Oklahoma

TECHNOLOGY COUNTS 2008

STEM

The Push to Improve
Science, Technology, Engineering, and Mathematics

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

EPE RC
RESEARCH CENTER

About This Report

This *State Technology Report* is a supplement to the 11th edition of *Technology Counts,* a joint project of *Education Week* and the Editorial Projects in Education Research Center. As in previous years, 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. The state report assembles key findings from the survey and other sources in a format that allows readers to examine a particular state's performance. For most indicators, national results are also provided as a benchmark against which the state can be measured. State grades are not comparable with those in last year's report because of changes in two access indicators. As its theme this year, *Technology Counts 2008* explores the push to improve education in the STEM fields of science, technology, engineering, and mathematics. Because of this, the state report also tracks achievement data in mathematics and science from the 50 states and the District of Columbia. The full *Technology Counts 2008* report can be accessed online at www.edweek.org/go/tc08.

STATE TECHNOLOGY REPORT CARD 2008

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

Grading the States

For *Technology Counts 2008*, the EPE Research Center awarded grades for technology leadership to the 50 states and the District of Columbia. Grading is based on 14 individual indicators spanning three core areas of state policy and practice: access to instructional technology, use of technology, and capacity to effectively use educational technology.

Information on technology use and capacity was obtained from a 2007 nationwide survey of state technology officials conducted by the EPE Research Center. Indicators related to educational technology access were derived from a 2005-06 public school survey conducted by Market Data Retrieval, a research company that tracks the use of educational technology, and from background questionnaires administered as part of the 2007 National Assessment of Educational Progress.

The EPE Research Center evaluated each indicator, assigning a certain number of points to each. States received credit for the use and capacity indicators only if they could document that the respective policy or practice was in place. Points were tallied within each of the three technology categories, producing scores on a 100-point scale. To generate an overall score, the Research Center computed the average of the three category scores and then converted that total score to a letter grade.

Technology Counts Grading Breakdown

This table reports the detailed scoring behind the grades for the three major areas of state policy examined in *Technology Counts.*

Access to Technology

	Oklahoma	U.S.
Percent of students with …		
Access to computers (4th grade)	**96%**	95%
Access to computers (8th grade)	**76%**	83%
Number of students per …		
Instructional computer	**3.5**	3.8
High-speed Internet-connected computer	**3.4**	3.7

Capacity to Use Technology

	Does state have policy?	Number of states with policy
State includes technology in its …		
Teacher standards	**Yes**	44
Administrator standards	**Yes**	35
Initial teacher-license requirements	**Yes**	19
Initial administrator-license requirements	**No**	9
Teacher-recertification requirements	**No**	10
Administrator-recertification requirements	**No**	6

Use of Technology

	Does state have policy?	Number of states with policy
Student standards include technology	**Yes**	48
State tests students on technology	**No**	5
State has established a virtual school	**Yes**	25
State offers computer-based assessments	**Yes**	27

Overall Technology Score

	Oklahoma points awarded	Average state points awarded
Access to technology	**73.5**	75.3
Use of technology	**89.8**	80.1
Capacity to use technology	**79.5**	75.5
***Total score** (average of three categories)*	**80.9**	76.9

Grading Curve A (93-100), A- (90-92), B+ (87-89), B (83-86), B- (80-82), C+ (77-79), C (73-76), C- (70-72), D+ (67-69), D (63-66), D- (60-62), F (0-59)

Integrating State Technology Standards

National Perspective

In just over half of states, technology standards exist as distinct, stand-alone documents. But in keeping with a trend toward integrating technology throughout the curriculum, 22 states embed technology expectations within the standards of other subjects. Six of those states have both stand-alone and embedded technology standards. In all,15 states embed technology standards across-the-board into English, math, science, and history.
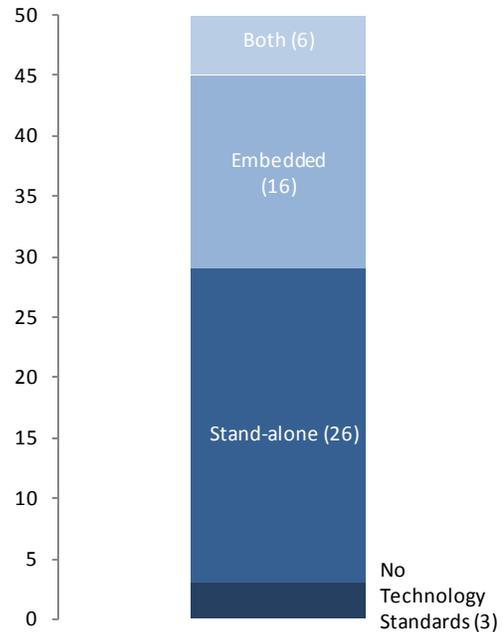
Technology Standards for Students

Both embedded and stand-alone:

AR, DE, MA, SD, TN, WV

Stand-alone:

AL, AK, AZ, CT, ID, KY, LA, MD, MI, MT, NE, NV, NH, NJ, NY, NC, ND, OH, OK, OR, TX, UT, VT, VA, WA, WI

Embedded only:

CA, CO, FL, GA, HI, IL, IN, KS, ME, MN, MO, NM, PA, RI, SC, WY

No technology standards: DC, IA, MS

Technology Use and Capacity Policies

National Perspective

The EPE Research Center has examined state technology use and capacity policies. Ten key policies, listed on the first page of this state report, are summarized in this map.

The states with the strongest use and capacity policies in the 2007-08 school year are Georgia (10 policies) and West Virginia (9 policies). At the other end of the spectrum, Montana and Nevada each have one policy, while the District of Columbia has adopted none of the policies.

DC = 0 policies

Number of Policies
- 7 to 10   (7)
- 4 to 6   (30)
- 0 to 3   (14)
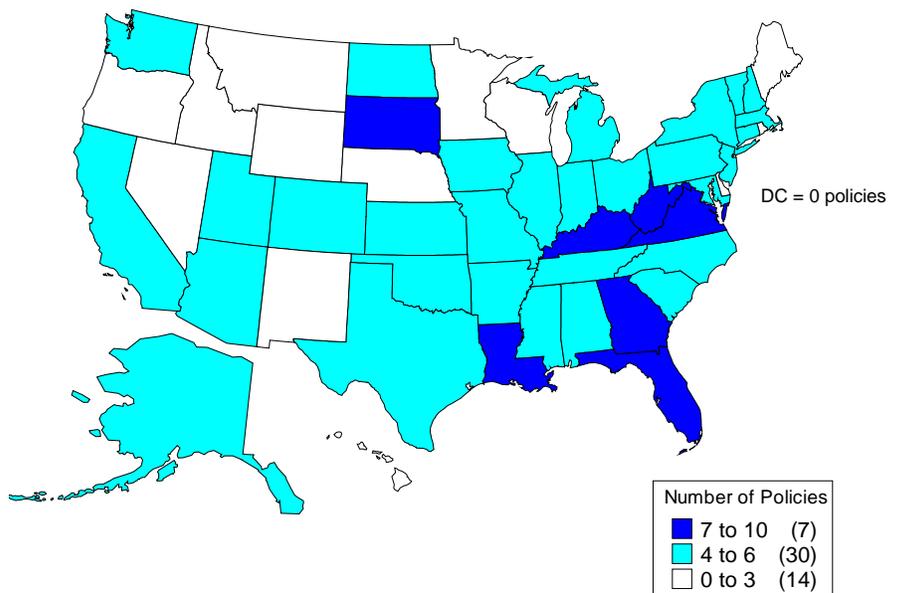
Overall Grade on State Technology Leadership

The nation earns a grade of C-plus for leadership in technology policy and practice, based on an analysis of the 50 states and the District of Columbia. West Virginia earns the only A, while Georgia and South Dakota receive A-minus marks.

Most states demonstrated relatively uneven performance across the areas of access, use, and capacity.

DC = D-

Overall grade
- ■ A- to A (3)
- ■ B- to B+ (13)
- ■ C- to C+ (28)
- □ D- to D+ (7)
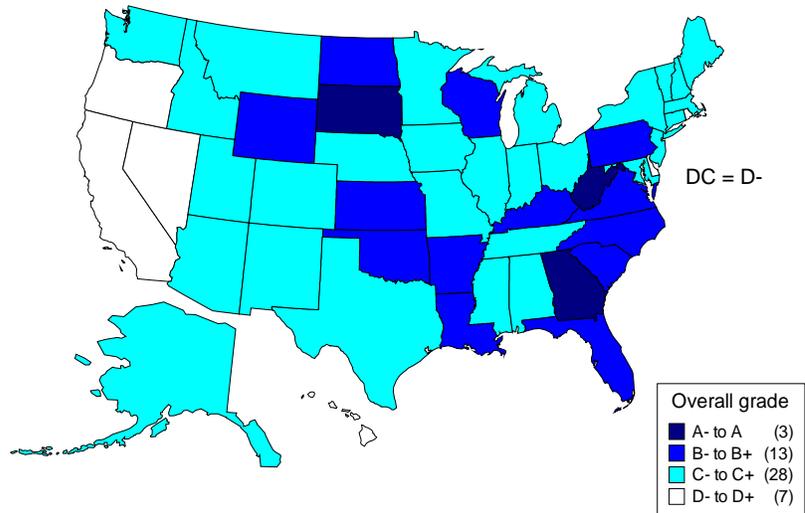
Student Performance in STEM Subjects

|	Oklahoma		National Average
	State Average	State Rank	
Achievement Levels			
4th grade math – Percent proficient on NAEP (2007)	32.6%	39	38.6%
8th grade math – Percent proficient on NAEP (2007)	21.3%	44	31.0%
4th grade science – Percent proficient on NAEP (2005)	25.1%	32	27.0%
8th grade science – Percent proficient on NAEP (2005)	25.3%	29	27.3%
Achievement Gains			
4th grade math – Scale score change on NAEP (2003-2007)	+7.7	9	+5.1
8th grade math – Scale score change on NAEP (2003-2007)	+2.6	38	+4.1
4th grade science – Scale score change on NAEP (2000-2005)	-0.9	29	+4.3
8th grade science – Scale score change on NAEP (2000-2005)	-2.2	31	-0.6
Poverty Gap (National School Lunch Program, noneligible vs. eligible)			
Math gap – 8th grade NAEP scale score (2007)	20.5	15	26.0
Science gap – 8th grade NAEP scale score (2005)	19.3	12	28.1
Math-gap change – 8th grade NAEP (2003-2007), negative value = closing gap	-1.3	25	-2.4
Science-gap change – 8th grade NAEP (2000-2005), negative value = closing gap	+1.6	30	-3.5
Achieving Excellence			
4th grade math – Percent advanced on 4th grade NAEP (2007)	2.7%	45	5.5%
8th grade math – Percent advanced on 8th grade NAEP (2007)	3.1%	44	6.6%
4th grade science – Percent advanced on 4th grade NAEP (2005)	1.4%	36	2.3%
8th grade science – Percent advanced on 8th grade NAEP (2005)	2.1%	32	2.9%

Teachers With Majors in Assigned Fields (2003-04)

	Oklahoma		National Average
	State Average	State Rank	
Math teachers – Percent in grades 7-12 who majored in math	58%	31	61%
Science teachers – Percent in grades 7-12 who majored in science	61%	44	77%

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

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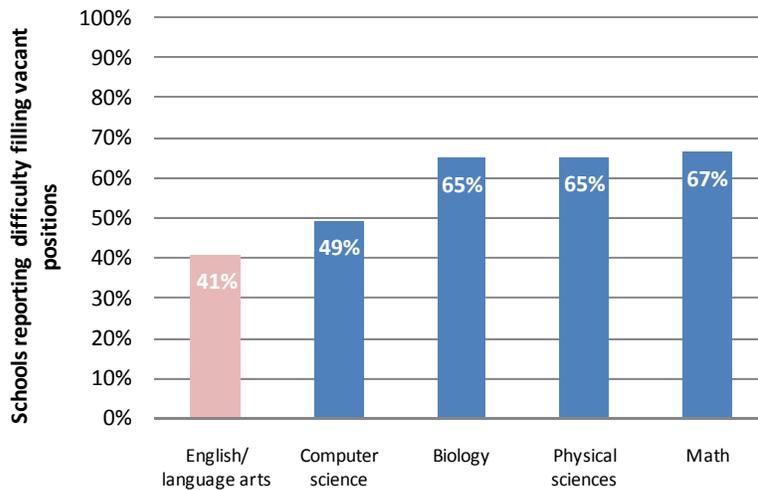
SOURCE: EPE Research Center analysis of data from the U.S. Department of Education's Schools and Staffing Survey 2003-04

Technology Assistance for Classroom Teachers

Teachers receive assistance in using technology from a variety of different individuals. In about one-quarter of schools, teachers receive most of their technology help from another full-time teacher. District-level coordinators offer the bulk of support in 21 percent of schools. Principals and school administrators are the main source of this assistance in only 6 percent of schools.
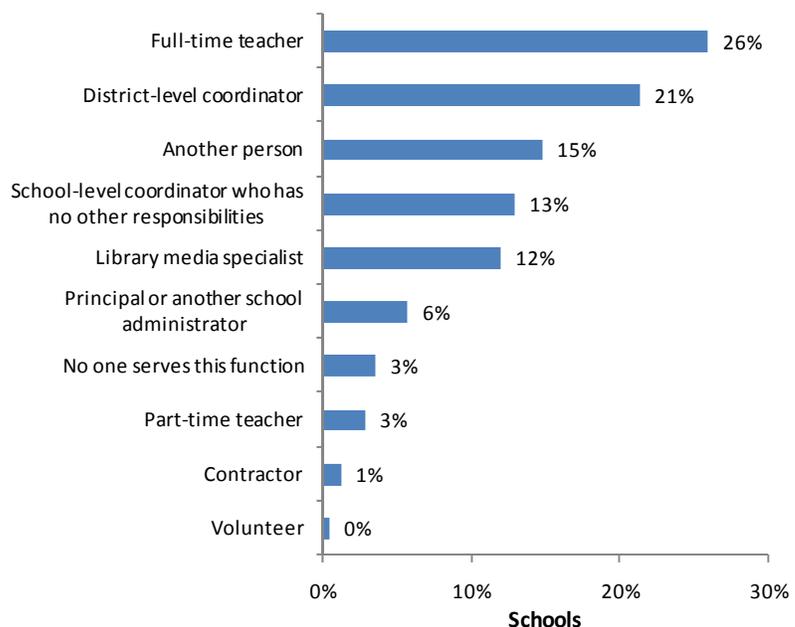
SOURCE: EPE Research Center Analysis of the U.S. Department of Education's Schools and Staffing Survey 2003-04

Sources and Notes

State Technology Indicators

Most of the state policy indicators reported in *Technology Counts* are obtained through an original policy survey conducted annually by the Editorial Projects in Education Research Center. The Research Center sent surveys to the chief state technology officers in all 50 states and to the superintendent of the District of Columbia public schools. Respondents provided information on policy indicators related to educational technology and competencies of students and educators. Every state response was carefully verified using additional evidence provided by the state, such as documentation describing a state statute or administrative rule.

For some indicators on access to technology, the EPE Research Center obtained information from Market Data Retrieval, or MDR, a research organization in Shelton, Conn., that tracks trends in educational technology, and from the National Assessment of Educational Progress, conducted by the National Center for Education Statistics.

Grading the States

For *Technology Counts 2008*, the EPE Research Center graded state leadership in the areas of technology access, use, and capacity, based on data compiled for 14 individual indicators of state policy and practice. Each indicator was evaluated and assigned a certain number of points, with some indicators receiving greater weight than others. States were not awarded credit for an indicator unless they were able to document that the respective policy was in place.

The Research Center tallied points within each of the three policy categories on a 100-point scale. These three subscores were averaged to produce an overall technology score, which was then converted to a letter grade. A detailed explanation of the grading methodology can be found in the full edition of *Technology Counts 2008*.

Technology Access

Percent of 4th grade students with access to computers: The percent of 4th grade students in public schools whose math teachers report that computers are available for use by their students. National Assessment of Educational Progress, National Center for Education Statistics, U.S. Department of Education, 2007.

Percent of 8th grade students with access to computers: Ibid.

Students per instructional computer: The average number of students who share each computer available for student instruction. Market Data Retrieval, "2005-06 Public School Technology Survey."

Students per high-speed Internet-connected computer: Ibid.

Technology Use & Capacity

Editorial Projects in Education Research Center annual state policy survey, 2007. Survey respondents were asked about state policies that promote technology use and capacity.

STEM

Student Performance: National Assessment of Educational Progress in Science 2005. National Assessment of Educational Progress in Mathematics 2007. National Center for Education Statistics, U.S. Department of Education, 2005 and 2007.

Teacher Quality in STEM Fields: U.S. Department of Education's Schools and Staffing Survey 2003-04. Council of Chief State School Officers, 2007.

About Editorial Projects in Education

Editorial Projects in Education (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; *Teacher Professional Development Sourcebook;* and the TopSchoolJobs.org recruitment marketplace. It also produces periodic special reports on issues ranging from technology to textbooks, as well as books of special interest to educators.

The ***EPE Research Center*** conducts annual policy surveys, collects data, and performs analyses that appear in the *Quality Counts, Technology Counts*, and *Diplomas Count* annual reports. The center also produces independent research reports, contributes original data and analysis to special coverage in *Education Week* and edweek.org, and maintains the Education Counts and EdWeek Maps online data resources.

Technology Counts 2008: A Digital Decade

➤ *Technology Counts 2008* – This year's full report examines the role of technology in the push to improve STEM: science, technology, engineering, and mathematics. *Technology Counts* grades the states in three critical areas of technology leadership: providing access to technology, use of technology, and capacity to use technology effectively.

➤ *State Technology Reports* – Individualized reports featuring state-specific findings from the 2008 *Technology Counts* report are available for all 50 states and the District of Columbia.

➤ *Education Counts* – This online database contains hundreds of state-level indicators on K-12 education collected over the past decade for *Education Week's* annual *Technology Counts*, *Diplomas Count*, and *Quality Counts* reports. Use the Custom Table Builder feature to create graphs, tables, or maps for specific indicators.

Technology Counts 2008 is available online at www.edweek.org/go/tc08