

# 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.<sup>1,2</sup> 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.<sup>3</sup>

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, depth, and coherency of the mathematics content taught nationwide.<sup>4,5</sup> After two decades of improvement, performance in math in the U.S. has begun to level off or slightly decrease.<sup>6,7</sup>

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

associated with low student achievement in math. Disparities in math achievement related to race and family income persist in the U.S.<sup>8</sup> Opportunities for advanced math instruction are especially important for low-income children. Low-income children are exposed to less complex math concepts, contributing to lower performance on assessments.<sup>9</sup>

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 continues to implement new, more rigorous math standards.<sup>10,11</sup> Teachers should expose all students to challenging math concepts and provide additional support to struggling students.<sup>12</sup>

The *National Assessment of Educational Progress (NAEP)* measures proficiency in math and other subjects nationally and across states every other year.<sup>13</sup> In 2015, 37% of Rhode Island fourth graders and 39% of U.S. fourth graders performed at or above the Proficient level in math on the *NAEP*, and 32% of Rhode Island eighth graders and 32% of U.S. eighth graders performed at or above the Proficient level in math on the *NAEP*.<sup>14,15</sup> Between 2013 and 2015, Rhode Island saw decreases in both fourth- and eighth-grade math achievement as measured by the *NAEP* math tests.<sup>16</sup>

## Third Graders Meeting Expectations on the PARCC Math Assessment, Rhode Island, 2015-2017

SUBGROUP	2015	2016	2017	CHANGE
Male Students	36%	44%	44%	+8%
Female Students	37%	44%	44%	+7%
English Learners	11%	17%	20%	+9%
Non-English Learners	39%	47%	47%	+8%
Students With Disabilities	12%	15%	20%	+8%
Students Without Disabilities	41%	48%	49%	+8%
Low-Income Students	21%	29%	29%	+9%
Higher-Income Students	52%	61%	60%	+8%
White Students	46%	53%	53%	+7%
Asian Students	52%	58%	61%	+10%
Black Students	22%	29%	31%	+9%
Hispanic Students	18%	28%	30%	+12%
Native American Students	13%	17%	25%	+12%
<b>ALL STUDENTS</b>	<b>36%</b>	<b>44%</b>	<b>44%</b>	<b>+8%</b>

Source: Rhode Island Department of Education, *Partnership for Assessment of Readiness for College and Careers (PARCC)*, 2015-2017. Low-income status is determined by eligibility for the free or reduced-price lunch program. Change calculations may reflect rounding.

◆ From 2015 to 2017, the percentage of students meeting expectations on the *PARCC* math assessment increased for third, fourth, fifth, sixth, and seventh grades.<sup>17,18</sup> In 2017, 44% of Rhode Island third graders met expectations on the *PARCC* math assessment, up from 36% in 2015.<sup>19,20</sup>

◆ In Rhode Island in 2017, 29% of low-income third graders met expectations in math, compared with 60% of higher-income third graders.<sup>21</sup> There also were large achievement gaps by race and ethnicity, with 61% of Asian and 53% of White third graders meeting expectations, compared with 31% of Black, 30% of Hispanic, and 25% of Native American students.<sup>22</sup>

◆ Starting in the 2017-2018 school year, Rhode Island will use the *Rhode Island Common Assessment System (RICAS)* for assessments in grades three through eight and the *PSAT* and *SAT* in high school.<sup>23</sup>

Table 48.

**Third-, Fourth-, Fifth, Sixth- & Seventh- Grade Students Meeting Expectations in Math, Rhode Island, 2017**

SCHOOL DISTRICT	% OF STUDENTS MEETING EXPECTATIONS				
	THIRD GRADE	FOURTH GRADE	FIFTH GRADE	SIXTH GRADE	SEVENTH GRADE
Barrington	69%	68%	70%	56%	62%
Bristol Warren	59%	50%	47%	36%	20%
Burrillville	27%	21%	22%	31%	19%
Central Falls	23%	8%	7%	7%	1%
Charlho	58%	68%	50%	46%	43%
Coventry	51%	47%	46%	26%	25%
Cranston	44%	29%	38%	25%	28%
Cumberland	63%	53%	60%	49%	50%
East Greenwich	67%	54%	51%	61%	67%
East Providence	42%	33%	37%	23%	16%
Exeter-West Greenwich	73%	36%	72%	57%	40%
Foster	39%	35%	33%	NA	NA
Glocester	70%	52%	63%	NA	NA
Foster-Glocester	NA	NA	NA	29%	43%
Jamestown	93%	77%	56%	57%	66%
Johnston	42%	34%	29%	17%	25%
Lincoln	68%	46%	49%	39%	34%
Little Compton	50%	56%	57%	44%	64%
Middletown	63%	32%	44%	35%	40%
Narragansett	70%	52%	46%	56%	49%
New Shoreham	*	*	*	*	50%
Newport	36%	29%	28%	27%	18%
North Kingstown	58%	47%	50%	51%	55%
North Providence	47%	27%	21%	28%	21%
North Smithfield	53%	52%	40%	53%	30%
Pawtucket	39%	27%	26%	15%	13%
Portsmouth	52%	43%	45%	56%	53%
Providence	26%	18%	16%	9%	8%
Scituate	73%	42%	47%	40%	34%
Smithfield	54%	48%	40%	39%	46%
South Kingstown	64%	61%	60%	61%	47%
Tiverton	70%	48%	39%	35%	37%
Warwick	44%	37%	35%	38%	22%
West Warwick	30%	18%	21%	21%	22%
Westerly	60%	40%	28%	34%	24%
Woonsocket	26%	19%	19%	8%	11%
Charter Schools	46%	40%	37%	30%	27%
UCAP	NA	NA	NA	NA	6%
Four Core Cities	29%	20%	18%	10%	9%
Remainder of State	52%	42%	42%	37%	34%
Rhode Island	44%	35%	34%	29%	27%

**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)*, 2017.

Due to the adoption of a new assessment tool by the Rhode Island Department of Education 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. 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 Learners.

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

*PARCC* data for independent charter schools include Achievement First, Beacon Charter School, 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 the 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.

No data is available for State-Operated Schools.

See Methodology section for more information.

**References**

<sup>1,7,8</sup> Child Trends. (2015). *Mathematics proficiency*. Retrieved February 19, 2018, from www.childtrends.org

<sup>2</sup> RI DataHub. (n.d.). *Data story: Math preparation and postsecondary success*. Retrieved February 19, 2018, from ridatahub.org

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