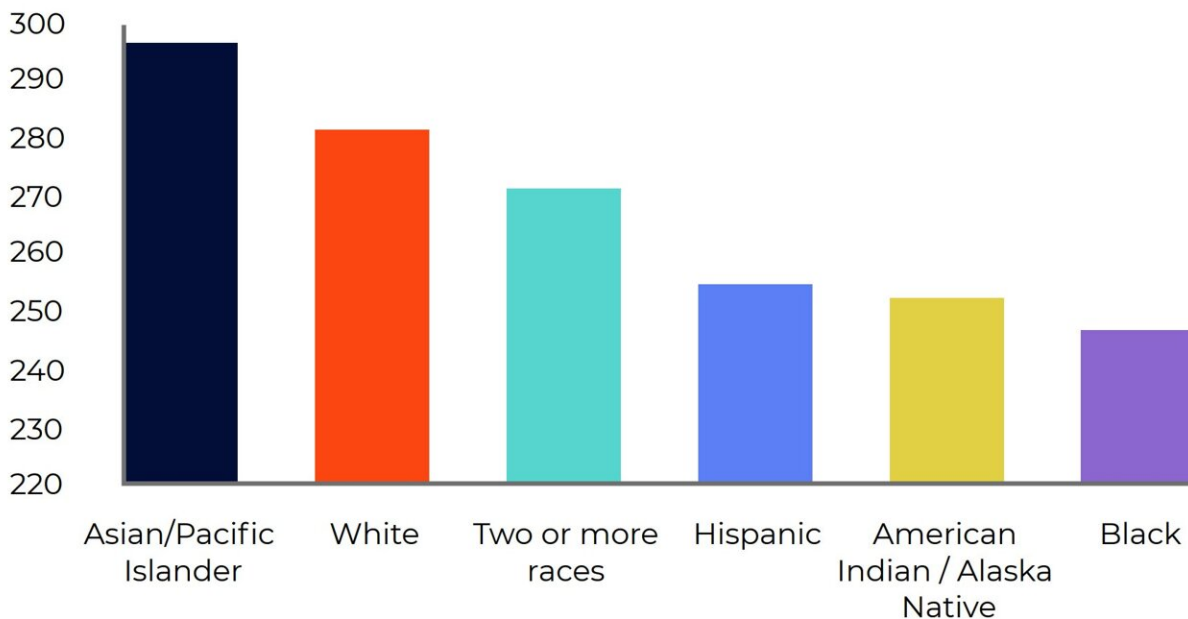# New report exposes steep declines in data science skills among fourth- and eighth-graders across America

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Average scale score

NAEP grade 8 performance in Data Analysis, Statistics, and Probability, by student race/ethnicity. Credit: *Data Science Is Vital to Student Success. So Why Are Outcomes Going Down?*, (2023).

A new report from the Data Science 4 Everyone coalition reveals that data literacy skills among fourth and eighth-grade students have declined

significantly over the last decade even as these skills have become increasingly essential in our modern, data-driven society.

Based on data from the latest National Assessment of Educational Progress results, the report uncovered several trends that raise concerns about whether the nation's educational system is sufficiently preparing [young people](#) for a world reshaped by the rise of big data and artificial intelligence.

Key findings include:

- **The pandemic decline is part of a much longer-term trend.** Between 2019 and 2022, scores in the data analysis, statistics, and probability section of the NAEP math exam fell by 10 points for eighth-graders and by four points for fourth-graders. Declining scores are part of a longer-term trend, with scores down 17 points for eighth-graders and down 10 points for fourth-graders over the last decade. That means today's eighth-graders have the data literacy of sixth-graders from a decade ago, and today's fourth-graders have the data literacy of third-graders from a decade ago.
- **There are large racial gaps in scores**. These gaps exist across all grade levels but are at times most dramatic in the middle and high school levels. For instance, fourth-grade Black students scored 28 points lower—the equivalent of nearly three grade levels—than their white peers in data analysis, statistics, and probability.
- **Data-related instruction is in decline**. Every state except Alabama reported a decline or stagnant trend in data-related instruction, with some states—like Maryland and Iowa—seeing double-digit drops. The national share of fourth-grade math teachers reporting "moderate" or "heavy" emphasis on data analysis dropped five percentage points between 2019 and 2022.

"The ability to interpret, understand, and work with data is central to so many aspects of our lives and careers today. Data literacy is a must-have for every employee, every [business owner](), and every participant in our democracy," said Zarek Drozda, the director of Data Science 4 Everyone, and author of the report.

"Schools that prioritize teaching these skills are setting their students up for success in the [modern economy](), opening doors to a wider variety of options post-graduation, and building confidence for students to pursue these disciplines in [higher education](), including in STEM."

Beyond STEM, the report recommends that schools build data literacy connections within subjects across the curriculum, such as social studies or English. "Digital Humanities" is an emerging field that uses data to reveal new insights into literature and history, for example. Data Science 4 Everyone is similarly encouraging cross-disciplinary collaboration via their lesson plan challenge, which provides cash prizes to teachers working together to teach [data science]() principles.

 More information: Report: [www.datascience4everyone.org/ … 9ee40dd7c866acd0.pdf]()

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