

# 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.

## 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.<sup>1</sup> Strong high school math skills can also open up higher education and career opportunities for students.<sup>2</sup> 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.<sup>3,4</sup>

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.<sup>5</sup>

Family risk factors, such as poverty, language barriers and low maternal education levels are associated with low student achievement in mathematics.<sup>6</sup> Disparities in math achievement related to race and family income persist in the United States.<sup>7</sup> Students with

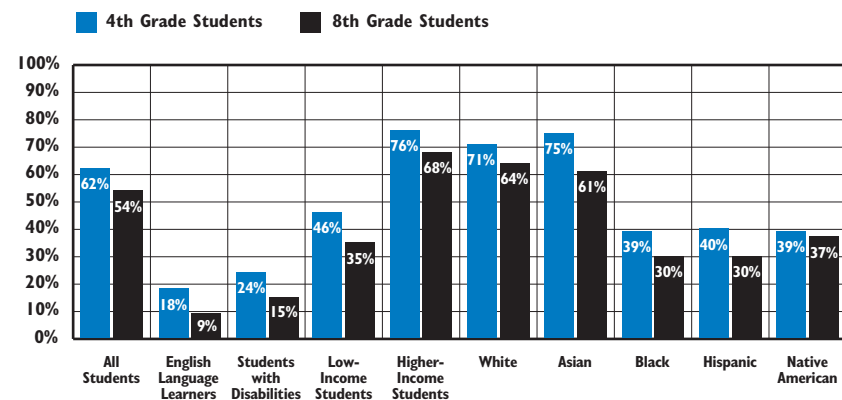
insufficient math skills will have fewer opportunities to pursue post-secondary education and secure high-level employment than their peers.<sup>8</sup>

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.<sup>9</sup> Students' achievement in math is highest when they are taught by teachers with strong backgrounds and training in teaching math.<sup>10</sup>

Achieving math proficiency for all students requires that improvements be made in curriculum, instructional materials, assessments, classroom practice, teacher preparation and professional development.<sup>11,12</sup>

The *National Assessment of Educational Progress* (NAEP) measures proficiency in math nationally and across states. In 2009, 81% of Rhode Island fourth-graders performed at or above the Basic level in math on NAEP, compared with 82% nationally. Sixty-eight percent of Rhode Island eighth-graders performed at or above the Basic level in math on the NAEP, compared with 73% nationally. Rhode Island was one of only four states in which the performance of both fourth- and eighth-graders improved between the 2007 and 2009 NAEP math tests.<sup>13,14</sup>

**4th Grade and 8th Grade Math Proficiency Levels by Student Subgroup, Rhode Island Public Schools, October 2009**



Source: Rhode Island Department of Elementary and Secondary Education, *New England Common Assessment Program* (NECAP), October 2009.

- ◆ In October 2009, 62% of Rhode Island fourth graders scored at or above proficiency in math, compared to 54% of eighth graders.<sup>15,16</sup> Nationally and in Rhode Island, there are math achievement gaps between subgroups of elementary and middle school students.
- ◆ Fourth- and eighth-grade students who are English Language Learners (ELL) and students with disabilities were the least proficient in math in Rhode Island. In 2009 in Rhode Island, only 18% of fourth-grade and 9% of eighth-grade ELL students scored at or above proficiency. Twenty-four percent of fourth-grade and 15% percent of eighth-grade students with disabilities were proficient in math in 2009.<sup>17</sup>
- ◆ Nationally and in Rhode Island, the achievement gap between girls and boys in math has been virtually eliminated at the elementary and middle school levels. In Rhode Island in 2009, 62% of male and female fourth-grade students scored at or above proficiency in math, and 55% percent of male and 54% of female eighth-grade students scored at or above proficiency in math.<sup>18,19</sup>

Table 45.

Fourth and Eighth Grade Math Proficiency, Rhode Island, 2005 and 2009

SCHOOL DISTRICT	FOURTH GRADE				EIGHTH GRADE			
	# OF TEST TAKERS, 2005	% OF STUDENTS WHO SCORED AT OR ABOVE PROFICIENCY, 2005	# OF TEST TAKERS, 2009	% OF STUDENTS WHO SCORED AT OR ABOVE PROFICIENCY, 2009	# OF TEST TAKERS, 2005	% OF STUDENTS WHO SCORED AT OR ABOVE PROFICIENCY, 2005	# OF TEST TAKERS, 2009	% OF STUDENTS WHO SCORED AT OR ABOVE PROFICIENCY, 2009
Barrington	248	85%	285	88%	275	87%	269	88%
Bristol Warren	269	62%	238	76%	291	57%	272	65%
Burrillville	163	55%	187	58%	230	52%	179	46%
Central Falls	266	28%	222	41%	292	16%	241	28%
Chariho	269	66%	244	87%	304	55%	282	72%
Coventry	405	63%	399	76%	478	62%	414	65%
Cranston	806	55%	747	64%	928	41%	863	59%
Cumberland	410	58%	309	64%	410	56%	374	70%
East Greenwich	201	83%	183	85%	214	84%	206	84%
East Providence	416	59%	411	59%	499	46%	418	53%
Exeter-West Greenwich	162	68%	131	77%	160	64%	164	71%
Foster	65	66%	45	67%	NA	NA	NA	NA
Foster-Glocester	NA	NA	NA	NA	217	61%	190	64%
Glocester	124	62%	102	75%	NA	NA	NA	NA
Jamestown	43	65%	53	75%	74	77%	51	75%
Johnston	276	45%	195	66%	289	41%	285	44%
Lincoln	266	72%	216	70%	261	62%	304	68%
Little Compton	37	59%	34	74%	41	76%	33	73%
Middletown	199	68%	166	63%	185	70%	193	72%
Narragansett	122	66%	109	75%	122	75%	125	70%
New Shoreham	14	57%	6	NA	9	67%	12	58%
Newport	179	34%	169	52%	178	39%	145	44%
North Kingstown	334	71%	288	73%	349	61%	336	69%
North Providence	252	39%	213	62%	311	38%	279	34%
North Smithfield	129	80%	112	79%	161	66%	140	67%
Pawtucket	705	42%	624	51%	804	37%	720	41%
Portsmouth	236	67%	189	82%	223	72%	239	76%
Providence	1,925	25%	1,660	35%	1,957	20%	1,646	28%
Scituate	141	62%	126	79%	156	79%	147	75%
Smithfield	220	72%	171	79%	227	64%	234	74%
South Kingstown	249	71%	243	80%	348	72%	274	81%
Tiverton	154	75%	151	78%	203	62%	150	67%
Warwick	854	63%	719	70%	951	52%	858	55%
West Warwick	294	42%	274	56%	318	51%	256	62%
Westerly	255	56%	215	73%	266	47%	241	57%
Woonsocket	493	41%	388	53%	495	29%	424	30%
Charter Schools	160	36%	232	57%	23	39%	94	49%
UCAP	NA	NA	NA	NA	66	5%	60	32%
Core Cities	3,862	32%	3,337	43%	4,044	27%	3,432	34%
Remainder of State	7,319	63%	6,495	72%	8,182	57%	7,548	64%
Rhode Island	11,341	52%	10,064	62%	12,315	47%	11,134	54%

Source of Data for Table/Methodology

All data are from the Rhode Island Department of Elementary and Secondary Education, *New England Common Assessment Program (NECAP)*, October 2005 and October 2009.

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.

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

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 and UCAP 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

<sup>1,9</sup> Braswell, D. S., Lutkas, A. D., Grigg, W. S., Santapau, S. L., Tay-Lim, B. S.-H. & Johnson, M. S. (2001). *The nation's report card: Mathematics 2000*. (NCES Pub. Number 2001-517). Washington, DC: U.S. Department of Education, Office of Education, Research and Improvement, National Center for Education Statistics.

<sup>2,7,12</sup> National Mathematics Advisory Panel. (2008). *Foundations for success: The final report of the National Mathematics Advisory Council*. Washington, DC: U.S. Department of Education.

<sup>3</sup> 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](http://www.ride.ri.gov)

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