

## VDOE Science Update November 4, 2014

### NEWS

#### ***LENS Cornerstone Assessments***

The Learning Enhanced through the Nature of Science (LENS) project is an innovative professional development program for high school Earth Science, Biology, Chemistry, and Physics teachers. The Cornerstone Assessments are a product developed as a part of the project. A team of secondary science teachers, science curricular and methods experts, and cognitive psychologists developed the Cornerstone Assessments as a part of the LENS project.

The Cornerstone Assessments use knowledge and skills related to scientific investigation to inform instruction, inform student learning, and measure student progress over time (beginning-, middle-, and end-of-the-year). The Cornerstone Assessments are available for you to use with your students if you decide they meet your needs.

The Virginia Department of Education (VDOE) and Old Dominion University (ODU) have partnered to offer **Earth Science, Biology, Chemistry, and Physics** teachers these performance-based assessments and associated tools to use as a resource in their classes. The [LENS Cornerstone Assessment](#) website provides technical assistance in the form of tutorial and sample assessments. The [LENS Cornerstone Assessment Download \(LCAD\)](#) is a secure portal that allows school division leaders and teachers to download the assessments and associated tools such as keys, rubrics, and spreadsheets. Please contact [Eric Rhoades](#) if you are interested in more information about this resource.

#### ***Presidential Awards for Excellence in Mathematics and Science Teaching Awards***

The PAEMST program is pleased to announce that nominations for the 2014-2015 cycle are open. Now is the time to begin coordinating outreach and recruitment efforts as you identify a pool of unique and talented secondary teachers (7-12) to participate in this year's program. The application cycle opened on the [PAEMST website](#) on November 1, 2014.

#### ***Changes to the Standards of Learning Assessment Program***

The Virginia Department of Education is implementing numerous changes to the state assessment program in the 2014-2015 school year. Some changes are enhancements to the assessment program; others represent cost-saving measures that became necessary due to funding constraints. Please read the Superintendent's Memo #282-14 for details. [Changes to the Standards of Learning Assessment Program](#)

#### ***FY15 B-WET Grant Availability Announced***

Approximately \$2.7 million may be available for schools, school systems, higher education institutions, community-based and nonprofit organizations, state or local government agencies, interstate agencies, and Indian tribal governments seeking to support education of the next generation of Chesapeake Bay stewards. The NOAA Chesapeake Bay Office has released details on requirements and the process for applying for FY15 [Bay Watershed Education and Training \(B-WET\)](#) grants; applications are due by **January 14, 2015**.

B-WET supports programs that provide hands-on environmental education about issues affecting the Chesapeake Bay watershed for students and related professional development for educators who serve formal K-12 audiences.

Proposals for FY15 funding must address at least one of several target priorities:

- Systemic MWEE Implementation: These programs will strive to reach the entire student and teacher population in one or more grades in an entire school system or recognized sub-unit of a school system with [meaningful watershed educational experiences](#)—“MWEEs.”
- MWEE Capacity Building: These projects will build the capacity of agencies and organizations to develop, deliver, and sustain projects that advance the MWEE at the state or regional level.
- Emerging Projects: In order to cultivate projects and partners not traditionally served by B-WET, NOAA encourages new applicants, or those who have not received B-WET funding in the last five fiscal years (FY10-14), to apply as Emerging Projects.


## Teacher Resources

### *NAEP Question Tool*

The [NAEP Questions Tool \(NQT\)](#) provides access to over 3,000 released questions from NAEP assessments in all NAEP subject areas. You can see examples of students’ actual answers to **constructed-response questions, with scorer comments**. You can also see the percentage of students nationwide who answered each question correctly, and how students’ performance on a given question corresponds to their overall scores.

You can bookmark question for later use, and use them to supplement classroom instruction.

For information about using the NQT:

- Watch the [short video showing the features of NQT](#) and how to use them
- Get more details from the [tutorial](#) and the [Quick Reference Guide](#)  (553 KB)
- Investigate the “What can I do here?” link and the Help button that are on every page of the NQT.

### *TED-Ed Launches an Interactive Periodic Table of Elements*

TED-Ed collaborated with Brady Haran, best known for his YouTube channel Numberphile and his extensive video coverage of the periodic table, to create a [clickable periodic table](#) with videos on every element.

### *Cancer Genes and Patients*

October is Breast Cancer Awareness Month. BioInteractive brings you [two new hands-on activities](#) focusing on the genes that, when mutated, lead to cancer. The first involves mapping the locations of "cancer genes" on a human chromosome map; the second compares mutated genes found in actual cancer patients. Both require students to visualize data, discuss their observations, and identify patterns and trends.

### *Release of Spring 2014 SOL Tests*

Information regarding the release of items from the Spring 2014 SOL tests is provided in [Superintendent’s Memo No. 274-14](#). There will be a set of test items released from the 2014 end-of-course mathematics, end-of-course science (Earth Science, Biology, and Chemistry), Grade 5 science, Grade 8 science, grade 8 reading, and grade 8 writing tests as the bank cannot support a full release of these test forms. If you have questions, please contact the student assessment staff by e-mail at [Student\\_Assessment@doe.virginia.gov](mailto:Student_Assessment@doe.virginia.gov) or by phone at (804) 225-2102.

## Teacher Opportunities

### *Smithsonian Science How*

In partnership with the Smithsonian Institute, the Virginia Museum of Natural History has an exciting opportunity for middle school students! The Museum would like to invite you to register for one of oits FREE upcoming Smithsonian Science How live, interactive webcasts. Each webcast aligns with the Virginia Science Standards of Learning and focuses on connecting students to scientists, increasing students' understanding of science, and inspiring students about STEM education and careers.

Registering is easy. Simply contact [discover@vmnh.virginia.gov](mailto:discover@vmnh.virginia.gov) or call (276) 634-4185. For more information on Smithsonian Science How and each of the webcasts, and to access classroom activities, lessons, readings and other related resources, visit the VMNH web page at: <http://www.vmnh.net/smithsonian-science-how> .

Below is listed the next two webcasts. The Museum looks forward to working with you and your students!

### **Schedule of Webcasts:**

Thursday, Nov. 6, 2014 11am and 2pm EST

Island Biodiversity: Tracking Human Influences with Archaeologist Torben Rick, Life Science, Social Studies

Thursday, Dec. 11, 2014 11am and 2pm EST

Bird Extinctions: Time Travel through Lava Tubes with Ornithologist Helen James, Life Science, Earth Science

### ***“Ask US”***

Online Educator Professional Development Sessions covering Earth System Science topics from Earth Systems, Technology and Energy Education for MUREP-Minority University Research and Education Program (ESTEEM).

### FALL 2014 “Ask US” (formerly “Ask NICE”) SCHEDULE

- **November 20, 4:00-5:15PM EST** Broadcast Live from VAST in Roanoke:  
Change Over Time: Investigate Climate Change Impacts in the Southeast US
- **December 11, 4:30-5:45PM EST** Broadcast Live from NASA Langley:  
Change Over Time: Investigate Climate Change Impacts in the Midwest

Please contact Bonnie Murray at [bonnie.murray@nasa.gov](mailto:bonnie.murray@nasa.gov) if you would like to organize a group to connect to the interactive session.

For details, visit the NASA ESTEEM (formerly NICE) website [www.nice.larc.nasa.gov](http://www.nice.larc.nasa.gov).

### ***2015 Virginia Project Learning Tree Outstanding Educator Award***

Since 2000, Virginia Project Learning Tree has formally recognized the efforts of outstanding K-12 educators for their commitment to environmental education, their exemplary use of PLT, and their

exceptional teaching skills. See attached for more information. All nominations are due by the close of business on **Friday, November 21, 2014**.

Please submit all nominations electronically to Lisa Deaton, Virginia Department of Forestry, at [lisa.deaton@dof.virginia.gov](mailto:lisa.deaton@dof.virginia.gov).

### ***2015 Airborne Astronomy Ambassadors (AAA) Program***

NASA's Stratospheric Observatory For Infrared Astronomy (SOFIA) is now accepting applications for the Cycle 3 – 2015 Airborne Astronomy Ambassadors (AAA) Program. The AAA program is an exciting and unique opportunity for educators. The teams that are selected receive online astronomy instruction, and a trip to Palmdale, CA to participate in two SOFIA Science Flights. The science flights offer educators interaction with astronomers, engineers and technicians on board the aircraft, and a view to the collaboration that leads to astronomical data collection and the research papers that follow.

The eligibility and program requirements are summarized and detailed at <http://www.seti.org/sofia>. In brief, one team member must be a middle or high school science teacher, the other team member may be a teacher, informal educator (e.g.- educator at a science center, librarian implementing community programming), or amateur astronomer. The program pays all costs.

Applications are due December 22, 2014.

### ***Children's Environmental Health and Disease Prevention Research Centers Grants (P50)***

This Funding Opportunity Announcement (FOA) encourages grant applications to support a transdisciplinary program of basic and applied research to examine the effects of environmental factors on children's health and well-being.

Several awards of up to \$1.5 million will be granted to select applicants. Nonprofit organizations, government organizations, institutions of higher education, and independent school districts are eligible to apply.

Letter of Intent: Due November 22, 2014

Deadline: December 22, 2014

Please contact the National Institutes of Health for more information and to apply for this funding: <http://www.grants.gov/custom/viewOppDetails.jsp?oppld=267508>

Additional information at <http://grants.nih.gov/grants/guide/rfa-files/RFA-ES-14-002.html>

## **Student Opportunities**

### ***eCYBERMISSION***

eCYBERMISSION is one of several science, technology, engineering and mathematics (STEM) initiatives offered by the Army Educational Outreach Program (AEOP). The U.S. Army is committed to answering the nation's need for increased national STEM literacy and expanding STEM education opportunities across the country to open doors to new career paths for America's students that lead to a brighter tomorrow. Visit <http://www.ecybermission.com/>.

### ***State Energy Workforce Consortiums Gearing Up for Careers in Energy Week***

In Virginia, 6th through 12th grade students are invited to enter **VEWC's Careers in Energy Student Contest**. The contest theme is "Behind the Technology and Energy Careers."

Students can submit an essay or digital media presentation focused on how energy workers have improved the world. The contest is being promoted by the Virginia Energy Workforce Consortium ([www.vewc.org](http://www.vewc.org)) and the Center for Energy Workforce Development ([www.cewd.org](http://www.cewd.org)).

All submissions are due via email to VEWC by November 19, 2014, by **midnight**. Submissions are to be emailed to [contest@vewc.org](mailto:contest@vewc.org). Prizes have been donated by corporate sponsors; Dominion Resources, Mecklenburg Electric Cooperative, Old Dominion Electric Cooperative, Virginia, Maryland & Delaware Association of Electric Cooperatives and others.

Please visit the VEWC website at ([www.vewc.org](http://www.vewc.org)) for the contest rules on the homepage see "**Careers in Energy Week**".

#### ***Free online AP courses debut on edX Web site***


Rice University launched a free Advanced Placement biology course Monday on a Web site overseen by two other elite schools, a potentially significant milestone for a movement that aims to bring college-level courses to high school students. The site, edX, was created by the Massachusetts Institute of Technology and Harvard University in 2012 as a nonprofit platform for those universities and selected others to offer massive open online courses, or MOOCs, to the world. AP Biology from Rice is the first MOOC on the site advertised as an AP course for high school students. It is divided into four content segments — the Cell; Genetics; Evolution and Diversity; and Ecology — followed by an exam in April. School divisions will want to have the appropriate policies in place to allow students to utilize this course for high school credit. See the [Standards of Accreditation](#) for more information.

#### ***December, 2014 - President's Environmental Youth Awards (PEYA)***


The PEYA program promotes awareness of our nation's natural resources and encourages positive community involvement. Since 1971, the President of the United States has joined with EPA to recognize young people across the U.S. for protecting our nation's air, water, land, and ecology. It is one of the most important ways EPA and the Administration demonstrate commitment to environmental stewardship efforts created and conducted by our nation's youth. The PEYA program includes two components: a regional certificate of special recognition and a national award competition. All qualified applicants each year receive a certificate of special recognition from their EPA regional office. In addition, one outstanding project from each region is selected to receive a national award plaque. Projects are developed by young individuals, school classes (K-12), summer camps, and youth organizations to promote environmental stewardship. Thousands of young people from all 50 states and the U.S. territories have submitted projects to EPA for consideration.

<http://www2.epa.gov/education/presidents-environmental-youth-award>

### **Highlighted Superintendent's Memos**

- MEMO 274-14  
[Release of Spring 2014 Standards of Learning Tests in Spring 2015](#)
- MEMO 273-14  
[Announcing the 2015 Children's Engineering Convention](#)
- MEMO 292-14  
[Alternative Assessment Assistance Incentive Grant](#) 
- MEMO 290-14

[The Learning Enhanced through the Nature of Science \(LENS\) Project – Cornerstone Assessments](#)

- MEMO 302-14  
[2015 Virginia Junior Academy of Science Symposium](#)
- MEMO 301-14  
[“Programs That Work” Awards for Mathematics, Science, and STEM](#)
- MEMO 299-14  
[Distribution of the R U “College & Career” Ready? Magazine](#)
- MEMO 298-14  
[Updated Process and Nomination Form for Additional Substitute Tests for Verified Credit for Standards of Learning \(SOL\) Tests](#) 

## Articles

[Instructional Method For Science Focuses on Critical Thinking](#)

The Science Writing Heuristic approach -- developed in 1999 by Brian Hand, a science education professor at the University of Iowa -- has been used in more than 700 schools. The method, which focuses on inquiry instead of memorization, may help educators teach science under the Next Generation Science Standards, according to this article. [T.H.E. Journal](#)

[The Development of In-Service Science Teachers' Pedagogical Content Knowledge Related to Interdisciplinary Science Inquiry](#) Erica L. Smith, Xiufeng Liu, The UB/BPS Interdisciplinary Science and Engineering Partnership, NARST, 2014.

[Examining Science Teachers' Development of Interdisciplinary Science Inquiry Pedagogical Knowledge and Practices](#), Bhawna Chowdhary, Xiufeng Liu, Erica Smith, Brooke Grant, The UB/BPS Interdisciplinary Science and Engineering Partnership, Journal of Science Teacher Education, August 2014.

As always, please contact one of Science Team if you have questions.

Barbara Young ([Barbara.young@doe.virginia.gov](mailto:Barbara.young@doe.virginia.gov))

Jim Firebaugh ([jim.firebaugh@doe.virginia.gov](mailto:jim.firebaugh@doe.virginia.gov))

Eric Rhoades ([eric.rhoades@doe.virginia.gov](mailto:eric.rhoades@doe.virginia.gov))

**Eric M. Rhoades, Director**

Office of Science and Health Education

Division of Instruction

Virginia Department of Education

Office (804) 786-2481

Fax (804) 786-1703

[Science Resources](#)