undergraduate level) who aspire to be leaders in bioenergy & bioproducts education are the focus of the program. Stipend included.

<http://www.bioenergyed.org/programs/one-week-workshops-0/ohio-bioproducts-innov-center-july-15-19-2013>

FREE Science Tools And Resources For Your Classroom!

Discovery Education and the **Siemens Foundation** proudly offer three unique programs for K-12 educators and students to foster achievement in STEM.

Siemens Science Day

WHO: K-6 educators and students

WHAT: An online portal with more than 90 FREE hands-on classroom activities and videos, as well as teacher support resources designed to promote science literacy in elementary classrooms. Resources include how-to videos, teacher prep kits, best practice guides and monthly themes to get your students excited about science. <http://www.siemensscienceday.com/>



Siemens We Can Change the World Challenge

WHO: K-12 educators and students

WHAT: The nation's premier environmental sustainability competition where students create solutions to environmental problems and compete for more than \$300,000 in prizes. Through project-based learning, students learn about science and conservation while gaining 21st century skills. Educators can access a wealth of free digital tools including new lesson plans that address Next Generation Science Standards and Common Core, virtual labs, videos and more. <http://www.wecanchange.com>



Siemens STEM Academy

WHO: K-12 educators

WHAT: The leading online educator community offering FREE resources, a monthly virtual event series and professional development opportunities in the rapidly evolving areas of science, technology, engineering and mathematics. The online portal is teeming with resources that support teachers in their lesson planning and implementation, while exposing them to new and ground-breaking learning methods and approaches to teaching STEM concepts. <http://www.siemensstemacademy.com/>



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NWO Hands-On STEM Activity

Celebrate Earth Day and Spring with these activities:



For the first time in more than a decade, five NASA Earth-observing missions will be launched into space in a single year. To celebrate this milestone, NASA is inviting people all around the world to step outside on **Earth Day, April 22**, take a "selfie," and share it with the world on social media.



Designed to encourage environmental awareness and recognize the agency's ongoing work to protect our home planet, NASA's "Global Selfie" event asks people everywhere to take a picture of themselves in their local environment." (NASA April 2014) Please read more and participate: <http://www.nasa.gov/press/2014/april/nasa-celebrates-earth-day-with-global-selfie-event>

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***Time to take your students outdoors to learn about their environment.*** This lesson is from: [www.discoveryeducation.com](http://www.discoveryeducation.com)

**Grade Level: K-5**

**Lesson Overview:**

In this lesson students will identify the needs of plants and examine the qualities and ingredients of soil. They will identify which types of garden plants are typically grown in their area and why. They will investigate the effects of growing plants in different types of soil.

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.

Join NWO on [Facebook](#)

Follow NWO on [Twitter](#)

**Find Even More Ohio STEM Education Resources**

Visit our STEM clearinghouse, [nwostemresources.org](http://nwostemresources.org), for more STEM activities, programs, and information.

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