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, 2021

SUBGROUP	THIRD GRADE	EIGHTH GRADE
Male Students	26%	16%
Female Students	25%	17%
*Multilingual Learners/English Learners	6%	<5%
Non-English Learners	28%	18%
*Students Receiving Special Education Services	9%	<5%
Students Not Receiving Special Education Services	28%	19%
*Low-Income Students	10%	<5%
Higher-Income Students	38%	24%
Asian Students+	39%	31%
*Black Students	10%	<5%
Hispanic Students	11%	5%
*Native American Students	11%	<5%
White Students	35%	22%
*Homeless Students	<5%	<5%
*Students in Foster Care	13%	<5%
ALL STUDENTS	*25%*	*16%*

Source: Rhode Island Department of Education, *Rhode Island Comprehensive Assessment System (RICAS)*, 2020-2021. 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 in 2020 due to the COVID-19 pandemic.[18] During the COVID-19 pandemic, the percentage of all Rhode Island students meeting expectations declined from 36% to 25% for fourth graders and from 25% to 16% for eighth graders from 2019 to 2021.[19]**

◆ **In Rhode Island in the 2020-2021 school year, 10% of low-income third graders met expectations in math, compared with 38% of higher-income third graders. There also were large gaps by race and ethnicity, with 39% of Asian and 35% of white third graders meeting expectations, compared with 10% of Black, 11% of Hispanic, and 11% of Native American students. This large gap is also seen in eighth-grade results, with 31% of Asian and 22% of white eighth graders meeting expectations, compared with less than 5% of Black and Native American students, and 5% of Hispanic students.[20]**

◆ **In 2021, 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, 2020-2021

SCHOOL DISTRICT	# OF THIRD GRADERS TESTED	% OF THIRD GRADERS MEETING EXPECTATIONS	# OF EIGHTH GRADERS TESTED	% OF EIGHTH GRADERS MEETING EXPECTATIONS
Barrington	231	62%	299	53%
Bristol Warren	201	36%	199	24%
Burrillville	131	15%	138	14%
Central Falls	167	5%	184	<5%
Chariho	182	39%	226	23%
Coventry	265	38%	286	19%
Cranston	653	19%	575	10%
Cumberland	317	52%	365	41%
East Greenwich	172	66%	205	33%
East Providence	301	23%	284	10%
Exeter-West Greenwich	113	42%	97	31%
Foster	32	34%	NA	NA
Foster-Glocester	NA	NA	127	18%
Glocester	84	43%	NA	NA
Jamestown	54	72%	49	53%
Johnston	217	13%	167	10%
Lincoln	189	39%	213	33%
Little Compton	23	83%	25	24%
Middletown	157	31%	151	25%
Narragansett	59	64%	75	12%
New Shoreham	11	27%	*	*
Newport	126	11%	119	<5%
North Kingstown	214	50%	268	34%
North Providence	231	15%	262	23%
North Smithfield	110	40%	143	22%
Pawtucket	592	13%	669	<5%
Portsmouth	162	22%	160	25%
Providence	1,509	9%	1,413	<5%
Scituate	82	54%	80	14%
Smithfield	154	45%	198	35%
South Kingstown	179	44%	186	12%
Tiverton	123	54%	135	28%
Warwick	521	20%	477	6%
West Warwick	205	<5%	168	8%
Westerly	159	30%	190	10%
Woonsocket	371	<5%	234	6%
Charter Schools	*767*	*21%*	*539*	*19%*
UCAP	*NA*	*NA*	*65*	*<5%*
Four Core Cities	*2,639*	*9%*	*2,500*	*<5%*
Remainder of State	*5,659*	*33%*	*5,877*	*21%*
Rhode Island	*9,065*	*25%*	*8,981*	*16%*

Source of Data for Table/Methodology

Data are from the Rhode Island Department of Education (RIDE), *Rhode Island Comprehensive Assessment System (RICAS)*, 2020-2021 and is rounded to the nearest percentage point.

Due to the adoption of a new assessment tool by RIDE in 2018, *Math Skills* cannot be compared with Factbooks prior to 2019. Due to low participation rates, *Rhode Island Comprehensive Assessment System (RICAS)*, 2020-2021 math scores cannot be compared to previous years.

% 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.

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.

*Data is not reported because the number of students tested was less than 10. These students are still counted in the remainder of the state and state totals.

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, RISE Prep Mayoral Academy, 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.

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