

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}

Poverty and low parental education levels can impact student performance on math assessments. Disparities in math proficiency related to race and

family income persist in the U.S and worsen as students advance in grade level.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 and culturally relevant math concepts and curriculum and provide additional support to 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 2019, 40% 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 29% 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 2009 and 2019, Rhode Island saw a slight increase in fourth-grade and eighth-grade math proficiency as measured by the *NAEP* math tests.^{16,17}



Third- & Eighth- Grade Students Meeting Expectations on the RICAS Math Assessment, Rhode Island, 2019

SUBGROUP	THIRD GRADE	EIGHTH GRADE
Male Students	37%	24%
Female Students	35%	25%
*Multilingual Learners/English Learners	11%	<5%
Non-English Learners	40%	27%
*Students With Disabilities	12%	<5%
Students Without Disabilities	41%	28%
Low-Income Students	22%	10%
Higher-Income Students	51%	37%
Asian Students+	52%	38%
Black Students	24%	11%
Hispanic Students	21%	9%
Native American Students	16%	11%
White Students	45%	33%
Homeless Students	11%	<5%
*Students in Foster Care	13%	<5%
ALL STUDENTS	36%	25%

Source: Rhode Island Department of Education, *Rhode Island Comprehensive Assessment System (RICAS)*, 2018-2019. 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. +Data for Asian students is not disaggregated by ethnic group. National research shows large academic disparities across Asian ethnic groups.

◆ The U.S. Department of Education waived assessments for all states for the 2019-2020 school year due to the COVID-19 pandemic.¹⁸ In Rhode Island, interim assessments administered in the Fall of 2020 suggest the pandemic significantly impacted student math skills, especially for students in grades two through seven.¹⁹

◆ In Rhode Island in the 2018-2019 school year, 22% of low-income third graders met expectations in math, compared with 51% of higher-income third graders. There also were large gaps by race and ethnicity, with 52% of Asian and 45% of white third graders meeting expectations, compared with 24% of Black, 21% of Hispanic, and 17% of Native American students. This large gap is also seen in eighth-grade results, with 38% of Asian and 33% of white eighth graders meeting expectations, compared with 11% of Black and Native American students, and 9% of Hispanic students.²⁰

◆ For the first time in Rhode Island, data on math proficiency is available for students in foster care. In 2019, 13% of third graders in foster care met expectations in math and less than 5% of eighth graders who were in foster care met expectations in math.²¹

Table 49.

Third- & Eighth-Grade Students Meeting Expectations in Math, Rhode Island, 2018-2019

SCHOOL DISTRICT	# OF THIRD GRADERS TESTED	% OF THIRD GRADERS MEETING EXPECTATIONS	# OF EIGHTH GRADERS TESTED	% OF EIGHTH GRADERS MEETING EXPECTATIONS
Barrington	226	65%	282	61%
Bristol Warren	244	53%	226	35%
Burrillville	156	34%	173	10%
Central Falls	216	14%	212	<5%
Charlho	194	58%	220	35%
Coventry	316	43%	369	28%
Cranston	706	34%	831	19%
Cumberland	314	60%	370	52%
East Greenwich	176	65%	222	51%
East Providence	383	43%	402	16%
Exeter-West Greenwich	121	46%	120	43%
Foster	42	40%	NA	NA
Foster-Glocester	NA	NA	161	24%
Glocester	92	50%	NA	NA
Jamestown	44	80%	51	45%
Johnston	220	34%	245	17%
Lincoln	243	54%	244	36%
Little Compton	24	58%	30	43%
Middletown	172	33%	151	46%
Narragansett	76	54%	103	33%
New Shoreham	11	45%	11	10%
Newport	171	25%	140	19%
North Kingstown	247	54%	318	49%
North Providence	247	34%	297	30%
North Smithfield	106	57%	114	32%
Pawtucket	690	29%	729	9%
Portsmouth	154	43%	183	56%
Providence	1,774	17%	1,704	7%
Scituate	82	56%	116	29%
Smithfield	172	36%	204	49%
South Kingstown	204	49%	241	46%
Tiverton	126	52%	131	32%
Warwick	624	32%	627	21%
West Warwick	274	21%	252	16%
Westerly	183	56%	204	29%
Woonsocket	482	15%	405	8%
Charter Schools	799	42%	441	22%
UCAP	NA	NA	76	<5%
Four Core Cities	3,162	19%	3,050	8%
Remainder of State	6,352	44%	7,040	32%
Rhode Island	10,313	36%	10,607	24%

Source of Data for Table/Methodology

Data are from the Rhode Island Department of Education (RIDE), *Rhode Island Comprehensive Assessment System (RICAS)*, 2018-2019.

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

*Data is reported as <5% when greater than 95% of students did not meet expectations 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 the state, and state totals.

% 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 are expected to participate in the *RICAS* assessment. Students with significant disabilities may be eligible to participate in alternate assessments.

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, RISE Prep Mayoral Academy, 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.

Data is not reported for New Shoreham or The Rhode Island School for the Deaf because the number of students tested was less than 10. These students are still counted in the remainder of the state and state totals.

References

^{1,7,8} Child Trends. (2015). *Mathematics proficiency*. Retrieved February 18, 2021, from www.childtrends.org

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