

Math Skills

DEFINITION

Math skills is the percentage of third-, fourth-, fifth-, sixth-, and seventh-grade students who met expectations for math on the *Partnership for Assessment of Readiness for College and Careers (PARCC)* test.

SIGNIFICANCE

Students must rely on math to perform everyday activities, advance their education, and navigate today's technological world. Strong math skills predict higher college attendance and success rates and increase students' employability.^{1,2} Improving education in the STEM disciplines (science, technology, engineering, and math) can spur national innovation and competitiveness and ensure that we have qualified workers for the growing STEM industries.³

State, national, and international assessments show that U.S. students fare well with straight-forward computational procedures but tend to have a limited understanding of basic mathematical concepts, resulting in recent federal actions to increase the level of rigor and coherency of the mathematics content taught nationwide.^{4,5} After two decades of improvement, performance in math in the U.S. has begun to level off or slightly decrease in fourth and eighth grades.^{6,7}

Family risk factors such as poverty and low parental education levels are

associated with low student achievement in math. Disparities in math proficiency related to race and family income persist in the U.S.⁸ Opportunities for high-quality math instruction are especially important for low-income children. Low-income children demonstrate lower levels of math skills before entering school and the gaps continue and even widen throughout their time in school.⁹

Achieving math proficiency for all students requires that improvements be made in curriculum, instructional materials, assessments, classroom practice, teacher preparation, and professional development. These are particularly important as Rhode Island implements new, more rigorous math standards.^{10,11} Early warning and intervention systems can provide personalized and timely academic support struggling students.¹²

The *National Assessment of Educational Progress (NAEP)* measures proficiency in math and other subjects nationally and across states every other year.¹³ In 2015, 80% of Rhode Island fourth graders and 81% of U.S. fourth graders performed at or above the Basic level in math on the *NAEP*, and 72% of Rhode Island eighth graders and 70% of U.S. eighth graders performed at or above the Basic level in math on the *NAEP*.^{14,15} Between 2013 and 2015, Rhode Island saw decreases in both fourth- and eighth-grade math achievement as measured by the *NAEP* math tests.¹⁶

Third Graders Meeting Expectations on the PARCC Math Assessment, Rhode Island, 2015-2016

SUBGROUP	2015	2016	CHANGE
Male Students	36%	44%	+8%
Female Students	37%	44%	+7%
English Language Learners	11%	17%	+6%
Non-English Language Learners	39%	47%	+7%
Students With Disabilities	12%	15%	+3%
Students Without Disabilities	41%	48%	+7%
Low-Income Students	21%	29%	+9%
Higher-Income Students	52%	61%	+9%
White Students	46%	53%	+7%
Asian Students	52%	58%	+6%
Black Students	22%	29%	+7%
Hispanic Students	18%	28%	+10%
Native American Students	13%	17%	+4%
Central Falls	12%	21%	+9%
Pawtucket	25%	39%	+14%
Providence	14%	25%	+11%
Woonsocket	21%	25%	+4%
ALL STUDENTS	36%	44%	+7%

Source: Rhode Island Department of Education, *Partnership for Assessment of Readiness for College and Careers (PARCC)*, 2015-2016. Low-income status is determined by eligibility for the free or reduced-price lunch program. Change calculations may reflect rounding.

◆ From 2015 to 2016, the percentage of students meeting expectations for math on the *PARCC* increased for third, fourth, fifth, sixth, and seventh grades.^{17,18} In 2016, 44% of Rhode Island third graders met expectations on the *PARCC* math assessment, up from 36% in 2015.^{19,20}

◆ In Rhode Island in 2016, 29% of low-income third graders met expectations in math, compared with 61% of higher-income third graders.²¹ There also were large achievement gaps by race and ethnicity, with 58% of Asian and 53% of White third graders meeting expectations, compared with 29% of Black, 28% of Hispanic, and 17% of Native American students.²²

◆ Legislation passed in 2016 requires the Rhode Island Board of Education to adopt a state goal of closing the achievement gap in third-grade reading and math proficiency.²³

Table 49.

Third- Fourth-, Fifth-, Sixth-, & Seventh-Grade Students Meeting Expectations in Math, Rhode Island, 2016

SCHOOL DISTRICT	% OF STUDENTS MEETING EXPECTATIONS				
	THIRD GRADE	FOURTH GRADE	FIFTH GRADE	SIXTH GRADE	SEVENTH GRADE
Barrington	73%	68%	67%	61%	73%
Bristol Warren	56%	47%	47%	28%	40%
Burrillville	35%	24%	23%	16%	19%
Central Falls	21%	7%	12%	6%	8%
Charlho	65%	58%	59%	40%	50%
Coventry	53%	50%	35%	28%	31%
Cranston	39%	32%	34%	30%	27%
Cumberland	66%	49%	60%	46%	32%
East Greenwich	67%	56%	56%	61%	63%
East Providence	41%	38%	33%	23%	18%
Exeter-West Greenwich	62%	64%	69%	49%	37%
Foster	38%	27%	30%	NA	NA
Glocester	57%	66%	61%	NA	NA
Foster-Glocester	NA	NA	NA	42%	38%
Jamestown	81%	64%	57%	60%	59%
Johnston	49%	33%	35%	25%	25%
Lincoln	68%	50%	43%	40%	30%
Little Compton	68%	55%	38%	57%	44%
Middletown	54%	51%	37%	44%	42%
Narragansett	34%	37%	63%	50%	59%
New Shoreham	*	*	20%	*	25%
Newport	36%	41%	32%	26%	31%
North Kingstown	57%	46%	57%	52%	55%
North Providence	45%	27%	32%	21%	16%
North Smithfield	53%	47%	45%	31%	32%
Pawtucket	39%	23%	31%	17%	9%
Portsmouth	57%	49%	28%	41%	49%
Providence	25%	17%	14%	9%	10%
Scituate	64%	51%	61%	33%	33%
Smithfield	47%	47%	32%	37%	37%
South Kingstown	70%	68%	64%	55%	53%
Tiverton	73%	43%	35%	37%	51%
Warwick	46%	32%	33%	35%	29%
West Warwick	28%	22%	16%	34%	23%
Westerly	55%	46%	30%	32%	32%
Woonsocket	25%	19%	12%	10%	11%
Charter Schools	42%	42%	37%	33%	20%
State-Operated Schools	NA	NA	NA	NA	NA
UCAP	NA	NA	NA	NA	0%
Four Core Cities	28%	18%	18%	11%	10%
Remainder of State	52%	43%	42%	37%	36%
Rhode Island	44%	35%	34%	29%	28%

Source of Data for Table/Methodology

Data are from the Rhode Island Department of Education (RIDE), *Partnership for Assessment of Readiness for College and Careers (PARCC)*, 2016.

Due to the adoption of a new assessment tool by RIDE in the 2014-2015 school year, *Math Skills* cannot be compared with Factbooks prior to 2016.

The number of students who met or exceeded expectations received a score of four or five on the math section of the *PARCC* assessment, respectively. Only students who actually took the test are counted in denominator for the district's or school's proficiency rate. All enrolled students are eligible unless their Individualized Education Program (IEP) specifically exempts them or unless they are beginning English Language Learners.

Core cities are Central Falls, Pawtucket, Providence, and Woonsocket.

2015 and 2016 *PARCC* data for independent charter schools include Blackstone Valley Prep Mayoral Academy, Highlander Charter School, International Charter School, Kingston Hill Academy, The Learning Community, Paul Cuffee Charter School, The Compass School, Segue Institute for Learning, and Trinity Academy for the Performing Arts.

Charter schools and the Urban Collaborative Accelerated Program (UCAP) are not included in the four core cities and remainder of state calculations.

NA indicates that the school district does not serve students at that grade level and * indicates fewer than 10 students are in this category. Actual numbers are not shown to protect student confidentiality. These students are still counted in district totals and four core cities, remainder of state, and state totals.

References

^{1,7,8} Child Trends. (2015). *Mathematics proficiency*. Retrieved January 23, 2017, from www.childtrends.org

² RI DataHub. (n.d.). *Data story: Math preparation and postsecondary success*. Retrieved January 24, 2017, from ridatahub.org

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