Superintendents, school boards and various state legislators have recently announced recommendations to modify Virginia’s Standards of Learning system. Based upon the Coalition’s review of research of best practices for K-12 science education, the Coalition offers and supports the following strategies for assuring that all K-12 Virginia students will be engaged in science curricula that prepare them for careers, post-secondary education and life.

1. Establish an advisory committee to study and offer recommendations to the Board of Education for the science standards, assessments and accountability system. At a minimum, the advisory committee should consider the following:

   a) Revising Virginia’s Standards for Learning for Science to increase the emphasis on inquiry-based practices and core disciplinary and cross-cutting concepts, as advocated in research-based studies (1, 8, 9, 10, 13, 15);

   b) Designing high-quality assessment options that are congruent with the revised standards and that address the wide range of higher-order scientific practices and conceptual understandings necessary for college and career readiness (2, 6, 7);

   c) Developing an accountability system that reflects a range of reliable and feasible science assessment options that can be implemented at the school, division and/or state level, not just state-developed multiple-choice tests (2, 6, 7); and,

   d) Funding for stakeholder training to implement the system effectively and to utilize derived data to improve teaching, learning and post-secondary preparedness (2, 6, 7, 10).

2. Continue the Standards of Learning science tests, at both grades 3 and 5, to ensure that science is taught; national data show that states have reduced the time spent on elementary science to focus on NCLB reading and math requirements, with the greatest reduction in science time occurring when accountability-level testing is eliminated for science (2, 3, 4, 7).

3. Forego additional exemptions from third grade science SOL assessment until the impacts of those granted in the 2013 legislative session on grades 3-5 reading and science scores are understood. Effective science instruction incorporates mathematics, reading and oral-written communication and has been shown to increase achievement in all areas, especially for disadvantaged learners. Therefore, sound integration, even in the early grades, enhances learning and performance in all these core subjects (5, 11, 12, 13, 15).

The Virginia Mathematics & Science Coalition (VMSC) is a nonprofit 501(c) (3) organization dedicated to achieving excellence in mathematics and science education for Virginia’s K-12 and higher education students. As part of its mission, the VMSC evaluates policies, regulations and practices that impact the quality of mathematics and science education, provides information and analyses, and comments, when necessary, on public policy issues and initiatives addressing preparation for STEM-oriented careers.

Contact: Fred Hoffman, President, Virginia Mathematics & Science Coalition, president@vamsc.org. Web: http://vamsc.org
Virginia Mathematics & Science Coalition
Position on Science Standards of Learning, Assessment and Accountability

References


Ad Hoc Committee on Virginia Science Standards of Learning, Assessment and Accountability

Fred Hoffman: Roanoke Valley Governor’s School for Science & Technology (ret.); President, VMSC Board
Julia Cothron: MathScience Innovation Center (ret.); Chairman of Strategic Planning Committee, VMSC Board
Delores Dunn: Virginia Association of Science Teachers; VMSC Board
Francis Eberle: National Science Teachers Association (ret.); VMSC Board
Juanita Jo Matkins: College of William & Mary; Virginia Association of Science Teachers
Laura Nelson: Portsmouth City Public Schools; Virginia Science Education Leadership Association
Henry R. (“Speaker”) Pollard V: Christian & Barton LLP; Secretary & Chairman of Policy Committee, VMSC Board
Pam Pulver: Fauquier County Public Schools; Virginia Science Education Leadership Association
Donna R. Sterling, George Mason University; Chairman of Science Committee, VMSC Board

Contact: Fred Hoffman, President, Virginia Mathematics & Science Coalition, president@vamsc.org. Web: http://vamsc.org
Virginia Mathematics & Science Coalition
Position on Science Standards of Learning, Assessment and Accountability

Shirley Sypolt: Hampton City Public Schools; Virginia Association of Science Teachers
Myra Thayer: Fairfax County Public Schools; Virginia Science Education Leadership Association
Diane Tomlinson: Russell County Public Schools (ret.); VMSC Board

Contact: Fred Hoffman, President, Virginia Mathematics & Science Coalition,
president@vamsc.org. Web: http://vamsc.org