



For Good Measure:

The 2026 Mathematics Framework for the National Assessment of Educational Progress

IES Math Summit

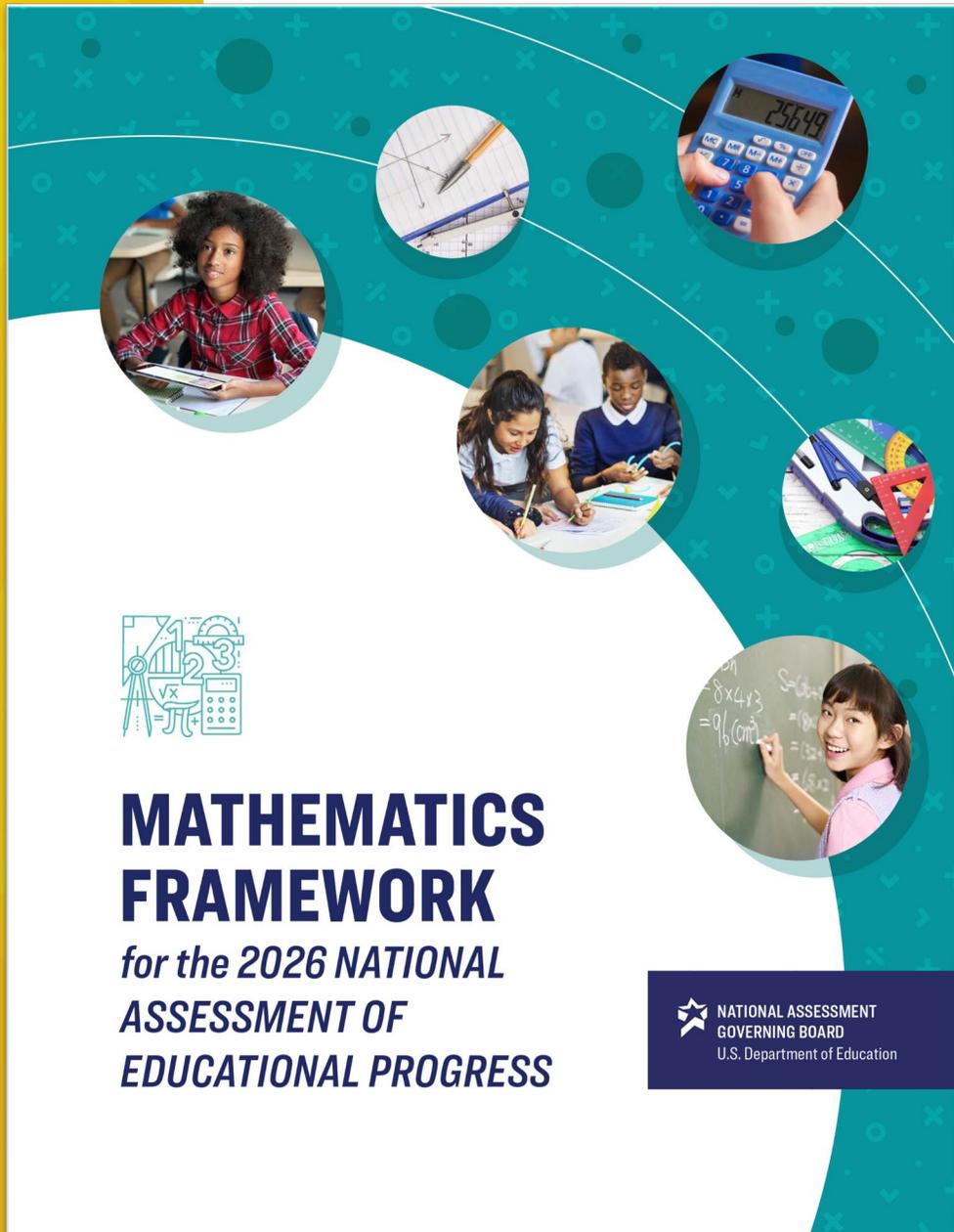
September 26, 2023



Mark Miller

Mathematics Teacher and Department Chair
Cheyenne Mountain Junior High
Colorado Springs, Colo.

2018-2022 Member | National Assessment Governing Board



**MATHEMATICS
FRAMEWORK**
*for the 2026 NATIONAL
ASSESSMENT OF
EDUCATIONAL PROGRESS*

 NATIONAL ASSESSMENT
GOVERNING BOARD
U.S. Department of Education

Content Areas

- **Number Properties and Operations** (including computation and understanding of number concepts)
- **Measurement** (including use of instruments, application of processes, and concepts of area and volume)
- **Geometry** (including spatial reasoning and applying geometric properties)
- **Data Analysis, Statistics, and Probability** (including graphical displays)
- **Algebra** (including expressions, equations, representations, and relationships)

Content Areas

Percentage Distribution of Items by Grade and Content Area

Content Area	Grade 4	Grade 8	Grade 12
Number Properties and Operations	45*	20	10
Measurement	20	10	30
Geometry	15	20	
Data Analysis, Statistics, and Probability	5	20	25
Algebra	15	30	35

*Note: At least one-third of grade 4 Number Properties and Operations items should assess fraction content.

How a Framework Is Developed and Implemented



Development

- Public Comment
- Expert Panels and Advisors
- Multiple Revisions
- Approval



Implementation

- Items and Contextual Variables
- Rounds of Testing and Expert Reviews
- Assessment Incorporation

Post-Pandemic NAEP Mathematics Assessments

Assessment	Age/Grade	First Trend Year	Last Released
Long-Term Trend Math	Age 9	1978	Sept. 2022
Long-Term Trend Math	Age 13	1973	June 2023
Main NAEP Math*	Grades 4 and 8	1990	Oct. 2023

*Includes state and Trial Urban District Assessment data

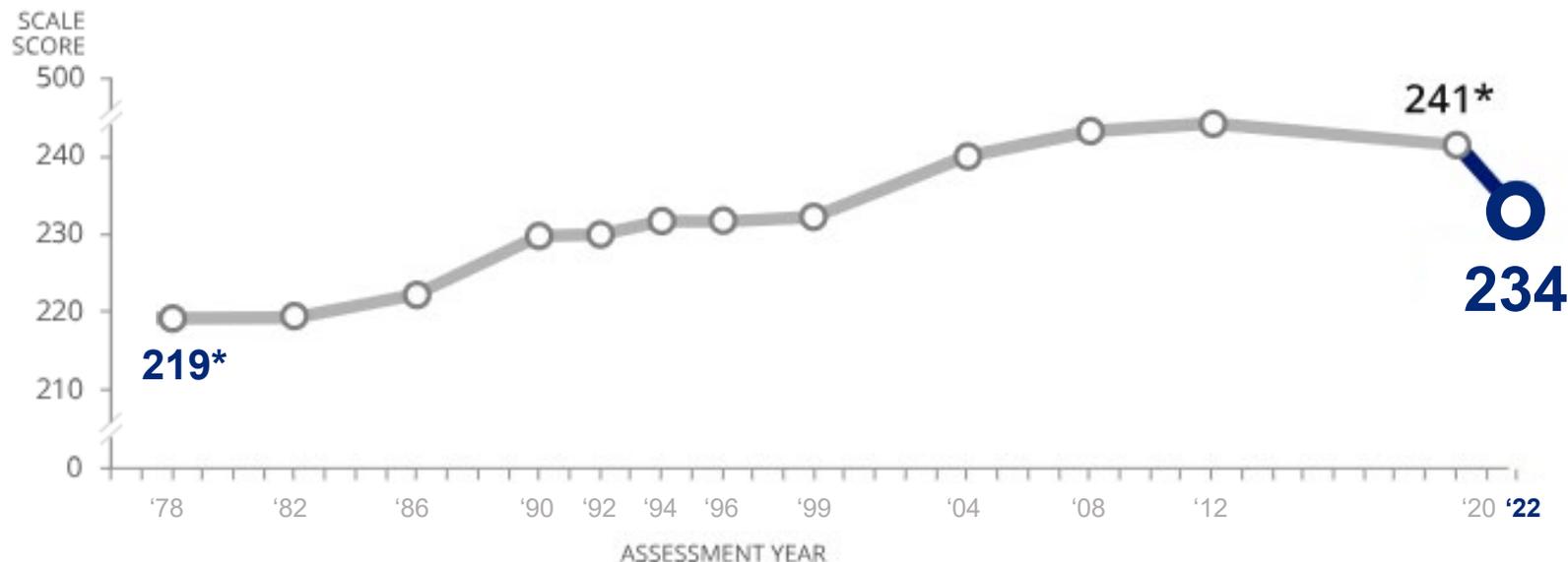


2022 NAEP

Long-Term Trend Results: Ages 9 and 13



First Drop Ever in Math on Long-Term Trend Assessment for 9-Year-Olds

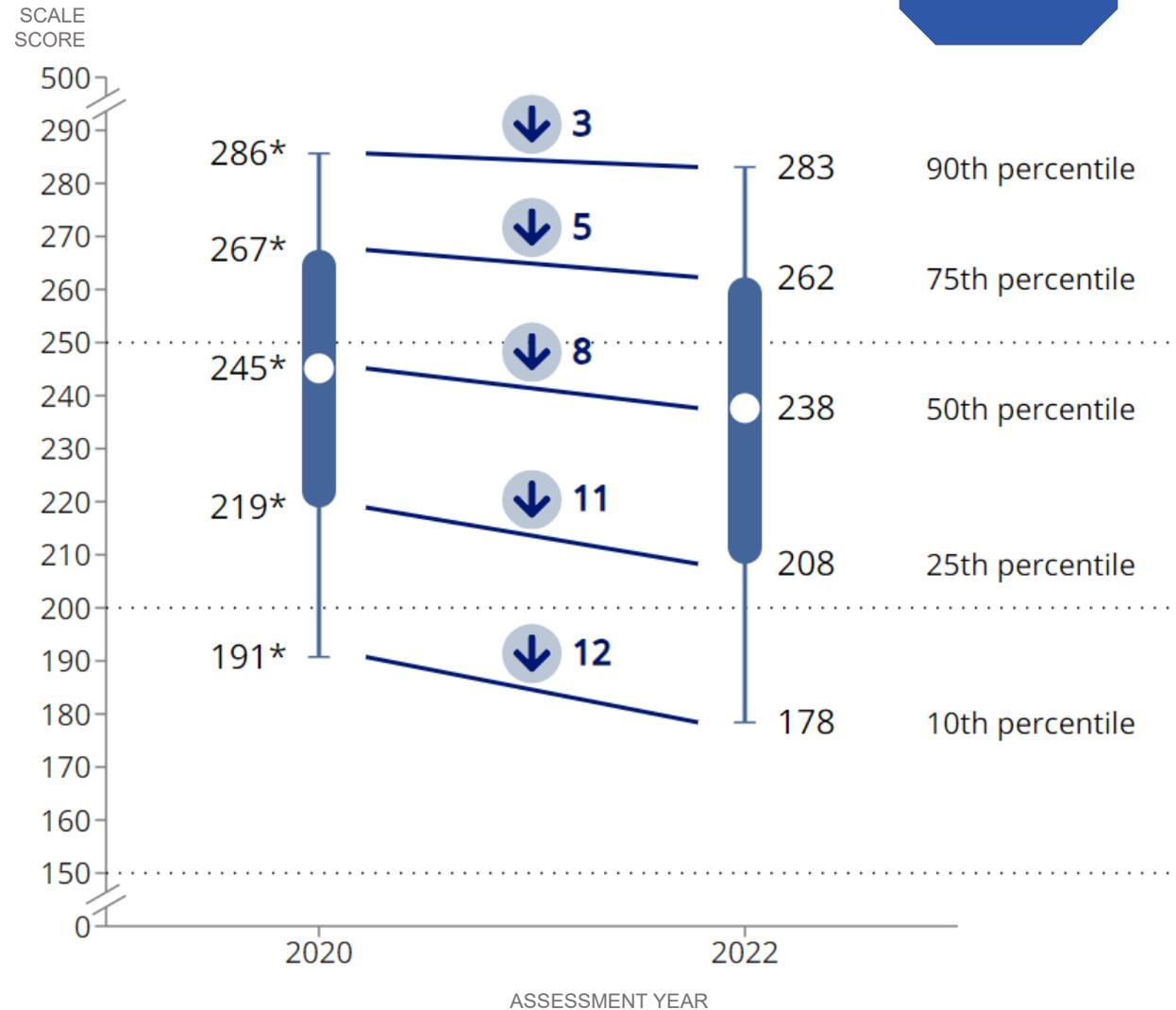


↑ 15 pts
compared to 1978

↓ 7 pts
compared to 2020

*Significantly different ($p < .05$) from 2022.

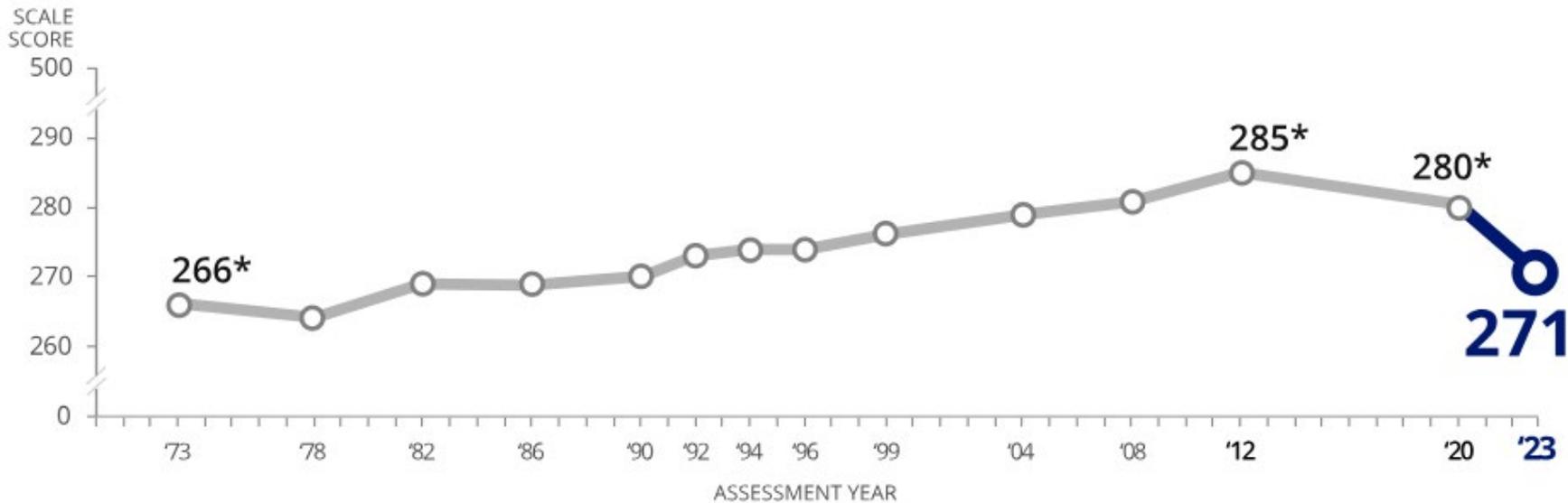
Math Declines Across Percentiles With Larger Declines for Lower Performers



*Significantly different ($p < .05$) from 2022.

NOTE: Arrow indicates significant difference ($p < .05$) in 2022.

Scores Similar to Level in 1990s

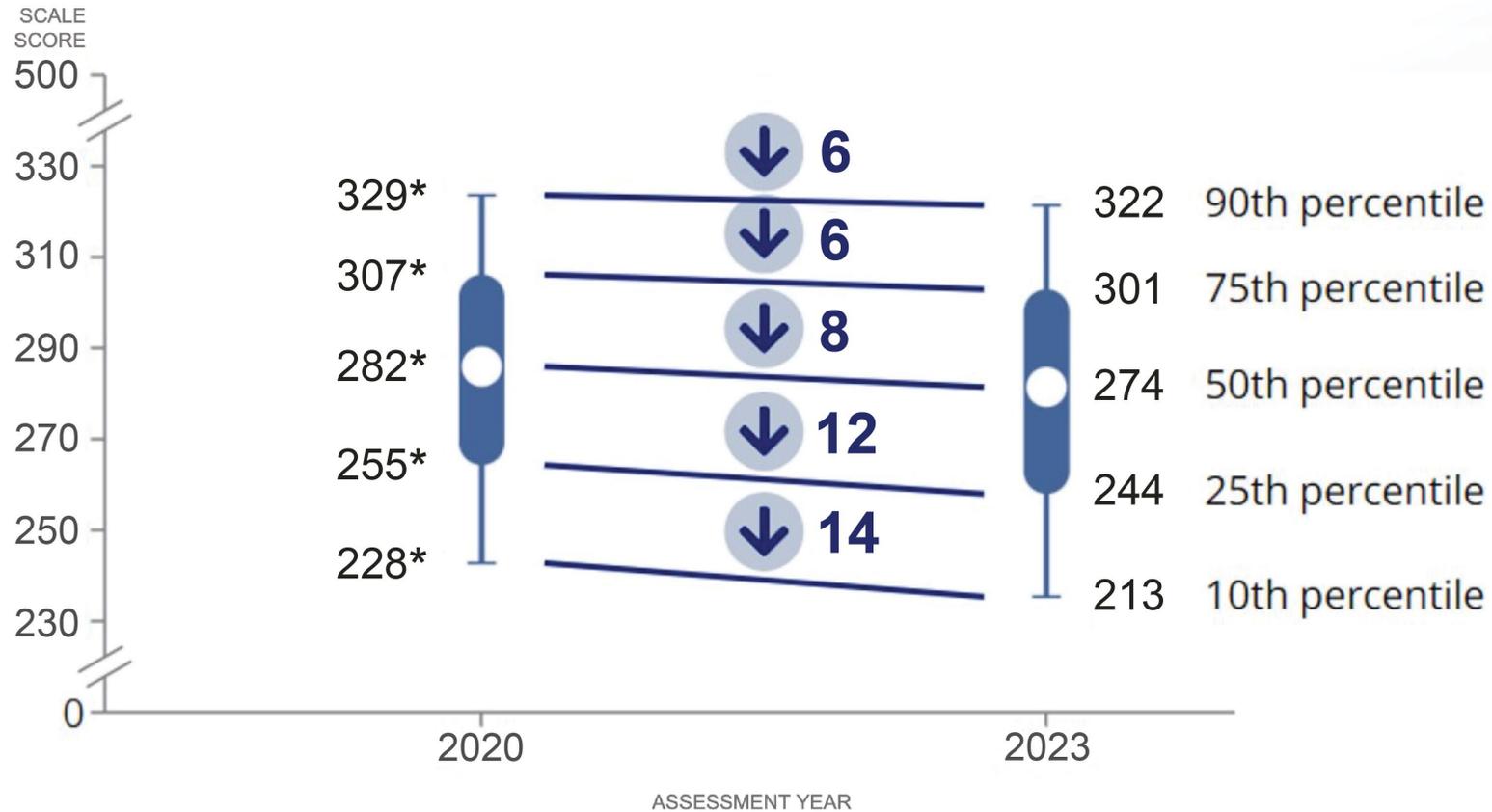


↑ 5pts
compared to 1973

↓ 9pts
compared to 2020

*Significantly different ($p < .05$) from 2023.

Greater Declines for Lower-Performing Students



Significantly different ($p < .05$) from 2023.
NOTE: Arrow indicates significant difference ($p < .05$) in 2023.



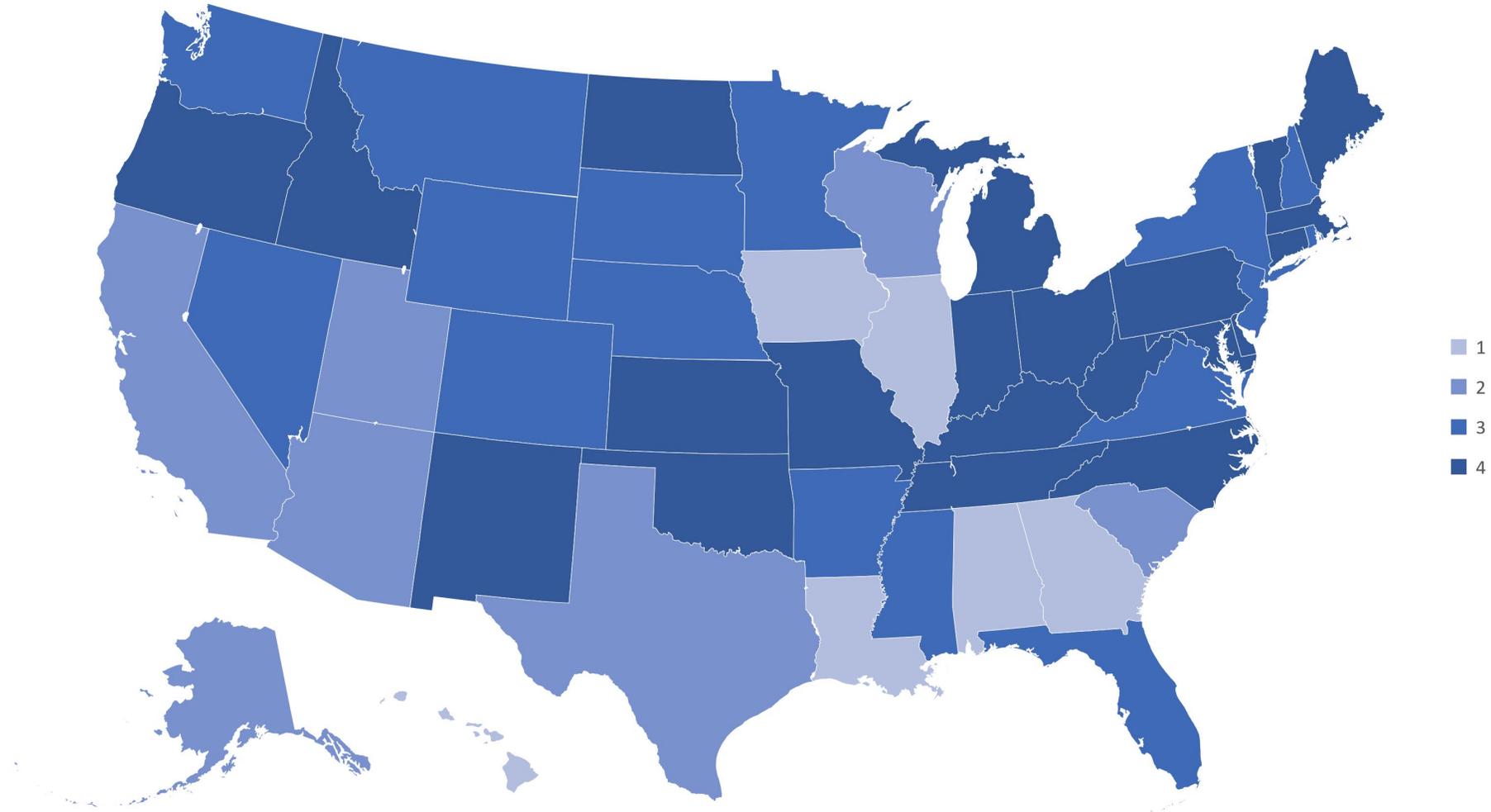
2022 NAEP

Main NAEP Results: Grades 4 and 8

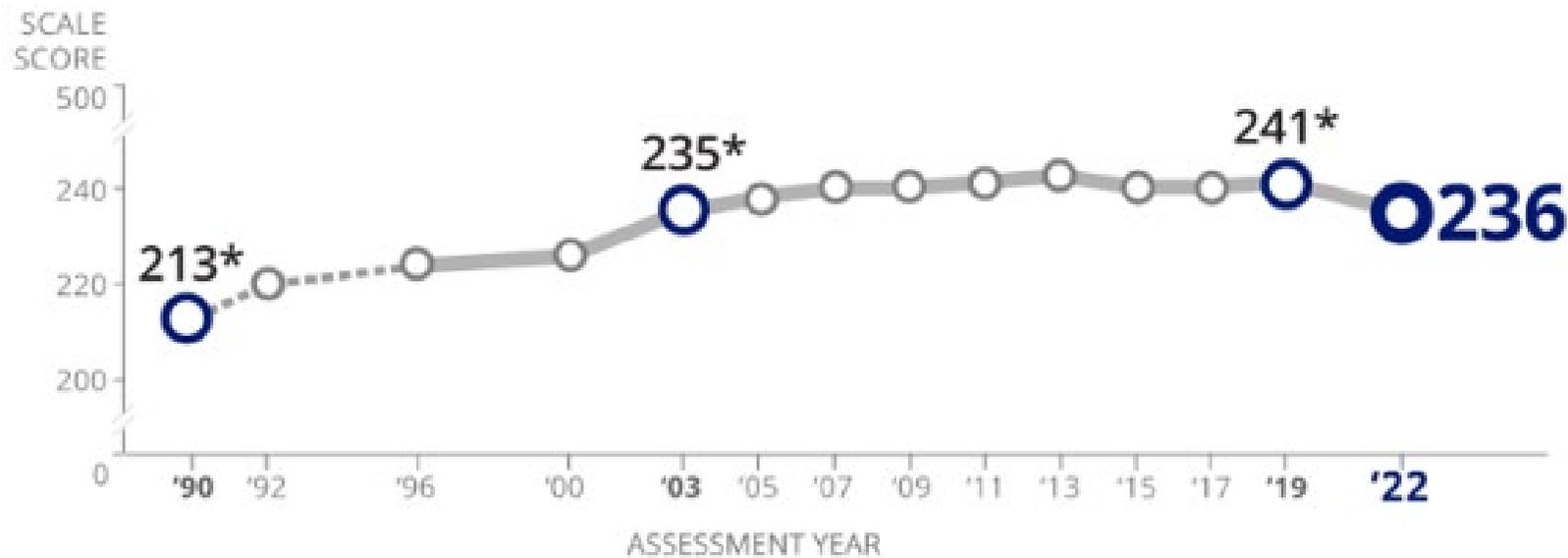


Declines in All 50 States

Number of Declines on NAEP Assessments from 2019 to 2022 by State
4th and 8th Grade Reading and Mathematics



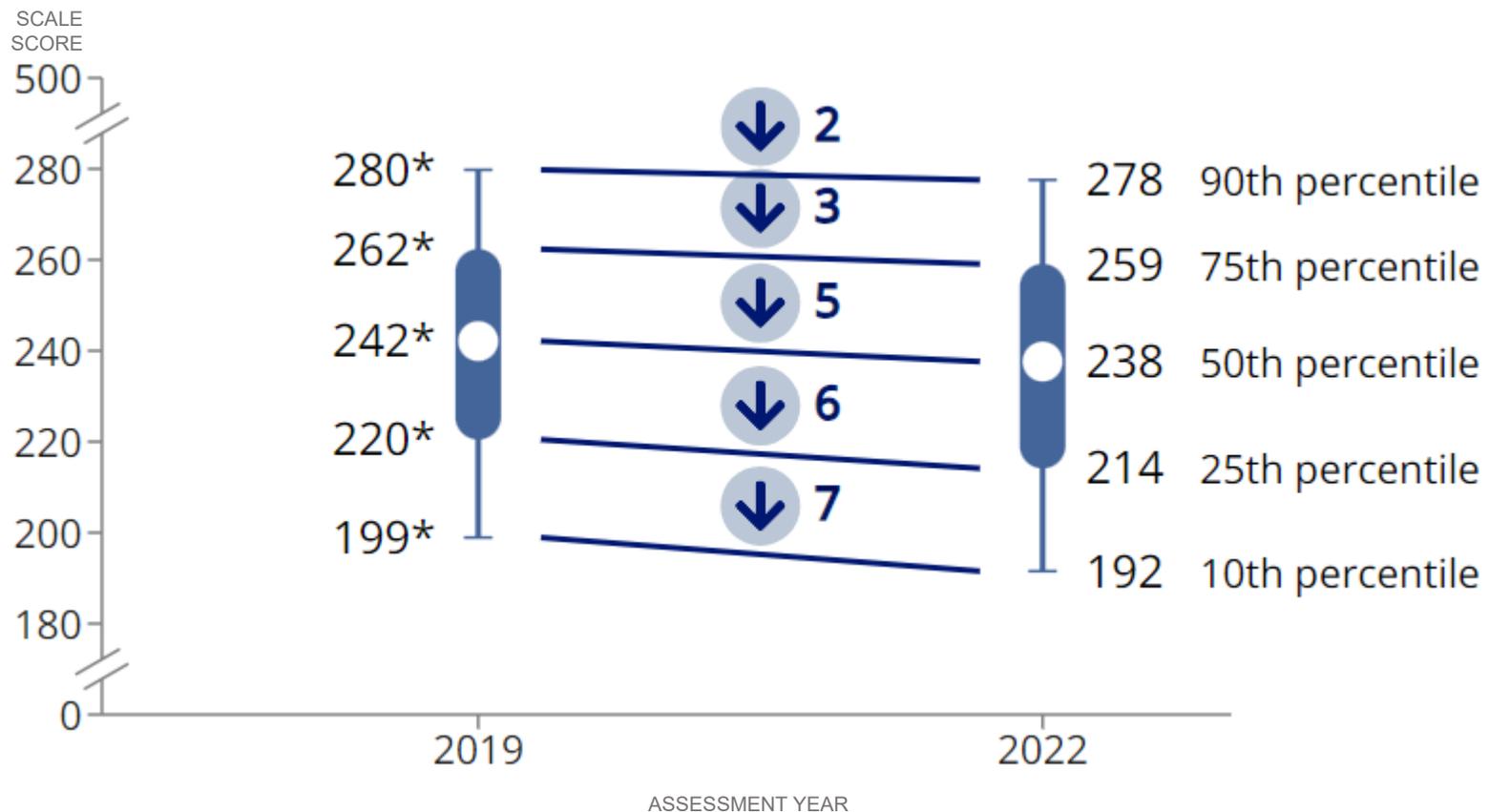
First Ever Math Score Decline



↑ **23pts**
compared to 1990

↓ **5pts**
compared to 2019

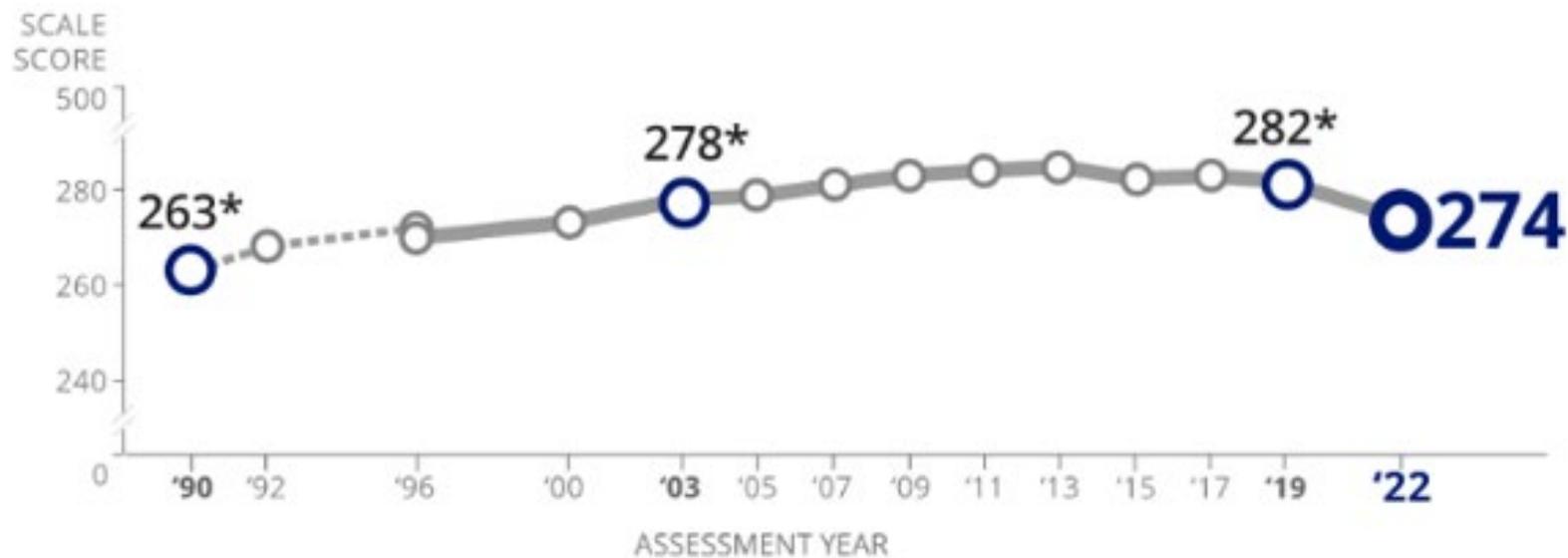
Grade 4 Math: Growing Gaps Between High and Low Performers



*Significantly different ($p < .05$) from 2022.

NOTE: Arrow indicates significant difference ($p < .05$) in 2022.

First Ever Math Score Decline



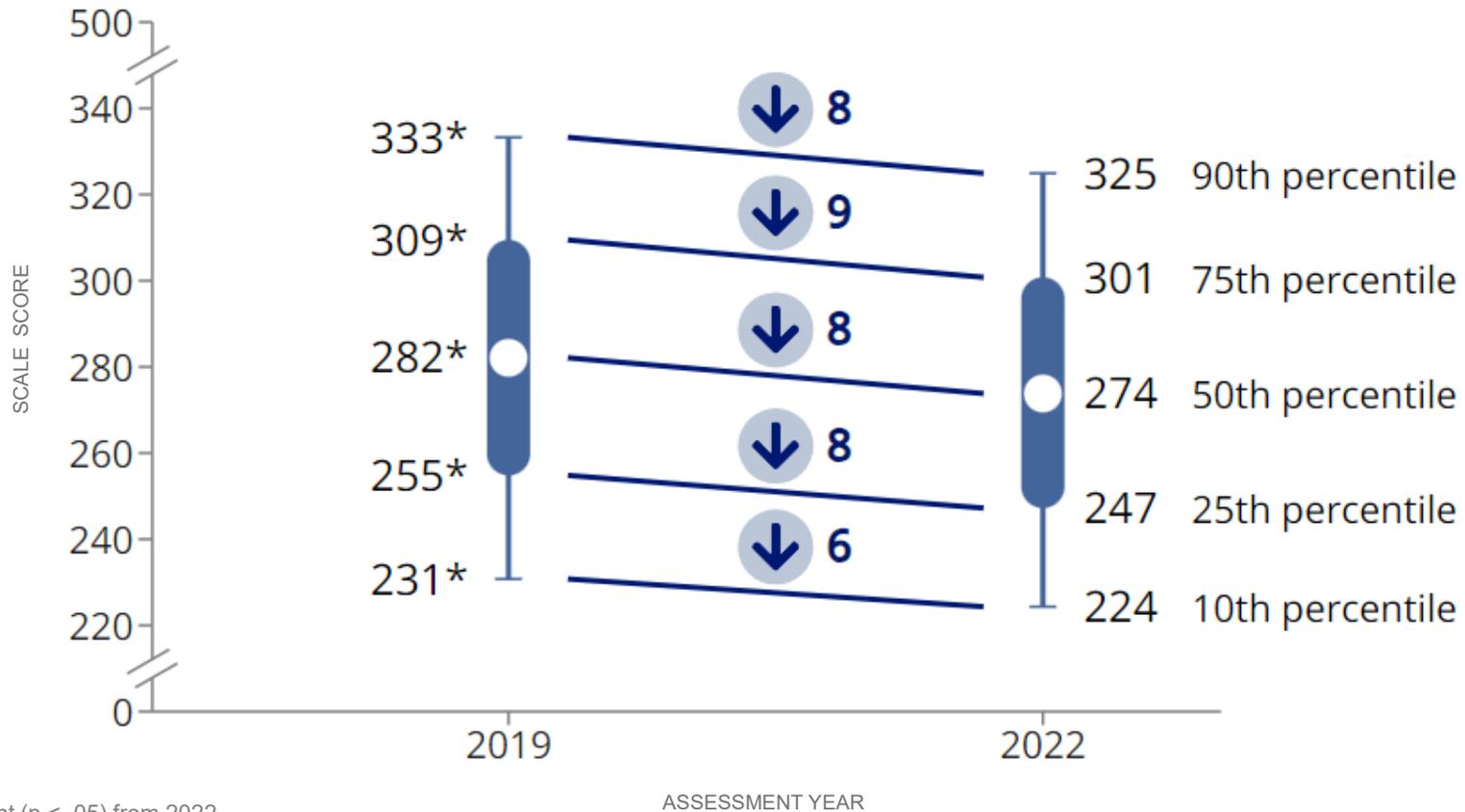
↑ 12pts
compared to 1990

↓ 8pts
compared to 2019

*Significantly different ($p < .05$) from 2022.

Slide from the National Center for Education Statistics 2022 NAEP Mathematics Results at Grades 4 and 8 presentation.

Grade 8 Math: Declines for Both High and Low Performers

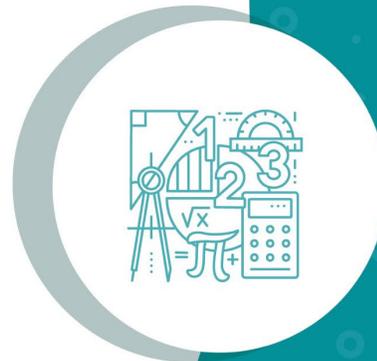


*Significantly different ($p < .05$) from 2022.

NOTE: Arrow indicates significant difference ($p < .05$) in 2022.

The Nation's Report Card

The data NAEP produces has been and continues to be valuable to policymakers, educators, and other leaders. It informs policy and practice to improve achievement for all students.



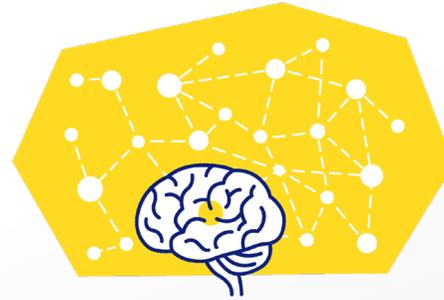
A man with a goatee, wearing a maroon sweater over a light blue collared shirt, stands in a classroom. Behind him is a whiteboard with the text "The Nation's Report Card" and a gold star. The classroom background includes a desk with a plant and various educational posters on the wall.

The Nation's Report Card

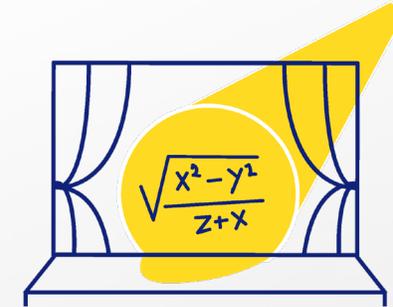
5 Mathematical Practices



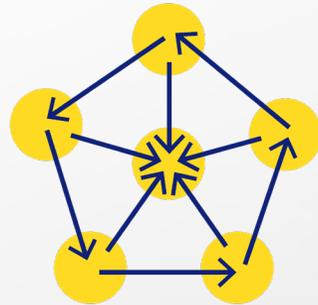
Representing



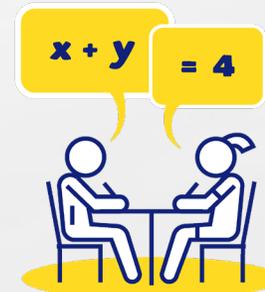
Abstracting and Generalizing



Justifying and Proving



Mathematical Modeling



Collaborative Mathematics



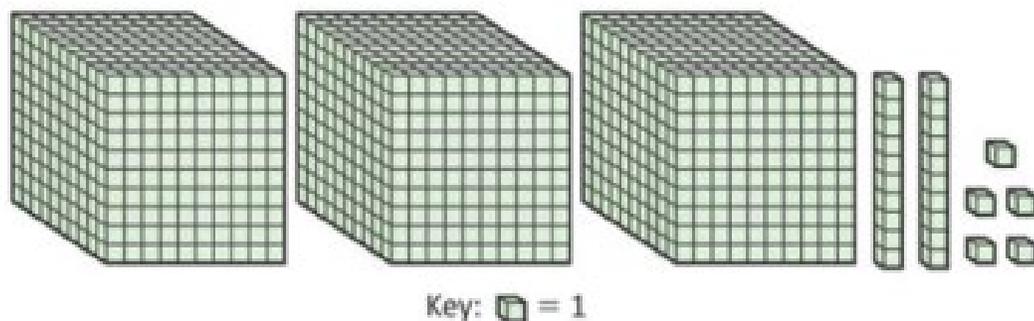
Balance of Mathematics Content

Percentage Distribution of Items by NAEP Mathematical Practice

NAEP Mathematical Practice Area	Percent
Representing	10-15
Abstracting and Generalizing	10-15
Justifying and Proving	15-25
Mathematical Modeling	10-15
Collaborative Mathematics	10-15
Other	15-45

Example: Grade 4

Grade 4 NAEP Number Sense Example: Interpreting a Visual Representation



Which of the following numbers is represented by the base ten blocks?

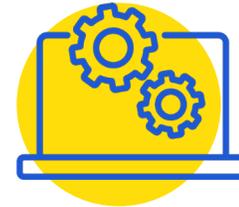
- A 325
- B 370
- C 3,025
- D 3,205

Clear Answer

Other Major Changes



**Mathematical
Literacy**

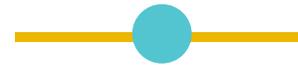


**Item Formats and
Technology in Assessment**

The New Assessment Design



**Traditional and
Innovative Items**



**Technology That Promotes
Accessibility, Engagement, and
Design and Scoring Advances**



**Current and Emerging
Technology That Promotes
Deeper-Level Assessment**



**Fairness, Reliability,
and Vitality**

What You Can Do

- Explore the NAEP mathematics framework
- Explore The Nation's Report Card
- Use data to impact education positively



Thank you!

nagb.gov

nationsreportcard.gov