

## VDOE Science Update

### January 4, 2016

#### NEWS

##### *Science Standards of Learning Revision*

The Code of Virginia requires that the Standards of Learning to be revised at least every seven years, and the Virginia Board of Education's standards revision schedule calls for the Science Standards of Learning to be revised by 2017. The standards review process is anticipated to begin in early 2016 to meet this timeline. There will be several points for formal public comment during the review process; however, please keep in mind you may send comments regarding the science standards to us at any time (see contact information below).

Stay tuned for important announcements related to the Science Standards of Learning revision over the next several weeks.

##### *Reauthorization of ESEA*

Attached to this message is an easy to read and informative summary of the changes found in the newest version of the Elementary and Secondary Education Act (ESEA) called the **Every Student Succeeds Act (ESSA)**. The ESSA replaces the No Child Left Behind (NCLB) Act of 2001.

##### *Science Update Registration*

The science office distributes a science update like this one at least once a month. If you know of teachers, principals, science coordinators, etc. who may be interested in receiving the update directly, please ask them to visit the [VDOE Science Update registration](#) to begin receiving the VDOE Science Update.

#### Teacher Resources

##### *UVA-JLAB Physical Science and Physics Resources*

Since 2012 the University of Virginia Physics Department has partnered with Jefferson Lab to offer summer professional development programs for physical science and physics teachers. These programs grew out of initiatives sponsored by the Virginia Department of Education's Mathematics and Science Partnership grant program. The professional development programs included both instructions for hands-on laboratory activities, exploration of teaching methods, creating lesson plans, and seminars on the latest physics research.

The resources and activities designed to teach the Virginia *Science Standards of Learning* during the professional development are made available on this [Web site](#) so that teachers throughout the Commonwealth can have access to new teaching materials for instructing their students.

##### *Environmental Literacy*

A new Web page on the VDOE Web site has been developed to help teachers, schools, and school divisions stay informed about Virginia's environmental literacy resources, opportunities, and efforts. The [Environmental Literacy](#) Web page provides information and resources about the following:

- The Standards of Learning and Environmental Literacy;

- School Programs in Action and Sustainable School Programs;
- Virginia’s Environmental Literacy Challenge;
- Teaching Resources and Professional Development Opportunities;
- Grant Opportunities; and
- More.

Please let us know what other items you would like to have added to the [Environmental Literacy](#) Web page.

### ***[Visualize Your Water Challenge! Challenge Opens January 2016](#)***

Are you a high school educator in the Great Lakes Basin or Chesapeake Bay Watershed? If so, get ready to enter your student(s) in the [Visualize Your Water Challenge](#). Sign up today to learn more about this exciting geographic information systems (GIS) data visualization challenge about nutrient pollution. This challenge will equip your students with new technology skills and broaden their understanding of their environment. The Grand Prize winner will have an opportunity to attend the 2016 ESRI Education Conference in San Diego, CA and will be published in ESRI’s *Mapping the Nation* book.

This challenge is hosted by the U.S. Geological Survey, U.S. Environmental Protection Agency, U.S. Department of Education, Great Lakes Observing Systems and ESRI (provider of GIS software to the White House ConnectED Initiative) and supports the work of the Challenging Nutrients coalition. Visit the [Web site](#) and request your [free ArcGIS school account](#) today!

### ***Podcasts Dig Deep Into Careers in Minerals***

Aiming to promote awareness about mining and minerals, the Minerals Education Coalition (MEC) of the Society for Mining, Metallurgy & Exploration Foundation offers educational resources focusing on the ways that science, technology, engineering and mathematics are used by mining professionals throughout the industry.

The latest of these educational offerings is a series of MEC podcasts with industry experts, showing students how an interest in STEM subjects can lead to a rewarding career in the mining industry.

Podcast series mining experts include:

- Barbara Filas, Mining Engineer and 2005 SME President;
- Jim Gusek, Reclamation Specialist and recipient of the SME/AIME Environmental Stewardship Distinguished Service Award
- Scott McAnally, Exploration Geologist at the Cripple Creek & Victor Gold Mine; and
- Stacy Kramer, Vice President of Health and Safety with Freeport-McMoRan.

The series (<http://www.mineralseducationcoalition.org/careers-mining>) is accompanied by additional resources, including mining careers flyers, booklets, PowerPoint presentations, and a link to mining and mineral related job opportunities. For more information about longtime Earth Science Week program partner MEC, visit <http://www.MineralsEducationCoalition.org>.

## **Teacher Opportunities**

### ***NOAA Announces FY16 Environmental Literacy Grants (ELG) Funding Opportunity***

The NOAA Office of Education has issued a competitive funding opportunity for education projects designed to strengthen the public’s and/or K-12 students’ environmental literacy to enable informed decision-making necessary for community resilience to extreme weather

events and other environmental hazards. Successful projects will advance NOAA's mission and build the environmental literacy necessary for community resilience by focusing on geographic awareness and an understanding of Earth systems and the threats and vulnerabilities that are associated with a community's location. Eligible applicants are limited to institutions of higher education; other nonprofits, including informal education institutions such as museums, zoos, and aquariums; K-12 public and independent schools and school systems; and state, local and Indian tribal governments in the United States. Proposed projects should be between two and five years in duration and have total budget requests of \$250,000 to \$500,000 for all years of the project.

The deadline for applications to this funding opportunity is **11:59:59 pm EST on February 8, 2016**. Applications must be submitted online via [www.grants.gov](http://www.grants.gov). It is anticipated that awards under this announcement will be made by September 30, 2016 and that the projects funded under this announcement will have a start date no earlier than October 1, 2016.

To read the full funding announcement (NOAA-SEC-OED-2016-2004737), please visit [www.grants.gov](http://www.grants.gov). To learn more about this funding opportunity, please visit the NOAA Office of Education's Environmental Literacy Grants [web page](#).

***Five Star and Urban Waters Restoration Grant Program (link) – Due February 3, 2015***

Approximately \$2.1 million in combined total funding will be available to support projects such as stormwater management, aquatic trash and litter, addressing water scarcity, source water protection as well as **wetlands, riparian, forest and water quality protection and restoration projects** in local communities especially underserved communities across the country. In 2016, the Urban Waters Federal Partnership will give special consideration to projects which directly advance priorities of the 19 Urban Water Federal Partnership designated locations.

Visit <http://www.nfwf.org/fivestar/Pages/home.aspx> for more information.

## Student Opportunities

### ***Virginia Junior Academy of Sciences***

It is time for students to begin thinking about science research projects and preparing for the 2016 [Virginia Junior Academy of Science \(VJAS\)](#) (new Web site) Research Symposium, which will be held on May 17-19, 2016, at University of Mary Washington (UMW). VJAS, a state chapter of the American Academy of Science, is dedicated to the advancement of science by discovering and encouraging scientific aptitude among Virginia's middle and high school students. Students who present at the Research Symposium have an opportunity for **publishing their science research** and receive **awards and scholarships**.

The deadline for submitting papers for this year's symposium is **February 24, 2016**. Visit the [VJAS](#) Web site for more information.

### ***2016 National Youth Science Camp***

The National Youth Science Camp (NYSC) is an intense month-long camp for young scientists conducted during the summer after they graduate from high school. In a rustic setting in West Virginia, students from around the country are challenged academically in exciting lectures and hands-on studies on current science topics. The program also offers participants the opportunity to experience a wide variety of outdoor activities that have a minimal impact on the environment and are challenging for the experienced but accessible to those who have never participated in outdoor excursions. The NYSC is an all-expenses-paid program. The National Youth Science Foundation will arrange round trip transportation from an airport near the delegate's home to Charleston, West Virginia.

Information about the National Youth Science Camp and an application may be obtained at the [National Youth Science Camp](#) Web site. The application must be submitted through the NYSC Web site by **February 17, 2016**. More information is posted in Supts. memo #282-15 [2016 National Youth Science Camp \(NYSC\)](#)

Questions should be directed to Eric M. Rhoades, director, Office of Science and Health Education, by e-mail at [Eric.Rhoades@doe.virginia.gov](mailto:Eric.Rhoades@doe.virginia.gov) or by telephone at (804) 786-2481.

### ***Visualizing My Earth***

AGI and the Center for Geoscience and Society are pleased to extend the celebration of Earth Science Week 2015 with the announcement of a new contest. The **Visualizing My Earth Challenge** invites full-time secondary and postsecondary students (ages 14 and older) to submit visual representations of natural phenomena from a geoscience perspective.

The Visualizing My Earth Challenge invites students to apply their Earth science knowledge to a photo in a way that represents data visually. Using any of a variety of techniques, students can modify or add information to the image. Changes should turn the photo into an image that enhances the viewer's ability to visualize a part of one or more Earth systems in important ways.

Each entry must include one visualization, one brief written statement, and one completed entry form. International entries are welcome. All entries must be submitted in English. The deadline for electronic submission is **5 p.m. EST, January 29, 2016**, using the designated online platform. Cash prizes up to \$300 will be awarded in each age group (14 to 17 years, 18 years and older).

For contest details and registration, please visit <https://visualizingmyearth.skild.com>.

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

- MEMO 282-15  
[2016 National Youth Science Camp \(NYSC\)](#)
- MEMO 300-15  
[2016-2018 Biennial Budget as Introduced by Governor McAuliffe](#)

- MEMO 294-15  
[Additional Standards of Learning \(SOL\) Tests Transitioned to TestNav™ 8 Test Delivery Software](#)
- MEMO 279-15  
[Nominations for the 2016 Standards of Learning Item and Test Review Committees](#) 

## Articles of Interest

[Teacher Pedagogical Content Knowledge for Using Learning Progressions](#), Kristin L. Gunckel, Beth A. Covitt, Aubrey Cano, Ivan Salinas, Culturally relevant ecology, learning progressions and environmental literacy (LTER), NARST, April 2015.

[Equity in Out-of-School STEM Learning: Professional Development Needs and Strategies](#), A Research + Practice Collaboratory, March 2015.

### **Virginia Islanders Could Be U.S. First Climate Change Refugees**

Scientific American - News

Flooding and erosion may not allow island to stay above water -- Read more on

[ScientificAmerican.com](#) [Read the full story](#)

## Contact Us

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

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