Greetings!

Thinking about the warm spring weather just around the corner? How about all the great spring and summer activities for you and your students? Check out all the different options below. We hope to see you here on campus for Ready, Set, Design!, Robo Challenge, and the Annual JHU Physics Fair. Until then, stay warm!

Enjoy,
The Center for Educational Outreach

Opportunities and Events for Students

**Date:** February 23, 2013  
**Location:** Glass Pavillion in Levering Hall  
**Time:** 10:00 am to 1:00 pm  
**Theme:** Technologies to Help Developing Countries

At Ready, Set, Design!, middle-school girls will first learn about the engineering design process and about the theme of that session’s activities. Then, the students will split into groups to work on the group design projects. Each group will design a device to perform a specific task related to the theme of the session. Creativity is encouraged - every idea is worth exploring! Girls will also have the opportunity to interact with Johns Hopkins engineering students, as well as to meet local women who have
found success and fulfillment in exciting engineering careers. Register online here.

David W. McDuffie Memorial Scholastic Chess Tournament
Date: February 23, 2013
Location: Poly-Western High School Complex (1400 Cold Spring Lane, Baltimore 21209)
Time: 9:30 am

The Maryland Chess Association is pleased to announce the upcoming David W. McDuffie Memorial Scholastic Chess Tournament. Registration fees are $15.00 in advance or $30.00 at the door. Students in Kindergarten through grade 12 may participate; however, membership in the United States Chess Federation (USCF) is required. Players in the Varsity section can earn MD-Sweet-16 Varsity Points to qualify for the Maryland Sweet 16, an annual invitational chess tournament at University of Maryland, Baltimore County. The winner of the MD Sweet 16 will receive a 4-year scholarship to UMBC valued at $35,000.

World Water Day 2013
Who: Your middle school students!
What: Students from Johns Hopkins Bloomberg School of Public Health would like to teach your students about the importance of clean water and the role of safe water for health. We are available to give a water-focused presentation (about 45 minutes with a demonstration) to your middle school students between March 18 and 29, 2013 and will come to your Baltimore school. We ask that teachers remain with the students during the presentations, and that the class size be limited to 30 students.
When: Classroom visits to be scheduled between March 18 and 22, 2013
Where: Your school!
Why: To celebrate World Water Day which is March 22.
How: To schedule, please contact Elizabeth (Betsy) Denning at edenning@jhu.edu by Friday, February 22.

Robo-Challenge
Robo-Challenge is a free robotics competition hosted by the Laboratory for Computational Sensing and Robotics (LCSR) that encourages middle and high school students to construct and program robots to compete in five competitions: petite slalom, mystery maze, search and destroy, robot dance, and innovative use. This year's competition is April 27th. Don't wait to start preparing! More information here.

Community Events

Introduce a Girl to Engineering Day @ JHU
Date: February 17, 2013
Location: Johns Hopkins University, Glass Pavilion in Levering
Time: 9:00am - 3:00pm
A JHU-wide Outreach Event! This is an educational outreach event to show girls in grades 3-6 what being an engineering is like! All participants will complete engineering projects and get to speak with current engineering students.
This event is being held in conjunction with National Engineers Week (Feb 17th-23rd) as well as the JHU Whiting School of Engineering Centennial Celebration! The event is free, but registration is required.

**Taking Sudoku Seriously**

**Date:** March 5, 2013  
**Location:** Johns Hopkins University, Hodson 110  
**Time:** 7:00 pm

Are you a Sudoku addict or have students that are? Come learn more about the math behind the puzzle. The Hopkins Undergraduate Society for Applied Mathematics (HUSAM) welcomes Dr. Rosenhouse to the Hopkins campus on March 5th at 7:00 pm. RSVP for the event [here](#).

**Girl Power 2013**

**Date:** March 17, 2013  
**Location:** APL Kossiakoff Center, 11100 Johns Hopkins Road, Laurel, MD 20723  
**Time:** 2:00 pm

Girl Power is an annual expo for middle and high school girls to give them the opportunity to meet and talk with women working in science, technology, engineering, and mathematics (STEM) careers. Through hands-on activities and demonstrations, the girls can discover new career possibilities and spark an interest in pursuing a STEM major and career. The list of careers and STEM fields that will be presented at the event is constantly growing and changing but includes aerospace, biotechnology, computer science, engineering, geology, information technology, space, and more.

Parents are welcome to attend with their daughters. Directions to this event can be found [here](#). No registration is required, and the event is free. Parking is also free. For more information, call 443-778-STEM (7836) or e-mail aplstem@jhuapl.edu.

**10th Annual Physics Fair**

**Date:** April 13, 2013  
**Time:** 11:00 am to 5:30 pm  
**Location:** JHU Homewood Campus

Experience a Scavenger Hunt ~ Balloon Rocket Contest ~ Over 200 Active Science Demonstrations ~ Liquid Nitrogen Frozen Ice Cream ~ Interactive Astronomy Exhibits and Activities ~ Adventures in Aerospace ~ Hubble Space Telescope Exhibit ~ Phreaky Physics...and much more!

**Question:**

If evaporation, condensation, and precipitation are happening all day long, all around us, why are there not clouds above the ocean constantly?
**Answer:**
Although evaporation, condensation and precipitation are happening all day long, all around us, cloud formation only occurs under certain conditions. First, the air must be completely saturated. Clouds will only form if the air is holding the maximum allowable amount of water vapor. Warm air can hold more water vapor than cold air. The air can become saturated in one of two ways: either by evaporation from the surface or by rising and cooling off. Second, the air must have small invisible dust particles (called aerosols) in order for clouds to form. This process applies over all different types of water bodies and surfaces. Nonetheless, there are not always clouds over the ocean because there is not always enough water vapor in the air. Although there is a huge body of water under the air, it requires energy (from solar radiation and winds) to evaporate the water into the air.

Alexandria Russell  
Johns Hopkins University

Do you have questions for a professor?  
Email asktheprofessor@jhmi.edu to get the answer in the next newsletter!

As always, we hope you find this newsletter useful. We'll have lots more information about late spring and summer programs in our next newsletter!

Sincerely,

Margaret Hart  
Center for Educational Outreach
Greetings!

We hope you're out enjoying the fabulous spring weather. Check out the events happening this coming weekend, like Girl Power and Engineering Challenge or the 10th Annual Physics Fair next month. Don't let your high school students miss out on the scholarship opportunity from Northrop Grumman - application deadline is the end of March.

Enjoy,
The Center for Educational Outreach

Opportunities and Events for Students

cogito.org webinar
Cogito.org, a STEM-focused website produced at the Johns Hopkins Center for Talented Youth (CTY), is hosting a webinar at 7 p.m. on Thursday, March 21, featuring Michael McLoughlin, who has led a team of APL engineers in developing the Modular Prosthetic Limb, a robotic arm that is, remarkably, controlled by human thought. This amazing mechanism was featured in a "60 Minutes" segment in which a 53-year-old woman with a disease that left her quadriplegic demonstrated how she could command the robotic arm to shake hands and pick up a cup of water - all by simply using her mind. If you would like to nominate interested students for membership to Cogito so that they can participate in the webinar, they should email us at cogitocty@jhu.edu. Students should be ages 13 to 18 and be interested in STEM.

Northrop Grumman Scholarship
Know a high school senior planning to study engineering in college? Then make sure they apply for the Northrop Grumman Engineering Scholars Program. Scholarships of $10,000 over the course of four years* ($2,500 a year) will be awarded to selected students. Application deadline is March 31st. More information and a link to the application can be found on the Engineering Scholars site.

Community Events

Girl Power 2013
Date: March 17, 2013
Location: APL Kossiakoff Center, 11100 Johns Hopkins Road, Laurel, MD 20723
Time: 2:00 pm
Girl Power is an annual expo for middle and high school girls to give them the opportunity to meet and talk with women working in science, technology,
engineering, and mathematics (STEM) careers. Through hands-on activities and demonstrations, the girls can discover new career possibilities and spark an interest in pursuing a STEM major and career. The list of careers and STEM fields that will be presented at the event is constantly growing and changing but includes aerospace, biotechnology, computer science, engineering, geology, information technology, space, and more.

Parents are welcome to attend with their daughters. Directions to this event can be found here. No registration is required, and the event is free. Parking is also free. For more information, call 443-778-STEM (7836) or e-mail aplstem@jhuapl.edu.

### Engineering Challenge

**Location:** Maryland Science Center; 2nd Floor outside of the Legg Mason Gallery  
**Cost:** Free with paid admission  
**Who should attend:** Everyone  
**When:** March 16 and 17; 2:00 - 4:00pm

Create a seed-carrying contraption that won't fly too high or fall straight down, but will float just right in our wind tube. This activity is recommended for visitors 8 and up. More information here.

### 10th Annual Physics Fair

**Date:** April 13, 2013  
**Time:** 11:00 am to 5:30 pm  
**Location:** JHU Homewood Campus  
Experience a Scavenger Hunt ~ Balloon Rocket Contest ~ Over 200 Active Science Demonstrations ~ Liquid Nitrogen Frozen Ice Cream ~ Interactive Astronomy Exhibits and Activities ~ Adventures in Aerospace ~ Hubble Space Telescope Exhibit ~ Phreaky Physics...and much more!

### Quick Links

- [CEO Website](#)
- [Newsletter Archive](#)
- [More On Us](#)
Notice that when it's winter here in the northern hemisphere, it's summer in the southern hemisphere! If the distance had an effect on the seasons the WHOLE earth would experience the seasons at the same time. In the summertime, the tilt causes the light from the sun to be more direct and also creates longer days. The opposite happens in winter. If you want to see an animation of what happens, here's a video: http://www.youtube.com/watch?v=DuiQvPLWziQ

It is true that the distance between the earth and sun changes during the year, but the change is very small compared to the total distance between the sun and earth, and here in the northern hemisphere, the earth is closest to the sun in the winter!

Margaret Hart
Johns Hopkins University

Do you have questions for a professor? Email asktheprofessor@jhmi.edu to get the answer in the next newsletter!

As always, we hope you find this newsletter useful. We'll have lots more information about late spring and summer programs in our next newsletter!

Sincerely,

Margaret Hart
Center for Educational Outreach
Greetings!

The school year is almost over and we're just as excited as you for summer! It's been a great year! If you haven't already done so, please take a moment to answer some questions about what you would like to see in the CEO newsletters next year. Then check out some of the great activities and professional development opportunities happening this summer.

Enjoy,
The Center for Educational Outreach

Opportunities and Events for Students

**ASPIRE Mentoring Program**

**Deadline to Apply: June 7th**

ASPIRE is a partnership between the JHU Applied Physics Lab (APL) and local schools. The APL High School Mentoring Program places qualified students recommended by their teachers into one-on-one mentoring relationships with APL engineers and scientists to complete research projects. During the academic year, students receive credits toward graduation: 1-2 credits for the successful completion of a required number of hours (5 to 10 hours a week). Students must demonstrate self-learning and are treated essentially like employees. Students must provide their own transportation to our campus in Laurel, MD and arrange their work hours according to the mentor's schedule. The project itself will focus on something that the mentor is already doing here at APL that engages the interests of the student - very flexible, but we do not support job shadowing or senior projects. Students keep journals of their work, which is monitored and evaluated by teachers. The experience culminates with a research abstract and presentation. Students are recommended by their teachers/counselors and must demonstrate professionalism, high academic achievement, and a strong desire to work on projects in APL departments. Detailed information about our program can be found on our website.

**DHF MAKERCAMP 2013**

The Digital Harbor Foundation (DHF) is proud to present MakerCamp. As part of the Maker Education Initiative, MakerCamp consists of four sessions running from June through August at the Digital Harbor Foundation Tech Center in Baltimore's Federal Hill. The camp offers half-day and full-day options for youth between the ages of 7-10 (Nano Makers) and 13-17 (Mega Makers). Youth ages 11 and 12 are welcome to apply after speaking with a DHF staff member to determine best fit. Please visit the website for dates and information about registration.

**Young Engineers and Scientists Seminars**

**When:** June 24 - 28, 9 am - 1 pm

**Where:** National Electronics Museum, Linthicum, MD

The Young Engineers and Scientists Seminars (YESS) presents a one-week hands-on camp for young engineers and scientists. The camp is designed to inspire and motivate students to pursue careers in STEM fields. Each day offers a different project or activity, covering topics such as robotics, electronics, and sustainable energy. The camp is open to students entering grades 6-8 and is located at the National Electronics Museum. For more information, please visit the website.
seminar for 6 - 9th grade students. During the week students will have the opportunity to compete in hands-on challenges, design, build and test a project, visit engineering facilities all while applying math and science knowledge and learning about careers in STEM. For more information, contact yesscoordinator@gmail.com.

Professional Development Opportunities

**Unknown Moon Institute Educators Workshop**

*When*: June 24 - 28, 2013  
*What*: A 35-hour, 5 day institute, investigating the Moon  
*Location*: JHU/APL, Laurel, MD

High school and upper level middle school science teachers are invited to apply to NASA's Unknown Moon Institute Educator Workshop. The Institute will provide numerous hands-on standards-aligned classroom resources that allow you to bridge content from the Moon to the Earth and address the Next Generation Science Standards and a variety of Science and Engineering practices. Other activities during this week-long workshop include providing opportunities to interact with lunar scientists, offering certification to bring lunar samples into your classroom, as well as tours of APL and NASA Goddard scientific research facilities. Still accepting applications, please apply at [http://www.lpi.usra.edu/education/workshops/unknownMoon/](http://www.lpi.usra.edu/education/workshops/unknownMoon/).

**Bioethics Intensives**

*When*: June 17 - 21 and June 24 - 28. Week- and day-long courses available.

Join the Johns Hopkins Berman Institute of Bioethics this summer for introductory and advanced courses in Bioethics, offered through the Berman Institute Bioethics Intensives (BI2) program. BI2 provides an engaging bioethics educational opportunity for current students; medical, legal, and policy professionals; researchers; scholars and others. More information about the week- and day-long courses as well as links to register can be found on the Bioethics Intensives website.

**BioEYES: Successfully Increasing Student Interest in Science**

*When*: July 19, 2013  
*Where*: Carnegie Institution for Science, Department of Embryology, 3520 San Martin Drive, Baltimore, MD 21218.

BioEYES is hosting a seminar about its programs on Friday July 19, 2013. BioEYES uses live fish to engage K-12 students in science experiments. Learn about the program, see the results, and find out why teachers see an increase in students' excitement about science because of BioEYES. **Space is limited**. To RSVP, please contact BioEYES Program Manager Valerie Butler, at butler@ciwemb.edu or by calling (410) 246-3041.

We hope you have a wonderful summer and we'll see you in August!

Sincerely,
Greetings!

We hope the year is off to a great start. This newsletter has information about upcoming STEM events around the City along with some ideas for local, fun STEM field trips.

Enjoy,
The Center for Educational Outreach

Events and Opportunities for Students

**Ready Set Design!**
The Ready Set Design! program provides introductory engineering experiences for middle school girls in the Baltimore area, through half-day weekend programs at the Johns Hopkins University campus.

There are 2 sessions this fall, **September 21st** and **November 16th**. Find out more about times and locations [here](#).

**Baltimore Innovation Week**
**September 20 - 29, 2013.**

Baltimore Innovation Week is a week-long celebration of technology and innovation in Baltimore. There will be over 30 events during the week including many for K-12 students.

Be sure to check out the **Baltimore Robotics Expo** on Monday **September 23rd from 3 - 9 PM** at 1001 West Pratt Street Baltimore, MD 21223.

For more information about that and other events, check out their [website](#).

**Invent It. Build it. Expo:**
A parallel program open to the public from 9am-2pm. Learn about engineering clubs, camps, after-school programs, best practices and grants. Download the [flyer](#) to learn more.

You can register for the event here: [http://weinvent2013.eventbrite.com/](http://weinvent2013.eventbrite.com/)

Get Out of Class! Check out some of the STEM field trips in and around Baltimore.

**Target Grant for Field Trips**

**Deadline to Apply: September 30, 2013**

Target stores award Field Trip Grants to K-12 schools nationwide. Each application will be reviewed by a panel of professional educators, engineers, and Target associates. Awards are made at the discretion of Target and are based on the quality of the plan, the educational value of the field trip, the quality of the experience, and the practicality of the proposed field trip plan.

**Who We Are**
The Center for Educational Outreach is part of the Whiting School of Engineering at Johns Hopkins University. Our mission is to inspire and prepare youth, particularly those underrepresented in STEM, to pursue STEM education and careers.

**In This Issue**
- Ready Set Design!
- Baltimore Innovation Week
- Invent It. Build it. Expo
- Target Grants
- Baltimore Museum of Industry
- National Aquarium
- Maryland Science Center

**Quick Links**
- CEO Website
- Newsletter Archive
- More On Us
grant is valued up to $700. They accept grant applications between noon CST Aug. 1 and noon CST Sept. 30. For more information visit their website [here](#).

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**Baltimore Museum of Industry**

The BMI has educational programs and exhibits that explore the stories of Maryland's industries and the people who created and worked in them. Download their [educational brochure](#) to learn more about the different programs.

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**National Aquarium**

Students in grades Pre-K-12 are **FREE** from September 2, 2013 - February 27, 2014. Teachers from some counties in Maryland **must attend the Aquarium's teacher orientation to qualify for free admission**. Find out more information at [http://aqua.org/learn/baltimore-field-trips](http://aqua.org/learn/baltimore-field-trips).

**Dates for upcoming orientations:**
- Sept. 21, 2013 10:30 am & 12:30 pm
- Oct. 26, 2013 10:30 am & 12:30 pm
- Nov. 23, 2013 11:30 am & 1:30 pm
- Dec. 14, 2013 11:30 am & 1:30 pm

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**Maryland Science Center**

The Science Center welcomes educators and their classes to its Inner Harbor location throughout the school year with a variety of **FREE** options for in-depth exploration and enrichment experiences. Plus, the Maryland Science Center's Traveling Science Program criss-crosses the Mid-Atlantic region every day delivering programs at schools, libraries, camps, and other gatherings. Read the [online guide](#) for more information on how to plan a field trip.

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We look forward to seeing you out and around the City!

**Sincerely,**

Margaret Hart
Center for Educational Outreach
Greetings!

As the holiday season approaches, we are gearing up for some fun STEM events. Check out these programs available this winter.

Enjoy,
The Center for Educational Outreach

Upcoming Events

**Maryland Science Olympiad**
Gain experience and have fun with hands-on STEM activities with the nations' most exciting K-12 STEM competition, Science Olympiad! Maryland Science Olympiad is based on the Olympics format of an exciting tournament with a variety of science vs sports events. It is team-oriented, uses readily available materials, and is one of the most affordable STEM programs. Meet STEM career professional mentors at tournaments. Get you and your students ready for Next Gen Science Standards' emphasis on hands-on now!

For more information or to register a team: Visit marylandscienceolympiad.org, or contact Kate McGuire at kate_m_mcguire@ymail.com. Select "Coaches and Teachers" tab to register a team.

Deadline for registration: **December 6, 2013**

**JHU Robo Challenge: Training Session**
The JHU Robo Challenge is an event for students in grades 6-12 where teams build a robot that can autonomously navigate a maze, create a robot dance, or be used for an innovative application. A training session for teachers, parents, and students will be held on **Saturday, January 11, 2014** to get them started with the most common robot kits. In the morning we will teach the basics of the Basic Stamp BoE bot and in the afternoon we will teach using the Arduino Robot. Please visit the website for more information or register now.

**Puzzles, Pizza, and Prizes**
From 10AM to 12PM, on Saturday, January 18, 2014, middle and high school students interested in language, psychology, math or computer science are invited to learn about computational linguistics from JHU graduate students and how it’s used in cool research for Google, cell phones, Twitter, and more. Students will earn new ways to solve problems and puzzles, work together with other students, and earn prizes. The event is located on the Johns Hopkins University Homewood campus and is completely free. Click here for more details.
NACLO Competition

NACLO (North American Computational Linguistics Olympiad) is a competition for students in grades 6-12. Students solve puzzles about language for prizes and a chance to represent the United States at the international competition.

The first round competition will be held on Thursday, January 30, from 10AM - 1PM at the Center of Excellence Stieff Building in Baltimore, MD.

For more information about the competition, registration, and directions visit the JHU NACLO website.

KAVLI "SCIENCE IN FICTION" VIDEO CONTEST

The USA Science & Engineering Festival, in association with the Kavli Foundation, is now accepting student entries for the Science in Fiction video contest. Students in grades 6-12 will investigate how science is portrayed in popular movies, TV shows and video games. Winners will be honored in a special festival EXPO Awards show in Washington, D.C. during the weekend of April 26-27, 2014.

The contest officially opens for entries on Nov. 1, 2013 and closes Mar. 21, 2014. First prize is $2000 cash prize and a travel stipend to travel to Washington D.C. for the Expo. The second prize is $750 and the third prize is $500. The People's Choice Award prize is $250. Additional prizes include are available.

Visit the contest website for more details.

Classroom Opportunities and Beyond

Volunteer with the coolest science program around: BioEYES!

BioEYES is a remarkable program, engaging K-12 students in science. Based in Baltimore, educators from the Carnegie Institution for Science bring live zebrafish to local schools. Then, students mate the fish and study the resulting embryos. Zebrafish, being vertebrates, are physiologically and genetically similar to humans, but juvenile zebrafish are optically clear, allowing students to witness their rapid development within one week: from a single-celled embryo to a larva with a circulatory system.

To learn more about bringing BioEYES to your classroom contact: Chandra Harvey, harvey@ciwemb.edu, 410-246-3041.

For more information visit www.bioeyes.org

NACLO Classroom Visits

NACLO (North American Computational Linguistics Olympiad) is a competition for students grades 6-12 for which Johns Hopkins is a test location. Visits are offered to Baltimore area schools with students interested in the NACLO competition. The class visit could be during school or after school and would
feature graduate students talking about why they love doing computational linguistics (with Q&A) and challenging your students with examples and puzzles.

Classroom visits for December and January are first-come, first-served, so send an email to jhu.naclo@gmail.com now.

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**Free NanoDays Kit!**

NanoDays is a nationwide festival of educational programs about nanoscale science and engineering and its potential impact on the future. NanoDays is a week of community-based educational outreach events to raise public awareness of nanoscale science, technology, and engineering throughout the United States. NanoDays 2014 will be held from March 29 - April 6. Science education and public outreach programs can fill out an online application for a physical kit containing all of the materials and resources you need to start planning your community events by December 1, 2013.

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**For STEM educators**

Find STEM specialists, prepared to enter your classroom

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**STEMNet**

STEMNet provides a comprehensive suite of programs aimed at accelerating teacher and student growth in STEM. Programs currently on STEMNet include:

- STEM Specialist in the Classroom
- STEM Challenge Program
- STEM Resource Clearinghouse.

For more program information visit: [http://thestemnet.com](http://thestemnet.com).

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We hope you take advantage of these great opportunities. Enjoy the holidays and we'll see you next year!

**Sincerely,**

Margaret Hart
Center for Educational Outreach