HJR 90

Benchmarking Technology and STEM Education in the Commonwealth

A Special State-Focused
Supplement to *Education Week*'s
Technology Counts 2008

EPE RC RESEARCH CENTER

About Editorial Projects in Education (EPE)

- EPE is a nonprofit, tax-exempt organization based in Bethesda, Md.
- Its primary mission is to help raise the level of awareness and understanding among professionals and the public of important issues in American education.
- EPE covers local, state, national, and international news and issues from preschool through the 12th grade.
- Editorial Projects in Education Inc. publishes *Education Week*, America's newspaper of record for precollegiate education; edweek.org; *Digital Directions;* teachermagazine.org; and *Teacher Professional Development Sourcebook*.
- EPE conducts annual policy surveys, collects data, and performs analyses that appear in the *Quality Counts, Technology Counts*, and *Diplomas Count* annual reports.

About Technology Counts 2008

"The EPE Research Center surveyed the states to assess the status of K-12 educational technology across the nation in the areas of access, use, and capacity. The report assigns grades to the states for their technology performance overall and in those three categories."

Ranking K-12 Technology in the Commonwealth

	Overall Score	Grade	Rank
West Virginia	95	A	1
South Dakota	92	A-	2
Georgia	91	A-	3
Virginia	89	B+	4
Kentucky	88	B+	5
North Dakota	86	B	6
Florida	85	B	7
Louisiana	82	B-	8
Pennsylvania	82	B-	9
North Carolina	82	B-	10
Oklahoma	81	B-	11
Wisconsin	81	B-	12
Arkansas	80	B-	13
Kansas	80	B-	14
Wyoming	80	B-	15
South Carolina	80	B-	16
Illinois	79	C+	17
Texas	79	C+	17
Connecticut	79	C+	19
Maine	79	C+	20
Arizona	78	C+	21
Indiana	78	C+	21
Maryland	78	C+	23
Alaska	78	C+	24
Missouri	77	C+	25

Virginia Specific Grades

STATE TECHNOLOGY REPORT CARD 2008

	Virginia	How did the average state score?
Access to technology	**A-**	C
Use of technology	**A-**	B-
Capacity to use technology	**B**	C
Overall grade	**B+**	C+

Methodology

WEIGHTING: Access to technology, use of technology, and capacity to use technology each account for one-third of the overall state grade.

ACCESS TO TECHNOLOGY:

- Percent of 4th and 8th grade students with access to computers;
- Students per instructional computer; and
- Students per high-speed Internet-connected computer.

USE OF TECHNOLOGY:

- State standards for students include technology;
- State tests students on technology;
- State has established a virtual school; and
- State offers computer-based student assessments.

Methodology (continued)

CAPACITY TO USE TECHNOLOGY:

- State standards include technology for teachers;
- State standards include technology for administrators;
- State requires technology coursework or a test for initial teacher licensure;
- State requires technology coursework or a test for initial administrator license;
- State requires technology training or a technology test for recertification, or requires participation in technology-related professional development for teachers; and
- State requires technology training or a technology test for recertification, or requires participation in technology-related professional development for administrators.

A look at technology…

…but all eyes are on STEM

Benchmarking Student STEM Performance

Student Performance in STEM Subjects	Virginia State Average	Virginia State Rank	National Average
Achievement Levels			
4th grade math – Percent proficient on NAEP (2007)	41.9%	18	38.6%
8th grade math – Percent proficient on NAEP (2007)	37.5%	11	31.0%
4th grade science – Percent proficient on NAEP (2005)	39.7%	1	27.0%
8th grade science – Percent proficient on NAEP (2005)	34.5%	14	27.3%
Achievement Gains			
4th grade math – Scale score change on NAEP (2003-2007)	+4.3	36	+5.1
8th grade math – Scale score change on NAEP (2003-2007)	+5.9	9	+4.1
4th grade science – Scale score change on NAEP (2000-2005)	+6.1	4	+4.3
8th grade science – Scale score change on NAEP (2000-2005)	+4.4	4	-0.6
Poverty Gap (National School Lunch Program, noneligible vs. eligible)			
Math gap – 8th grade NAEP scale score (2007)	26.8	41	26.0
Science gap – 8th grade NAEP scale score (2005)	27.8	32	28.1
Math-gap change – 8th grade NAEP (2003-2007), negative value = closing gap	-0.6	32	-2.4
Science-gap change – 8th grade NAEP (2000-2005), negative value = closing gap	-1.1	18	-3.5
Achieving Excellence			
4th grade math – Percent advanced on 4th grade NAEP (2007)	6.6%	12	5.5%
8th grade math – Percent advanced on 8th grade NAEP (2007)	8.9%	8	6.6%
4th grade science – Percent advanced on 4th grade NAEP (2005)	4.9%	1	2.3%
8th grade science – Percent advanced on 8th grade NAEP (2005)	4.4%	4	2.9%

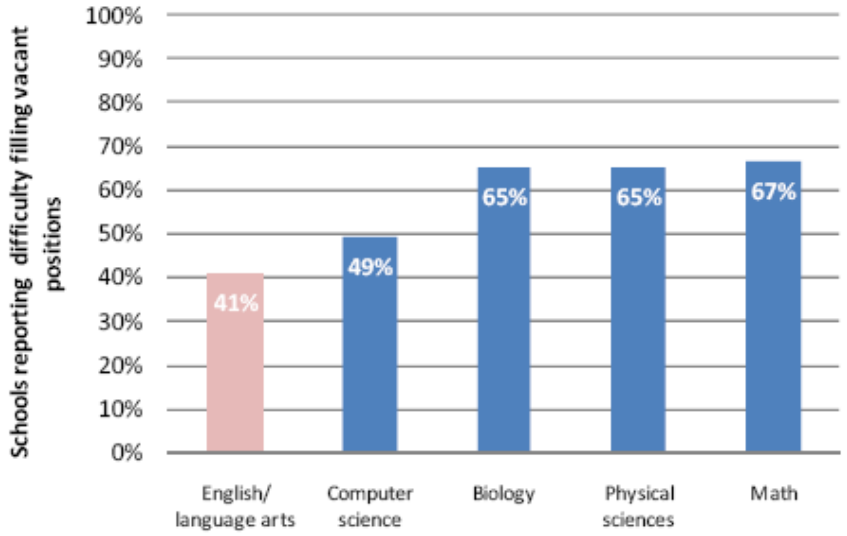
STEM Teacher Demand: A National Perspective

Filling STEM Teaching Positions a Challenge: A National Perspective

About two-thirds of schools with vacancies in biology, physical sciences, or math reported difficulty filling those posts.

By contrast, only 41 percent of schools experienced difficulty filling English/language arts positions.

SOURCE: EPE Research Center analysis of data from the U.S. Department of Education's Schools and Staffing Survey 2003-04



Benchmarking Teacher Preparation

Teachers With Majors in Assigned Fields (2003-04)	Virginia State Average	Virginia State Rank	National Average
Math teachers – Percent in grades 7-12 who majored in math	52%	37	61%
Science teachers – Percent in grades 7-12 who majored in science	74%	28	77%

Note: Teachers with majors in math education or science education were not included in these figures.

Questions?…