VDOE Science Update
October 19, 2016

News

Request for feedback: Every Students Succeeds Act of 2015 (ESSA)

The Virginia Department of Education is asking for feedback about Virginia's plan to implement the new federal *Every Student Succeeds Act of 2015* (ESSA). ESSA replaces No Child Left Behind and provides states with flexibility to improve accountability systems, assessments, and overall approaches to school improvement. School accountability systems evaluate schools based on multiple factors and provide important information to school administrators, teachers, parents, and the community about school performance. The purpose of this survey is to identify those factors, also known as accountability indicators, which you think are important to know about schools.

The survey is open to any interested stakeholder, including - but not limited to - parents, educators, school administrators, school board members, business professionals, advocates and community members. Participation is voluntary. The survey is anonymous; participants will not give their names on the survey, and it will not be possible to match survey answers to participant identities.

The survey may be accessed directly at https://www.surveymonkey.com/r/ESSAinVA. The survey takes 5-10 minutes to complete and will remain active until Wednesday, November 9, 2016.

In addition to providing input on accountability indicators by participating in the ESSA survey, stakeholders are encouraged to provide additional comments about ESSA during the development of Virginia's state plan for federal accountability. The Department has developed an ESSA webpage which provides general information about ESSA, as well as links to ESSA communications and stakeholder engagement materials. Written comments or questions are continuously accepted via email at ESSA@doe.virginia.gov.

Update: Performance Based Assessments in Virginia

The First Review of Proposed Local Alternative Assessment Guidelines for the development and implementation of Local Alternative Assessments were presented to the Board of Education on September 22, 2016. Please refer to this document to see proposed revisions to the Local Alternative Assessment Guidelines (letter H under Action/Discussion Items).

Support documents for the development and implementation of the Local Alternative Assessments provided through VDOE are listed below.

Performance Task Development Cycle (pdf)-provides common language for school divisions to use in determining their progress in implementing performance assessments.
Framework for Local Alternative Assessment Implementation
Performance Task Development Cycle **(PDF**)- a flow chart for the development of Performance Tasks.

Virginia Junior Academy of Sciences

It is time for students to begin thinking about science research projects and preparing for the 2017 Virginia Junior Academy of Science (VJAS) Research Symposium, which will be held on May 16-18, 2017, at Virginia Commonwealth University (VCU). 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**. View Senator Tim Kaine's welcome address from the 2016 Symposium.

The deadline for submitting papers for this year's symposium is **February 22, 2017**. Visit the VJAS Web site for more information.

Student-Led Ideation Challenge (SLIC) Program

The Student-Led Ideation Challenge (SLIC) Program, developed by the Innovative Solutions Consortium (ISC) in partnership with the VDOE, engages students to work on real world problems that impact the communities they live in as well as the global community at large, while teaching them the skills they need to prepare for college and the workforce. During the 2016-17 school year, teams of students will compete by developing real solutions to issues facing our education system, our food systems, and technological challenges related to unmanned flight systems. To participate in SLIC, teachers will need to register in the SLIC portal. If teachers wish to attend a training session, they will be able to sign-up during the registration process. Teacher training for SLIC will be held from October 17-28 throughout each superintendent's region and via webinars. Teachers may choose between attending an onsite, in-person training at a variety of locations within your region, or an online training webinar. The content for both the onsite and online trainings will be the same, and run approximately two hours in length.

Grants and Awards

Chesapeake Bay Trust K-12 Environmental Education Mini Grants

The Chesapeake Bay Trust is awarding up to $5,000 in funding for organizations that hold meaningful outdoor learning experiences. The grant program is open and the application deadline is **January 13, 2017**.

The Nature Conservancy K-12 Grant Opportunities

Schools interested in designing and implementing green infrastructure practices through community engagement may be awarded up to $2,000 in funding. Applications must be submitted by 5 PM ET **October 31, 2016**.

Technology in the Classroom

Teacher Tested and Approved: below are a few ***free*** online resources that teachers and science supervisors have recommended to create online formative assessments, games, and presentations for use in the K-12 classroom. These sites can be used to pre-assess science content, to augment instruction, as a precursor to an inquiry activity/laboratory experiment, or to review concepts. They can be used on multiple platforms and feedback can be provided to the teacher on classroom performance.

Quizizz- interactive quiz that is available through many platforms. This site does have multi-lingual capability. Teachers are able to analyze classroom data.

Nearpod- allows teachers to create presentations with an interactive feedback component. Nearpod also allows teachers analyze classroom data. Videos, images, and diagrams may be added to the games to increase student engagement.

GoFormative- create formal and informal check for analyzing student growth. This program provides assessment formats outside of the traditional multiple choice style quiz and allows for live results and feedback.

Kahoot!- create, play, and share fun learning games for any subject. Teachers may either use available multiple choice questions or create their own. Videos, images, and diagrams may be added to the games to increase student engagement.

Teacher Opportunities

NOAA's Teacher at Sea Program

The mission of the National Oceanic and Atmospheric Administration's (NOAA) Teacher at Sea Program is to provide teachers pre-kindergarten through college-level teachers a hands-on, real-world research experience working at sea with world-renowned NOAA scientists, thereby giving teachers unique insight into oceanic and atmospheric research crucial to the nation. Applications for 2017 will be accepted from November 1-30 2016. Until then, interested applicants should:

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1. Visit the Frequently Asked Questions page to learn more about program eligibility and expectations.
2. Download the pdf preview of our application to review the questions that are ask and, if so inclined, begin preparing responses.

Scientists into Classrooms

The National Center for Science Education's teacher network is launching an exciting new program to get scientists into classrooms across the country. Scientists in the Classroom is a great opportunity to connect students with real-life early career scientists, as well as for teachers to have an expert on board when teaching evolution and climate change! With this program, teachers and scientists collaborate as colleagues, peers, and partners in the scientific enterprise to further science education. For more information on Scientists in the Classroom visit NCSE's website or email Minda Barbeco at Berbeco@ncse.com.

2016 Virginia Association of Science Teachers (VAST) Professional Development Institute (PDI)

The VAST PDI theme is The Faces of Science in Virginia. It builds upon last year's PDI theme Designing Inquiring Minds. The Faces of Science showcases the rich Virginia science resources that are available to you through the many science organizations and companies in Virginia. For a full description of the theme and strands, visit http://www.vast.org/presenters.html. The VAST Professional Development Institute will be held from **November 17-19** in Williamsburg, VA.

Student Opportunities

20th Annual Virginia Regional Competition of the National Ocean Sciences Bowl - Preregister a team by November 1!

Teachers are encouraged to pre-register a team for the 2017 Blue Crab Bowl, slated for February 17 & 18, 2017, at the Virginia Institute of Marine Science in Gloucester Point, VA. This academic competition aims to stimulate student interest in the marine sciences. And, it can help educators use the oceans as an interdisciplinary vehicle for teaching STEM subjects. Science faculty, graduate students and staff from the Virginia Institute of Marine Science and Old Dominion University coordinate and officiate the event. Find more information and an on-line pre-registration form at www.vims.edu/bcb. Or Contact Regional Coordinator, Dr. Carol Hopper Brill at chopper@vims.edu.

Kids' Tech University

Kids' Tech University is a semester-long educational research program developed by the Biocomplexity Institute and Virginia 4-H, that puts scientists and engineers in front of children to encourage the exploration of intriguing topics in Science, Technology, Engineering and Mathematics (STEM).

On Jan. 21, Feb. 18, March 18 and April 1, 2017, 450 kids (ages 9-12 by Sept. 31st 2016) and their parents will come to Virginia Tech (Blacksburg, VA) to watch Interactive Sessions by renowned research scientists and participate in hands-on activities. Each day's events will center on common themes related to everyday life. **Registration will open on Oct. 24, 2016 at 6 pm**. There is a $100 registration fee and scholarships are available. Please see- http://kidstechuniversity.vbi.vt.edu

Inquiry Corner

Using Rubrics to Assess Inquiry

This Science Update we are going in a bit of a different direction and the focus will be on**: *how do teachers assess students in the inquiry lab setting?***

When conducting an inquiry lab, the level of teacher facilitation in the process varies depending on the grade level of the class, the student population, prior experience in the laboratory setting, and previous exposure to higher levels of inquiry. In addition, teachers also need to differentiate the assessment process. This can be approached differently based on the grade level and the product expectations.

Products of an inquiry activity can take many forms depending on the age of the group, the goal of the inquiry laboratory exercise, and the type/level of inquiry activity conducted. In K-2 this may be a checklist that a teacher uses when a student demonstrates mastery of a skill in the .1 standards. In late elementary and middle schools, scaffolding may be in the form of a Laboratory Report Sheet that guides them in reporting their results (see sample attached). At the high school level, student may need guidance in the development of a lab report. Products may also take forms outside of a traditional lab report to include a journal entry about the experiment, a letter to a classmate about the lab, an oral report reporting data and results to the class, or a model that applies what is learned in lab to the concept learned in class. Many other forms of products may also be used and rubrics are one way to make the grading process consistent and less time consuming for teachers.

Carefully designed rubrics can offer a number of benefits to instructors. Rubrics help instructors to:

-reduce the time spent grading by allowing instructors to refer to a substantive description without writing long comments
-help instructors more clearly identify strengths and weaknesses across an entire class and adjust their instruction appropriately
-help to ensure consistency across time and across graders
-reduce the uncertainty which can accompany grading
-discourage complaints about grades

An effective rubric can also offer several important benefits to students. Rubrics help students to:

-understand instructors' expectations and standards
-use instructor feedback to improve their performance
-monitor and assess their progress as they work towards clearly indicated goals
-recognize their strengths and weaknesses and direct their efforts accordingly

In creating rubrics, teachers must ensure that the rubric is aligned to the activity, that the components of the rubric are clearly defined, and that the expectations are age/grade level appropriate.

Step 1: *Identify what you want to assess*. These form the criteria for the assessment and are usually part of the description of the assignment or task.
Step 2: *Identify the characteristics to be rated*.

- Specify the skills, knowledge, and/or behaviors that you will be looking for.
- Limit the characteristics to those that are most important to the assessment.

Step 3: *Identify the levels of mastery/scale*. Aim for an even number because when an odd number of levels are used the middle number tends to become "catch-all".
Step 4: *Describe each level of mastery for each characteristic*.

- Describe the best work you could expect using these characteristics. This describes the top category.
- Describe an unacceptable product. This is the lowest category.
- Develop intermediate level product for the intermediate categories. Each category should be mutually exclusive.
- Focus your descriptions on the presence of the quantity or quality rather than the absence of them.
- Keep the elements of the description consistent between performance levels.

Step 5: *Have a peer review your rubric and provide feedback.*
Step 6: *Try out your rubric and revise as needed.*

Free tools are available to help in the construction of rubrics and many of these sites allow the teacher to customize the rubrics to meet the needs of their specific assessment and the student population.

Highlighted Superintendent's Memos

First Review of Proposed Amendments to the *Regulations Establishing Standards for Accrediting Public Schools in Virginia*, Parts I-VII (Proposed Stage)

MEMO 244-16

2016 Mathematics Standards of Learning and Curriculum Framework

MEMO 234-16

2016-2017 Green Ribbon Schools

Contact Us

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