

Math Skills

DEFINITION

Math skills is the percentage of fourth- and eighth-grade students who scored at or above the proficiency level for math on the *New England Common Assessment Program* (NECAP) test in October 2008. Proficiency rates from the mathematics sub-test are reported here.

SIGNIFICANCE

The ability to understand and use mathematics is critical in life. Students must rely on math skills not only for advancing their education, but also in the course of daily activities.¹ Strong high school math skills can also open higher education and career opportunities for students.² Schools in Rhode Island teach mathematics every year through eighth grade and require students to take four years of mathematics to graduate from high school.^{3,4}

State, national and international assessments show that U.S. students fare well when asked to perform straightforward computational procedures, but tend to have a limited understanding of the basic mathematical concepts needed to solve simple problems. Performance in mathematics, while generally low, has been improving over the past decade.⁵

Family risk factors, such as poverty, language barriers and low maternal education levels negatively impact

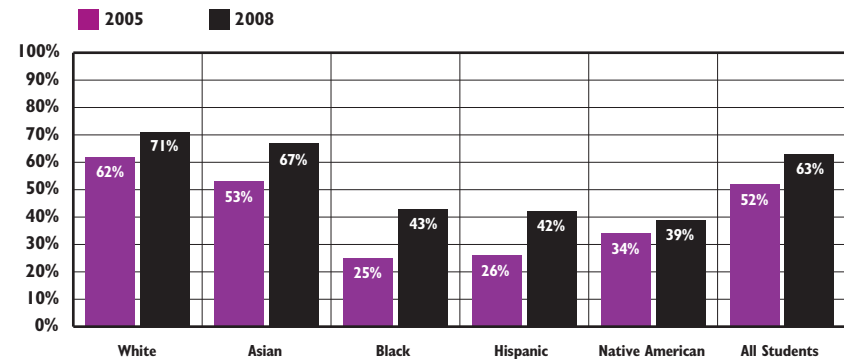
student achievement in mathematics.⁶ Disparities in math achievement related to race and family income persist in the United States.⁷ Students with insufficient math skills will have fewer opportunities to pursue post-secondary education and secure high-level employment than their peers.⁸

Frequent engagement in classroom activities, such as doing math problems from a textbook, talking with others about how to solve math problems and using a calculator are associated with higher scores on assessments, particularly for older students.⁹ Students' achievement in math is highest when they are taught by teachers with strong math backgrounds and training in teaching math.¹⁰

Achieving math proficiency for all students requires that improvements be made in curriculum, instructional materials, assessments, classroom practice, teacher preparation and professional development.^{11,12}

Nationally and in Rhode Island, gaps in math performance exist between low-income and higher-income students. In Rhode Island in 2008, 46% of low-income fourth-grade students were proficient in math compared to 75% of higher-income fourth-grade students. Thirty-three percent of low-income eighth-grade students were proficient in math compared to 66% of higher-income eighth-grade students.^{13,14}

**4th Grade Math Proficiency Levels, by Race and Ethnicity
Rhode Island Public Schools, 2005 & 2008**



Source: Rhode Island Department of Elementary and Secondary Education, *New England Common Assessment Program* (NECAP), October 2005 and October 2008.

- ◆ In October 2008, 63% of Rhode Island fourth graders scored at or above proficiency in math, compared with 52% in 2005. In Rhode Island in 2008, 32% of fourth-grade students with disabilities were proficient in math compared to 69% of students without disabilities.¹⁵
- ◆ Black and Hispanic students have seen the greatest improvements in fourth-grade math proficiency since 2005, yet Black, Hispanic and Native American students continue to score significantly lower than their White and Asian peers.¹⁶
- ◆ In Rhode Island in 2008, 53% of eighth-grade students were proficient in math, compared with 48% in 2005. Fifteen percent of eighth-grade students with disabilities were proficient in math in 2008 compared with 61% of students without disabilities.¹⁷

National Assessment of Educational Progress

- ◆ Eighty percent of Rhode Island fourth graders performed at or above the Basic level in math on the 2007 National Assessment of Educational Progress (NAEP), compared with 81% nationally. Sixty-six percent of Rhode Island eighth-graders performed at or above the Basic level in math on the NAEP, compared with 70% nationally. Students performing at the Basic level have shown partial mastery of prerequisite knowledge and skills that are fundamental for proficient grade-level work.^{18,19}

Table 41.

Fourth and Eighth Grade Math Proficiency, Rhode Island, 2005 and 2008

SCHOOL DISTRICT	FOURTH GRADE				EIGHTH GRADE			
	# OF TEST TAKERS, 2005	% OF STUDENTS WHO SCORED AT OR ABOVE PROFICIENCY, 2005	# OF TEST TAKERS, 2008	% OF STUDENTS WHO SCORED AT OR ABOVE PROFICIENCY, 2008	# OF TEST TAKERS, 2005	% OF STUDENTS WHO SCORED AT OR ABOVE PROFICIENCY, 2005	# OF TEST TAKERS, 2008	% OF STUDENTS WHO SCORED AT OR ABOVE PROFICIENCY, 2008
Barrington	248	85%	234	87%	275	87%	265	91%
Bristol-Warren	269	62%	220	75%	291	57%	257	64%
Burrillville	163	55%	166	70%	230	52%	177	55%
Central Falls	266	28%	223	39%	292	16%	275	27%
Chariho	269	66%	276	70%	304	55%	282	73%
Coventry	405	63%	361	72%	478	62%	436	68%
Cranston	806	55%	712	70%	928	41%	840	51%
Cumberland	410	58%	367	69%	410	56%	413	60%
East Greenwich	201	83%	140	82%	214	84%	197	82%
East Providence	416	59%	328	64%	499	46%	433	50%
Exeter-West Greenwich	162	68%	141	77%	160	64%	160	73%
Foster	65	66%	36	86%	NA	NA	NA	NA
Foster-Glocester	NA	NA	NA	NA	217	61%	202	55%
Glocester	124	62%	95	73%	NA	NA	NA	NA
Jamestown	43	65%	56	77%	74	77%	61	70%
Johnston	276	45%	214	57%	289	41%	290	45%
Lincoln	266	72%	229	79%	261	62%	270	69%
Little Compton	37	59%	45	71%	41	76%	32	63%
Middletown	199	68%	187	72%	185	70%	197	76%
Narragansett	122	66%	86	83%	122	75%	126	67%
New Shoreham	14	57%	11	91%	9	67%	9	NA
Newport	179	34%	122	54%	178	39%	182	51%
North Kingstown	334	71%	282	78%	349	61%	359	66%
North Providence	252	39%	192	68%	311	38%	254	35%
North Smithfield	129	80%	134	61%	161	66%	161	55%
Pawtucket	705	42%	633	50%	804	37%	705	35%
Portsmouth	236	67%	201	76%	223	72%	215	82%
Providence	1,925	25%	1,490	40%	1,957	20%	1,658	28%
Scituate	141	62%	121	69%	156	79%	151	74%
Smithfield	220	72%	177	82%	227	64%	194	71%
South Kingstown	249	71%	246	82%	348	72%	292	78%
Tiverton	154	75%	129	76%	203	62%	164	71%
Warwick	854	63%	719	67%	951	52%	883	58%
West Warwick	294	42%	231	56%	318	51%	261	55%
Westerly	255	56%	218	73%	266	47%	280	69%
Woonsocket	493	41%	402	48%	495	29%	419	29%
Charter Schools	160	36%	223	61%	23	39%	94	36%
UCAP	NA	NA	NA	NA	66	5%	82	15%
Core Cities	3,862	32%	3,101	45%	4,044	27%	3,500	33%
Remainder of State	7,319	63%	6,323	72%	8,182	57%	7,600	63%
Rhode Island	11,341	52%	9,647	63%	12,315	47%	11,276	53%

Source of Data for Table/Methodology

Due to the adoption of a new assessment tool by the Rhode Island Department of Elementary and Secondary Education, Math Skills in the Factbook cannot be compared with Factbooks prior to 2007.

All data are from the Rhode Island Department of Elementary and Secondary Education, *New England Common Assessment Program (NECAP)*, October 2008.

Only students who actually took the test are counted in the district's or school's proficiency rate. All enrolled students are eligible unless their IEP specifically exempts them or unless they are beginning English-Language Learners.

Core cities are Central Falls, Newport, Pawtucket, Providence, West Warwick and Woonsocket.

Charter schools include Compass Charter School, Highlander School, International Charter School, Kingston Hill Academy, Learning Community Charter School and Paul Cuffee Charter School. Charter schools are not included in the core city and remainder of state calculations. UCAP is the Urban Collaborative Accelerated Program.

NA indicates that the school district does not serve students at that grade level or that the number of students was too small to report.

References

^{1,9} National Center for Education Statistics. (2001). *The nation's report card: Mathematics 2000*. Washington, DC: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics.

^{2,7,12} U.S. Department of Education. (2008). *Foundations for success: The final report of the National Mathematics Advisory Council*. Washington, DC: U.S. Department of Education.

³ Rhode Island Board of Regents for Elementary and Secondary Education. (2008). *Regulations for K-12 literacy, restructuring the learning environment at the middle and high school levels, and proficiency based graduation requirements (PBGR) at high schools*. Retrieved February 22, 2009 from www.ride.ri.gov

⁴ Rhode Island Department of Elementary and Secondary Education. (2007). *Rhode Island K-8 mathematics grade-level expectations*. Retrieved February 20, 2009 from www.ride.ri.gov

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