

The State of Math in Massachusetts

A Data-Driven Look at Massachusetts' Math Crisis and What Can Be Done

By: Genesis Carela, Senior Policy Analyst



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Introduction

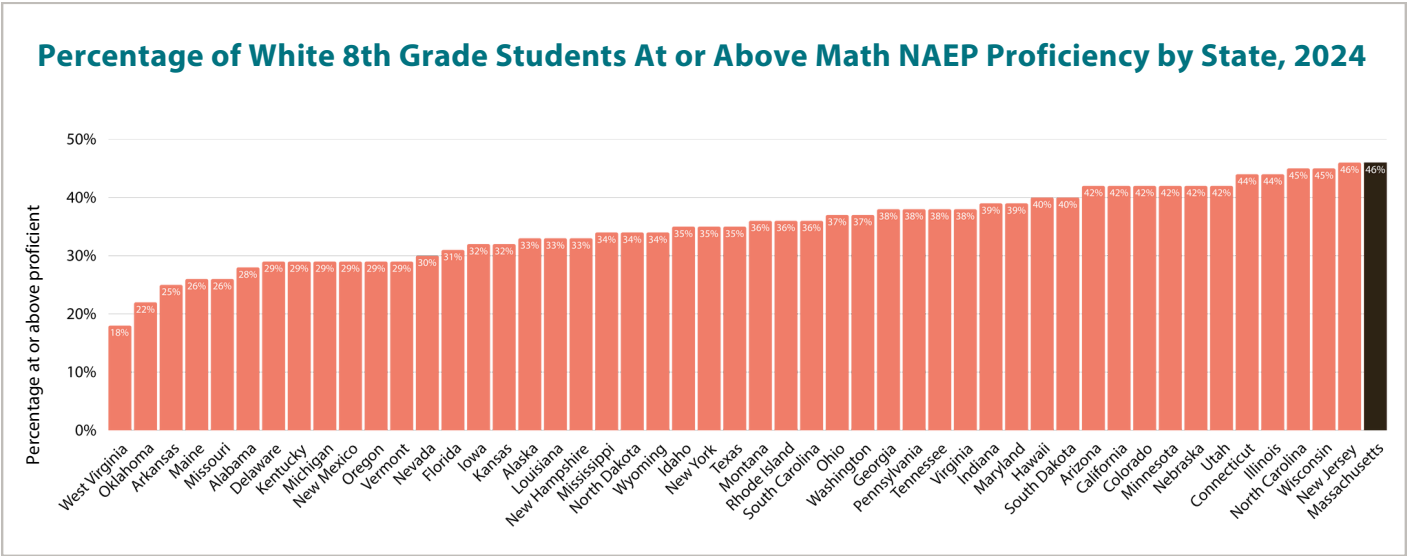
As Massachusetts grapples with a literacy crisis that mirrors nationwide trends, another pressing issue is surfacing: students’ numeracy skills. Math proficiency has sharply declined across the nation, and recent data shows that many Massachusetts students are entering higher education unprepared for the mathematical demands of college, careers, and beyond. Numeracy is more than just the ability to work with numbers; it is a vital skill for problem-solving, financial literacy, and informed decision-making. Yet, too many students, especially those from underserved communities, lack the supports and resources necessary to succeed in math and demonstrate proficiency. Addressing this crisis requires policy changes and strategic investments in math education to ensure all students develop the skills needed for academic and lifelong success.

Read on to learn more about numeracy in Massachusetts and its impact on underserved students.

1

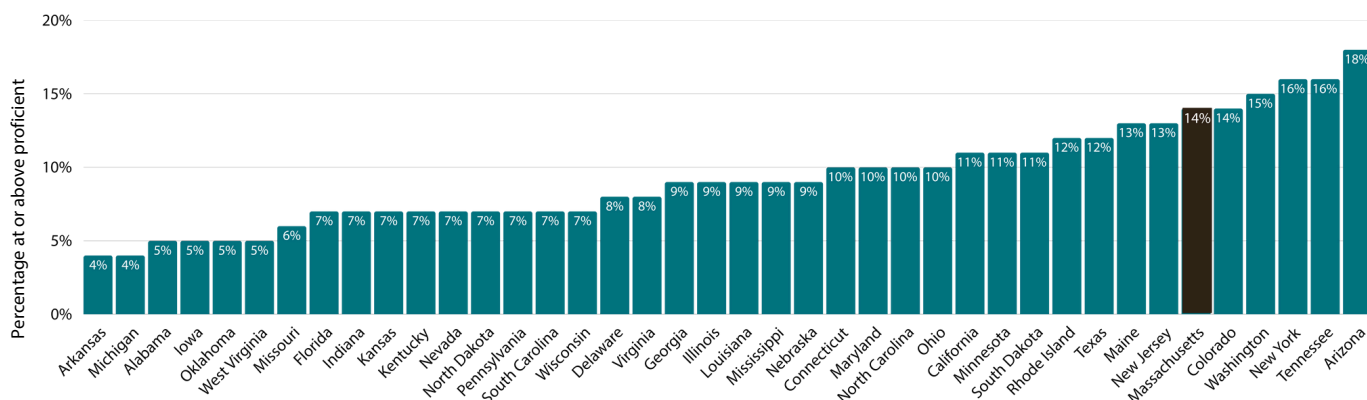
Massachusetts ranks highest in overall math performance, yet most 8th graders are still performing below grade level

Despite Massachusetts tying for first place in 2024 for the percentage of 8th graders scoring at or above proficiency in math on the National Assessment of Educational Progress (NAEP), **nearly two-thirds of the state’s 8th-grade students still fall below grade-level benchmarks**. Massachusetts is #1 for some, but not all. While the state is tied for first for white student performance, with 46% achieving proficiency, the picture is vastly different for students of color. Massachusetts is tied for fourth in the nation for both Black and Latino students, with only 14% and 17% reaching proficiency, respectively.¹



Source: EdTrust analysis of National Assessment o Educational Progress Data

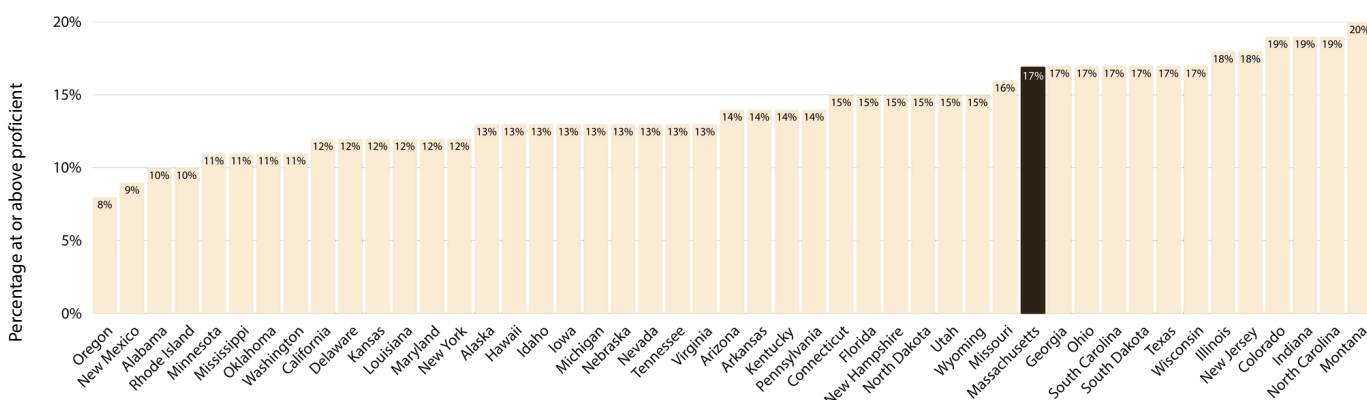
Percentage of Black 8th Grade Students At or Above Math NAEP Proficiency by State, 2024*



*No data available for states with a Black student population below the reporting threshold

Source: EdTrust analysis of National Assessment of Educational Progress Data

Percentage of Latino 8th Grade Students At or Above Math NAEP Proficiency by State, 2024*



*No data available for states with a Latino student population below the reporting threshold

Source: EdTrust analysis of National Assessment of Educational Progress Data

What does it mean to score below proficient in NAEP?²

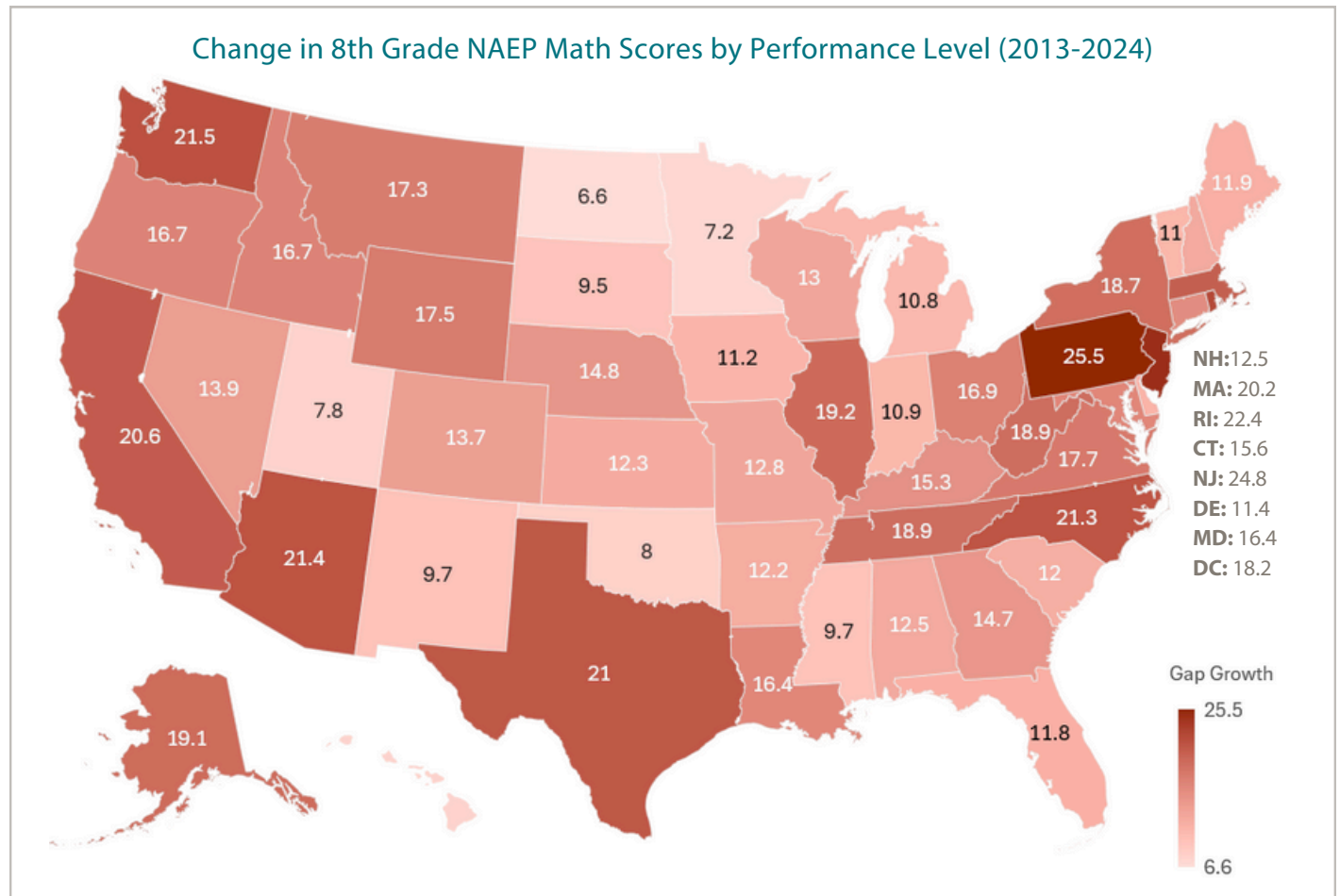
Students who score below proficient on the 8th grade assessment are unable to:

- Simplify expressions that involve whole numbers
- Use mathematical operations to solve real-world problems that include whole numbers or fractions
- Apply proportional relationships to find equivalent ratios and create fractions, whether using models or not
- Demonstrate an understanding of scientific notation

2

Massachusetts is experiencing widening achievement gaps in 8th grade math

Massachusetts is among the states experiencing the most significant widening of achievement gaps in 8th grade math. While top-performing students have made modest gains, those in the bottom 10% have suffered sharp declines. This trend reflects a broader national pattern of growing disparities, which have been further exacerbated by the COVID-19 pandemic.³



Source: The 74 analysis of National Assessment o Educational Progress Data

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His results in the spring and this fall were exactly the same, and honestly, I found them disappointing. He scored a 64, and my frustration stems from the fact that his teachers say, 'Oh, he's at grade level; that's great.' I wonder, on what planet is a 64 considered acceptable? To me, that's a D minus. Because of this, I've had to hire additional resources to help him. I feel he's a child caught in the middle; he's neither at the top nor the bottom of his class. As a result, it seems like they're just going to let him pass by without providing the support he really needs. This situation has caused me a lot of frustration.

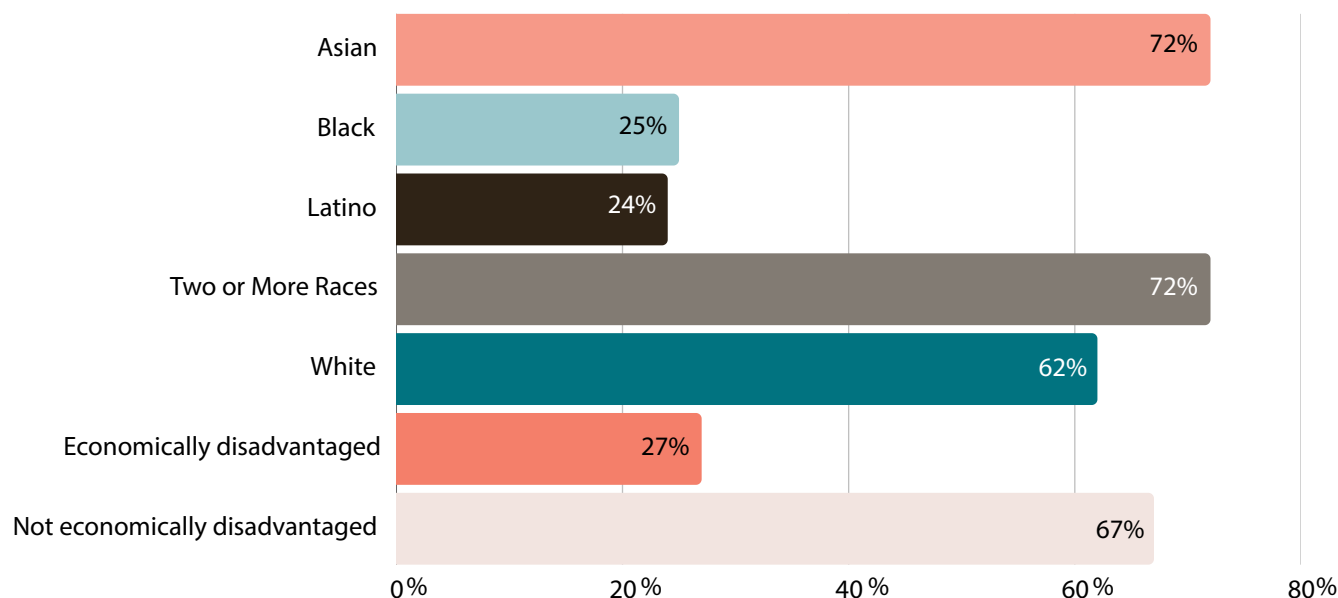
- Parent Participant in the Fall 2024 MassINC Polling Group Focus Group

3

NAEP data shows early math proficiency gaps in Massachusetts, with only half of fourth graders achieving proficiency

While younger students tend to show higher math proficiency, NAEP data indicates that only 51% of fourth graders in Massachusetts perform at or above the proficient level.⁴ Additionally, **disparities among different student groups start to appear early on**. These gaps, noticeable at the elementary level, underscore the necessity for targeted interventions to ensure that all students establish a strong foundation in mathematics.

Percentage of 4th-Grade Students At or Above Math NAEP Proficiency in MA, 2024



Source: EdTrust analysis of National Assessment of Educational Progress Data

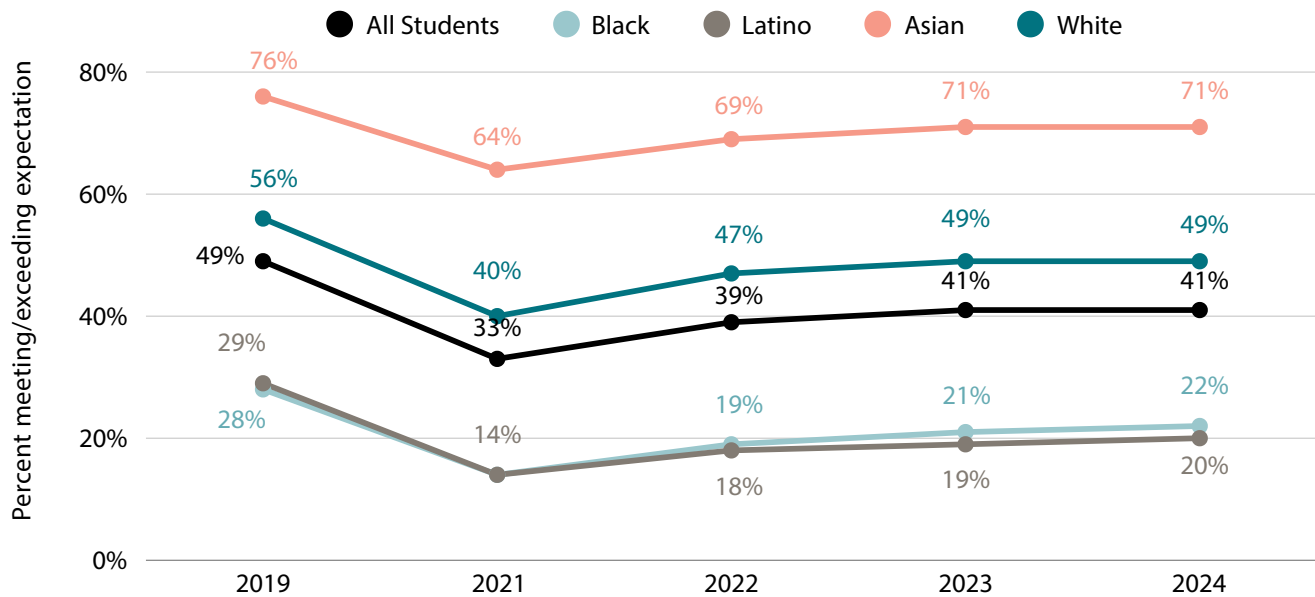


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MCAS results indicate that more than half of Massachusetts students in third through eighth grades are falling below mathematics benchmarks, revealing significant disparities among different groups

The Massachusetts Comprehensive Assessment System (MCAS), our statewide assessment, shows similar results. The latest data indicates that **more than half of students in grades three through eight are not meeting math benchmarks** — with significant disparities among student subgroups, particularly Black and Latino students, multilingual learners, students from low-income backgrounds, and students with disabilities.

Percentage of 3rd-8th-Grade Students Meeting and Exceeding Expectations in Math MCAS, by Subgroup



Source: Massachusetts Department of Elementary and Secondary Education

Overview of 2024 Massachusetts Math Proficiency for 3rd-8th Grade Students

10%

of 3rd-8th grade **English learners** are meeting the grade-level math MCAS benchmarks

13%

of 3rd-8th grade **students with disabilities** are meeting the grade-level math benchmarks for the MCAS

21%

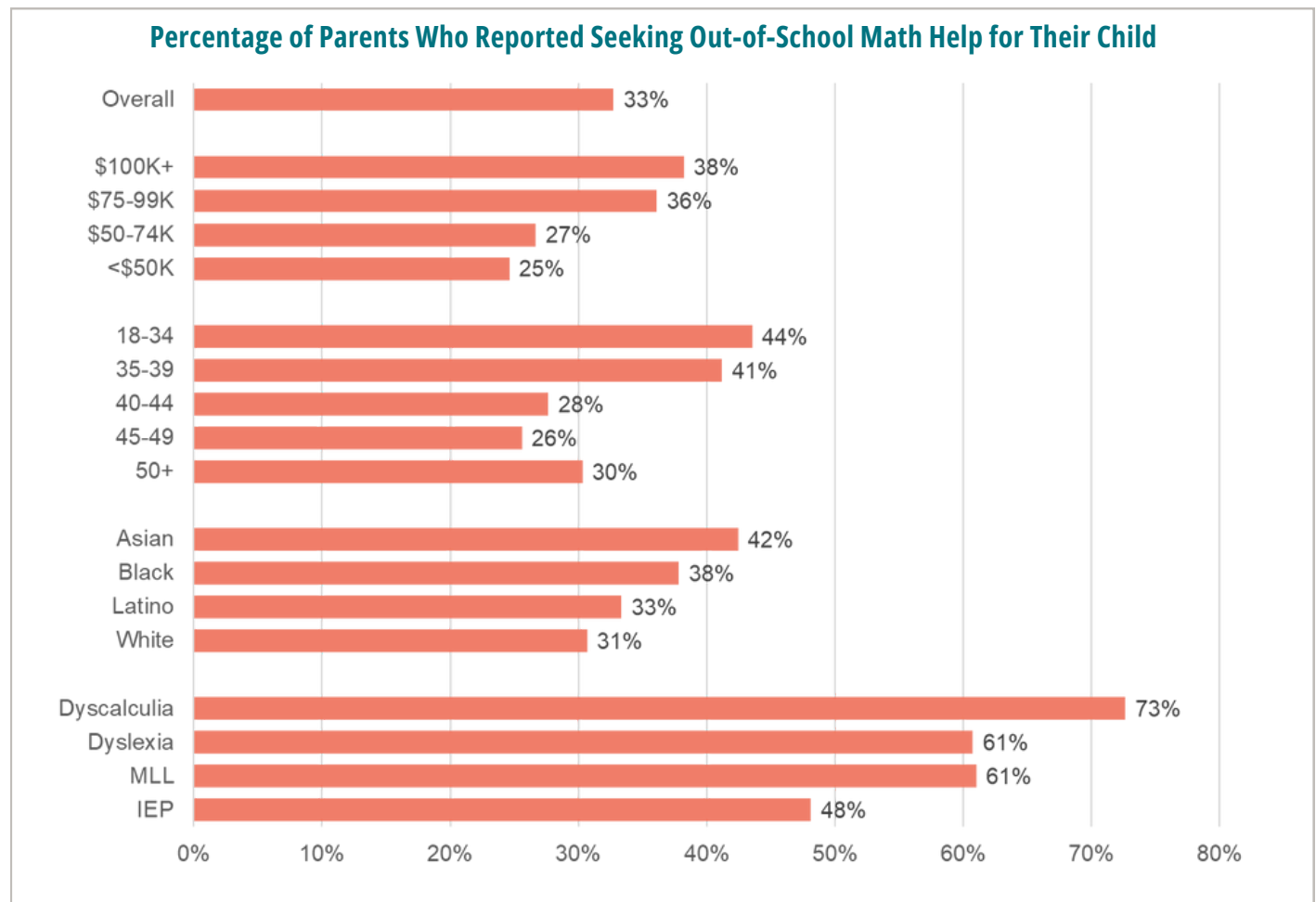
of 3rd-8th grade **students from low-income backgrounds** are meeting the grade-level math MCAS benchmarks, compared to 57% of their wealthier peers

Source: Massachusetts Department of Elementary and Secondary Education

5

Massachusetts parents seek additional math support outside of school, revealing significant inequities in access based on income

Massachusetts parents are increasingly aware of their children's challenges with math. A recent statewide poll of K-12 parents revealed that one-third (33%) have sought additional math support outside of school, with tutoring being the most common resource. The demand for external support is particularly high among parents of multilingual learners (61%), students with individualized education programs (IEPs) (48%), and students with dyslexia (61%). However, access to these resources differs based on income level — 38% of higher-income parents seek outside support, while only 25% of lower-income parents do, highlighting disparities in access to supplemental math assistance.⁶



Source: Statewide poll conducted by the MassINC Polling Group in partnership with EdTrust in Massachusetts

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I decided to find an online tutor for her, but by the time I did, it was too late because the paperwork had already been sent out stating she had to attend summer school anyway.

- Parent Participant in the Fall 2024 MassINC Polling Group Focus Group

Addressing the Decline in Numeracy: Policy Solutions for Equitable Math Education in Massachusetts.

Many districts in Massachusetts have implemented high-quality instructional math materials (HQIM) across various grade levels, supported by the Department of Elementary and Secondary Education (DESE) through guidance and grants funded by federal programs — yet students continue to struggle.^{7,8} This challenge arises primarily from the cumulative nature of math, where each grade builds on concepts learned in previous years. Additionally, the pandemic disrupted learning nationwide, leading to many students missing essential foundational skills. While HQIMs provide strong content for grade-level instruction, they do not specifically address unfinished learning from prior years. As a result, math educators face the difficult task of balancing grade-level instruction with the diverse learning needs of their students.

To effectively address these challenges, several policy solutions should be considered:

1

Establish a Dedicated State Funding Stream: Secure sustained state funding to support the ongoing development, implementation, and rigorous evaluation of HQIM in schools, ensuring long-term impact and effectiveness.

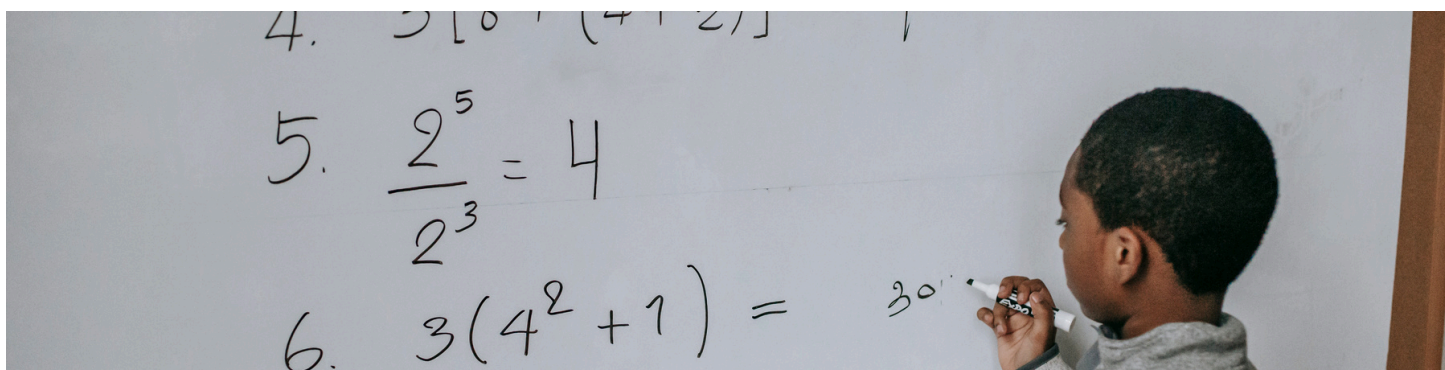
2

Implement Universal Early Numeracy Screenings: Mandate statewide early numeracy screenings to systematically identify struggling students and provide timely, targeted interventions—mirroring the success of existing literacy screenings in addressing learning gaps.

3

Strengthen Teacher Training and Professional Development (PD): Increase investments in comprehensive PD programs that build educators' math content knowledge and pedagogical skills, foster positive math mindsets, and support the effective implementation of HQIM. Such training should reinforce the belief that all students are capable of succeeding in math and ensure they feel a sense of belonging in the classroom.

These efforts should be supported by consistent and explicit, statewide funding for math curricula, screenings, and PD. Together, these strategies aim to create a more equitable and effective approach to math education, ensuring that all students have the opportunity to thrive.



Endnotes

1. National Center for Education Statistics. (n.d.). *The Nation's Report Card*. U.S. Department of Education. [National Center for Education Statistics. \(n.d.\). The Nation's Report Card. U.S. Department of Education.](#)
 2. National Center for Education Statistics. (n.d.). *Mathematics achievement levels for NAEP*. U.S. Department of Education. <https://nces.ed.gov/nationsreportcard/mathematics/achieve.aspx>
 3. Barnum, M. (2024). *Which states have the fastest-growing achievement gaps in 8th grade math? The 74 Million*. [National Center for Education Statistics. \(n.d.\). Mathematics achievement levels for NAEP. U.S. Department of Education. https://nces.ed.gov/nationsreportcard/mathematics/achieve.aspx](#)
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 5. Massachusetts Department of Elementary and Secondary Education. (2024). *Massachusetts Comprehensive Assessment System (MCAS) state report*. <https://profiles.doe.mass.edu/statereport/mcas.aspx>
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 7. Massachusetts Department of Elementary and Secondary Education. *High-quality instructional materials (HQIM)*. <https://www.doe.mass.edu/stem/hqim.html>.
 8. Massachusetts Department of Elementary and Secondary Education. *FY2024: High Quality Instructional Materials Purchase Grant*. <https://www.doe.mass.edu/stem/hqim.html>.
- Massachusetts Department of Elementary and Secondary Education. *FY2023: High-Quality Instructional Materials (HQIM) Implementation Grant*. <https://www.doe.mass.edu/grants/2023/185/>.

Appendix

MCAS: [The Massachusetts Comprehensive Assessment System \(MCAS\)](#) consists of statewide tests that evaluate student performance in English language arts (ELA), science, and mathematics, and civics according to grade-level expectations. The results indicate whether each student exceeded, met, partially met, or did not meet these expectations. Unlike many other classroom tests, MCAS results are comparable across schools, districts, and student populations, providing valuable insights into the effectiveness of our education system for different student groups.

NAEP: [The National Assessment of Educational Progress \(NAEP\)](#), often referred to as the Nation's Report Card, is a crucial measure of student achievement that provides important insights into the quality of K-12 education and what students are learning. Administered to fourth-, eighth-, and twelfth-graders nationwide, NAEP assessments cover various subjects, including mathematics, reading, science, and writing. As a nationally representative and ongoing assessment, NAEP delivers vital data on student performance at both the state and national levels, aiding in the formulation of education policy and improvement efforts.



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