

Math Skills

DEFINITION

Math skills is the percentage of third- and eighth-grade students who met expectations for math on the *Rhode Island Comprehensive Assessment System (RICAS)* 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, depth, 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.^{6,7}

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.⁸ 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.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 continues to implement new, more rigorous math standards.^{10,11} Teachers should expose all students to challenging math concepts and provide additional support to struggling students.¹²

The *National Assessment of Educational Progress (NAEP)* measures student proficiency in math and other subjects nationally and across states every other year.¹³ In 2017, 39% of Rhode Island fourth graders and 40% of U.S. fourth graders performed at or above the Proficient level in math on the *NAEP*, and 30% of Rhode Island eighth graders and 33% of U.S. eighth graders performed at or above the Proficient level in math on the *NAEP*.^{14,15} Between 2011 and 2017, Rhode Island saw decreases in both fourth- and eighth-grade math achievement as measured by the *NAEP* math tests.¹⁶

Third- & Eighth- Grade Students Meeting Expectations on the RICAS Math Assessment, Rhode Island, 2018

SUBGROUP	THIRD GRADE	EIGHTH GRADE
Male Students	37%	22%
Female Students	34%	24%
*English Learners	13%	<5%
Non-English Learners	39%	25%
*Students With Disabilities	9%	<5%
Students Without Disabilities	40%	26%
Low-Income Students	22%	9%
Higher-Income Students	50%	35%
White Students	45%	31%
Asian Students	49%	35%
Black Students	21%	8%
Hispanic Students	22%	8%
Native American Students	15%	7%
ALL STUDENTS	35%	23%

Source: Rhode Island Department of Education, *Rhode Island Comprehensive Assessment System (RICAS)*, 2018. Low-income status is determined by eligibility for the free or reduced-price lunch program. *Data is reported as <5% when more than 95% of students did not meet expectations.

◆ In Rhode Island in 2018, 22% of low-income third graders met expectations in math, on the Rhode Island Comprehensive Assessment System (RICAS) compared with 50% of higher-income third graders. There also were large achievement gaps by race and ethnicity, with 49% of Asian and 45% of White third graders meeting expectations, compared with 21% of Black, 22% of Hispanic, and 15% of Native American students. This large achievement gap is also seen in eighth-grade results, with 35% of Asian and 31% of White eighth graders meeting expectations, compared with 8% of Black and Hispanic students, and 7% of Native American students.¹⁷

◆ Starting in the 2017-2018 school year, Rhode Island adopted the *Rhode Island Comprehensive Assessment System (RICAS)* for assessments in grades three through eight. The *RICAS* assessments are aligned to the Common Core State Standards and are comparable to the *Massachusetts Comprehensive Assessment System*.¹⁸

Table 49.

Third & Eighth Grade Students Meeting Expectations in Math, Rhode Island, 2018

SCHOOL DISTRICT	# OF THIRD GRADERS TESTED	% OF THIRD GRADERS MEETING EXPECTATIONS	# OF EIGHTH GRADERS TESTED	% OF EIGHTH GRADERS MEETING EXPECTATIONS
Barrington	241	60%	246	66%
Bristol Warren	228	59%	213	26%
Burrillville	154	25%	178	20%
Central Falls	219	13%	180	1%
Charlho	210	48%	262	45%
Coventry	332	39%	369	25%
Cranston	737	33%	845	16%
Cumberland	342	53%	379	45%
East Greenwich	191	66%	204	56%
East Providence	391	40%	372	12%
Exeter-West Greenwich	114	70%	132	33%
Foster	37	24%	NA	NA
Foster-Glocester	NA	NA	165	28%
Glocester	94	51%	NA	NA
Jamestown	40	63%	52	58%
Johnston	260	34%	252	15%
Lincoln	228	54%	274	37%
Little Compton	30	57%	31	61%
Middletown	180	40%	177	55%
Narragansett	72	64%	115	43%
Newport	160	26%	146	15%
North Kingstown	235	54%	318	49%
North Providence	252	28%	300	13%
North Smithfield	132	52%	146	38%
Pawtucket	767	29%	702	7%
Portsmouth	147	52%	183	46%
Providence	1,793	17%	1,775	6%
Scituate	80	44%	118	19%
Smithfield	149	39%	178	48%
South Kingstown	230	50%	264	41%
Tiverton	129	54%	155	25%
Warwick	632	31%	706	16%
West Warwick	275	18%	225	24%
Westerly	203	49%	229	26%
Woonsocket	484	16%	407	7%
Charter Schools	672	41%	440	21%
UCAP	NA	NA	75	0%
Four Core Cities	3,263	20%	3,064	6%
Remainder of State	6,513	43%	7,242	30%
Rhode Island	10,452	35%	10,827	23%

Source of Data for Table/Methodology

Data are from the Rhode Island Department of Education (RIDE), *Rhode Island Comprehensive Assessment System (RICAS)*, 2018.

Due to the adoption of a new assessment tool by RIDE in 2018, *Math Skills* cannot be compared with Factbooks prior to 2019.

% meeting expectations are students who met or exceeded expectations on the math section of the *RICAS*. Only students who actually took the test are counted in the denominator for the district and school proficiency rates. All students, including students with disabilities and English learners, are expected to participate in the *RICAS* assessment.

RICAS data for independent charter schools include Achievement First, Beacon Charter School, Blackstone Valley Prep Mayoral Academy, The Compass School, Paul Cuffee Charter School, Highlander Charter School, The Hope Academy, International Charter School, Kingston Hill Academy, The Learning Community, Segue Institute for Learning, Southside Charter School, and Trinity Academy for the Performing Arts.

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

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.

New Shoreham and Rhode Island School for the Deaf serve fewer than 10 students at this grade level. Data is not shown to protect student confidentiality. These students are still counted in remainder of state and state totals.

References

^{1,7,8} Child Trends. (2015). *Mathematics proficiency*. Retrieved March 5, 2019, from www.childtrends.org

² RI DataHub. (n.d.). *Data story: Math preparation and postsecondary success*. Retrieved March 5, 2019, from ridatahub.org

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