Science Skills

DEFINITION

Science skills is the percentage of fifth-, eighth-, and eleventh-grade students who met expectations for science on the *Rhode Island Next Generation Science Assessment (NGSA)* test.

SIGNIFICANCE

Science education prepares students for postsecondary education and a wide variety of STEM (science, technology, engineering, and math) occupations, making them competitive candidates in a world that is increasingly technologically driven.[1] Compared to international peers, U.S. students fare well in science assessments designed to measure curricular learning, but the gap between the highest- and lowest-performing students highlights the significant inequities in the U.S. science education system.[2]

The achievement gap in science education impacts students from low-income families, Students of Color, and rural communities, and is wider in the United States than in many similar countries. This gap results in students that are less prepared for college admittance who are more likely to drop out and have more limited career opportunities, perpetuating the cycle of poverty.[3,4] Teachers in schools with high percentages of Students of Color or high-poverty enrollment are more likely to have less teaching experience.[5]

Increasing income inequality in the United States may continue to exacerbate existing science achievement gaps, which continue through adulthood as science literacy gaps. Adults with low science literacy are more susceptible to misinformation, less competitive as employees, and less equipped to understand public policy issues, such as the COVID-19 pandemic, climate change, or hydraulic fracturing.[6,7]

Improving science education for all students requires high quality instructional materials, better use of open educational resources in addition to commercially available resources, ongoing, curriculum-based professional learning for instructors, and accurate depictions of what standards-aligned instruction should look like. These changes have the potential to close achievement and opportunity gaps in science by race and ethnicity.[8]

The *National Assessment of Educational Progress (NAEP)* measures proficiency in science and other subjects nationally and across states periodically.[9] In 2015, 36% of Rhode Island fourth graders and 38% of U.S. fourth graders performed at or above the Proficient level in science on the *NAEP*, and 32% of Rhode Island eighth graders and 34% of U.S. eighth graders performed at or above the Proficient level in math on the *NAEP*.[10,11]

Fifth-, Eighth-, & Eleventh-Grade Students Meeting Expectations on the *Next Generation Science Assessment*, Rhode Island, 2024

SUBGROUP	FIFTH GRADE	EIGHTH GRADE	ELEVENTH GRADE
Female Students	32%	28%	31%
Male Students	35%	31%	30%
*Multilingual Learners	6%	<5%	<5%
Non-English Learners	38%	35%	34%
*Students Receiving Special Education Services	8%	6%	7%
Students Not Receiving Special Education Services	39%	34%	34%
Low-Income Students	18%	15%	16%
Higher-Income Students	48%	42%	39%
American Indian or Alaska Native Students	16%	16%	<5%
Asian Students+	52%	43%	44%
Black Students	20%	13%	13%
Hispanic/Latino Students	18%	14%	15%
White Students	44%	42%	42%
Homeless Students	15%	10%	17%
Students in Foster Care	20%	9%	16%
ALL STUDENTS	*34%*	*30%*	*30%*

Source: Rhode Island Department of Education, *Next Generation Science Assessment (NGSA)- Science,* 2023-2024. 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 percentage of Rhode Island fifth graders meeting expectations in science increased from 32% in 2023 to 34% in 2024. Eighth graders meeting expectations in science increased from 28% in 2023 to 30% in 2024, while eleventh graders decreased from 31% in 2023 to 30% in 2024.**[12,13]

◆ **In Rhode Island in 2024, 18% of low-income fifth graders met expectations in science, compared with 48% of higher-income fifth graders. There also were large gaps by race and ethnicity.**[14]

◆ **Twenty percent of fifth graders, 9% of eighth graders, and 16% of eleventh graders in foster care met expectations in science in 2024.**[15]

◆ **To graduate, Rhode Island students must demonstrate proficiency in science. Beginning with the Class of 2028, they will also be required to demonstrate proficiency in lab sciences.**[16]

Table 45.

Fifth-, Eighth-, & Eleventh-Grade Students Meeting Expectations in Science, Rhode Island, 2023-2024

SCHOOL DISTRICT	# OF FIFTH GRADERS TESTED	% OF FIFTH GRADERS MEETING EXPECTATIONS	# OF EIGHTH GRADERS TESTED	% OF EIGHTH GRADERS MEETING EXPECTATIONS	# OF ELEVENTH GRADERS TESTED	% OF ELEVENTH GRADERS MEETING EXPECTATIONS
Barrington	239	63%	259	67%	300	64%
Bristol Warren	215	50%	213	54%	170	59%
Burrillville	157	36%	154	40%	134	17%
Central Falls	172	9%	187	<5%	193	14%
Chariho	199	53%	197	50%	240	49%
Coventry	285	48%	330	46%	289	34%
Cranston	770	34%	744	26%	821	22%
Cumberland	357	53%	344	49%	336	43%
East Greenwich	181	60%	195	72%	172	65%
East Providence	326	34%	375	27%	367	22%
Exeter-West Greenwich	111	50%	128	42%	94	46%
Foster	32	38%	NA	NA	NA	NA
Foster-Glocester	NA	NA	146	47%	225	38%
Glocester	92	69%	NA	NA	NA	NA
Jamestown	51	65%	43	70%	NA	NA
Johnston	245	29%	264	21%	191	12%
Lincoln	232	51%	260	42%	220	46%
Little Compton	20	65%	22	46%	NA	NA
Middletown	146	36%	147	42%	138	34%
Narragansett	62	45%	79	53%	100	43%
New Shoreham	9	*	10	40%	11	18%
Newport	107	17%	125	14%	141	26%
North Kingstown	270	53%	261	57%	315	55%
North Providence	237	27%	271	31%	249	36%
North Smithfield	115	49%	114	40%	133	47%
Pawtucket	650	22%	618	10%	443	12%
Portsmouth	150	59%	166	52%	184	66%
Providence	1,506	16%	1,480	11%	1,418	16%
Scituate	90	57%	84	58%	100	40%
Smithfield	169	41%	167	41%	190	37%
South Kingstown	185	49%	188	48%	155	51%
Tiverton	111	46%	108	34%	127	42%
Warwick	589	36%	562	26%	518	32%
West Warwick	232	13%	258	13%	234	17%
Westerly	151	38%	157	47%	156	37%
Woonsocket	444	12%	328	11%	353	18%
Charter Schools	*983*	*26%*	*860*	*19%*	*657*	*17%*
State Operated Schools	*2*	*	*3*	*	*438*	*31%*
Collaboratives	*NA*	*NA*	*71*	*<5%*	*41*	*<5%*
Four Core Cities	*2,772*	*16%*	*2,613*	*10%*	*2,407*	*15%*
Remainder of State	*6,135*	*42%*	*6,371*	*40%*	*6,310*	*38%*
Rhode Island	*9,892*	*34%*	*9,918*	*30%*	*9,853*	*30%*

Source of Data for Table/Methodology

Data are from the Rhode Island Department of Education (RIDE), Next Generation Science Assessment (NGSA), 2023-2024 and is rounded to the nearest percentage point.

% meeting expectations are students who met or exceeded expectations on the NGSA. 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 NGSA 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.

*Data is suppressed to ensure confidentiality because the minimum reporting size requirement (10 students) is not met. These students are still counted in district totals and four core cities, remainder of state, and state totals.

Charter schools include the Achievement First Rhode Island and Blackstone Valley Prep Mayoral Academy Networks, Beacon Charter School, Blackstone Academy, Charette Charter, The Compass School, Paul Cuffee Charter School, Excel Academy, The Greene School, Highlander Charter School, The Hope Academy, International Charter School, Kingston Hill Academy, The Learning Community, Nuestro Mundo Public Charter School, Providence Preparatory Charter, RISE Prep Mayoral Academy, Rhode Island Nurses Institute Middle College, Segue Institute for Learning, SouthSide Charter School, Trinity Academy for the Performing Arts, and Village Green Virtual.

State-operated schools include Davies Career and Technical School, MET Career and Tech, and Rhode Island School for the Deaf.

Collaboratives include Urban Collaborative Accelerated Program (UCAP), Sheila Skip Nowell Leadership Academy, and YouthBuild Preparatory Academy.

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

NA indicates that the school district does not serve students at that grade level.

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Source of Data for Table/Methodology for Science Skills

Students enrolled in state-operated schools, charter schools, and collaboratives are not counted in totals for the four core cities or for the remainder of state, but they are included in state totals.

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Source of Data for Table/Methodology for Chronic Absence, Middle School and High School

Collaboratives include Sheila "Skip" Nowell Leadership Academy, Urban Collaborative and YouthBuild Preparatory Academy.