# **No ‘Green Shoots’ of Academic Recovery as 2022–23 Mathematics, Reading Scores of 13-Year-Olds Decline**

*Many student groups decline in both subjects since 2020; scores for lowest-performing students the same as in 1978 in mathematics and lower than in 1971 in reading*

WASHINGTON (June 21, 2023)—The nation’s 13-year-olds showed the largest declines ever recorded on the National Assessment of Educational Progress (NAEP) long-term trend assessment (LTT) in mathematics, according to results released today by the National Center for Education Statistics (NCES). The average mathematics score for 13-year-olds declined 9 points between the 2019‒20 and 2022‒23 school years, and the average reading score declined 4 points over the same time period.

“The ‘green shoots’ of academic recovery that we had hoped to see have not materialized, as we continue to see worrisome signs about student achievement and well-being more than two years after most students returned for in-person learning,” said NCES Commissioner Peggy G. Carr. “There are signs of risk for a generation of learners in the data we are releasing today and have released over the past year. We are observing steep drops in achievement, troubling shifts in reading habits and other factors that affect achievement, and rising mental health challenges alongside alarming changes in school climate. The mathematics decline for 13-year-olds was the single largest decline we have observed in the past half a century. The mathematics score for the lowest-performing students has returned to levels last seen in the 1970s, and the reading score for our lowest-performing students was actually lower than it was the very first year these data were collected, in 1971.”

The data released today were collected between October and December 2022, during the 2022‒23 academic year. In mathematics, scores declined between 2019‒20 and 2022‒23 for most student groups. Scores declined for Black students, Hispanic students, American Indian/Alaska Native students, students of two or more races, and White students. Declines ranged from 6 points (for White students) to 20 points (for American Indian/Alaska Native students). Mathematics scores for Asian students were not measurably different comparing 2019‒20 and 2022‒23. Scores declined for girls as well as boys, across all regions of the country, and across all school locations. Mathematics scores for students attending Catholic schools were not measurably different comparing 2019‒20 and 2022‒23.

In reading, scores declined since 2019–20 for Black students, White students, and students of two or more races. Scores for Hispanic students, American Indian/Alaska Native students, and Asian students were not measurably different. Reading scores declined for 13-year-olds attending city, suburban, and rural schools, but were not measurably different for schools located in towns. Reading scores for students attending Catholic schools were not measurably different comparing 2019‒20 and 2022‒23.

“Prior to 2012, we had seen noticeable improvements in mathematics achievement and some improvement in reading achievement since the 1970s,” said NCES acting Associate Commissioner Dan McGrath. “Scores for 13-year-olds declined for the first time in both subjects between 2012 and 2020, beginning a downward trajectory that has lasted for more than a decade, and has not been reversed. Middle school is a critical time for students—a time when they are maturing academically as well as socially and emotionally. What happens for students in middle school can strongly influence their path through high school and beyond.”

**Fewer Students ‘Reading for Fun’**

“Reading for fun is strongly associated with higher achievement,” explained Commissioner Carr. “Yet fewer students, especially lower-performing students, are reading for fun compared to a decade ago. Aside from its academic effects, reading opens the mind and the heart to new ways of seeing and thinking about the world. Many of our young people will never discover latent passions or areas of interest without reading broadly on their own time.”

The percentage of 13-year-olds who said they “never or hardly ever” read for fun has risen over the past decade; about one-third (31 percent) of 13-year-olds said they “never or hardly ever” read for fun in 2023, while 22 percent said they “never or hardly ever” read for fun in 2012.

Higher-performing students were more likely to read for fun; 51 percent of 13-year-olds scoring at or above the 75th percentile on the NAEP reading assessment reported reading for fun at least once per week, while 28 percent of students scoring below the 25th percentile reported reading for fun at least once per week.

**Fewer Students Taking Algebra**

There have been significant shifts in mathematics coursetaking since 2012. While about one-third of 13-year-olds (34 percent) in 2012 said they were currently taking algebra, that figure has declined to 24 percent in 2023. The percentage of 13-year-olds enrolled in pre-algebra has also declined since 2012; 29 percent of 13-year-olds in 2012 said they were currently taking pre-algebra, and that has declined to 22 percent in 2023. By contrast, the percentage of 13-year-olds taking regular mathematics has risen. In 2012, 28 percent of 13-year-olds said they were currently taking regular mathematics, and that has risen to 42 percent in 2023.

The data suggests this drop in algebra coursetaking is driven by the West region. In 2012, 51 percent of 13-year-olds in the West were currently enrolled in algebra; that has declined to 19 percent in 2023. There were no other measurable differences across the other regions.

**Results by Subject**

*Mathematics*

* The average mathematics score (271) for 13-year-old students was 9 points lower in 2023 than in 2020 and 14 points lower than in 2012 but was 5 points higher than in 1973.
* Mathematics scores declined between 2020 and 2023 across the performance distribution, with declines for students at the 10th, 25th, 50th, 75th, and 90th percentiles. There were greater declines for lower-performing students (students at the 10th and 25th percentiles) than their higher-performing peers at the 75th and 90th percentiles.
	+ The score declined 14 points for students at the 10th percentile, from 228 in 2020 to 213 in 2023.
	+ The score declined 12 points for students at the 25th percentile, from 255 in 2020 to 244 in 2023.
	+ The score declined 8 points for students at the 50th percentile, from 282 in 2020 to 274 in 2023.
	+ The score declined 6 points for students at the 75th percentile, from 307 in 2020 to 301 in 2023.
	+ The score declined 6 points for students at the 90th percentile, from 329 in 2020 to 322 in 2023.
	+ The mathematics score for students at the 10th percentile in 2023 (213) was not significantly different compared to the score for students at the 10th percentile in 1978 (213).
* Mathematics scores declined between 2019‒20 and 2022‒23 for most student groups. Scores declined by 13 points for Black students (from 256 to 243), declined by 10 points for Hispanic students (from 267 to 257), declined by 20 points for American Indian/Alaska Native students (from 275 to 255), declined by 8 points for students of two or more (from 285 to 277), and declined by 6 points for White students (from 291 to 285).
* The mathematics scores also declined for both male and female students, for students attending schools in all school locations, and for students from all regions of the country.
* Enrollment in algebra has declined since 2012 among 13-year-olds overall.

*Reading*

* The average reading score (256) for 13-year-old students was 4 points lower in 2023 than in 2020 and seven points lower than in 2020 and was not significantly different from the average score in 1971 (255).
* Reading scores declined between 2020 and 2023 across the performance distribution, with declines for students at the 10th, 25th, 50th, 75th, and 90th percentiles.
	+ The score declined 7 points for students at the 10th percentile, from 209 in 2020 to 202 in 2023.
	+ The score declined 6 points for students at the 25th percentile, from 236 in 2020 to 231 in 2023.
	+ The score declined 4 points for students at the 50th percentile, from 262 in 2020 to 258 in 2023.
	+ The score declined 4 points for students at the 75th percentile, from 287 in 2020 to 283 in 2023.
	+ The score declined 3 points for students at the 90th percentile, from 308 in 2020 to 305 in 2023.
	+ The reading score for students at the 10th percentile in 2023 (202) was lower than the reading score for students at the 10th percentile in 1971 (208). The score for students at the 25th percentile in 2023 (231) was not significantly different from the score for students at the 25th percentile in 1971 (232). The score for students at the 50th percentile in 2023 (258) was not significantly different from the score for students at the 50th percentile in 1971 (257).
* Scores for Black students declined 7 points (from 244 in 2020 to 237 in 2023); declined by 8 points for students of two or more races (from 265 to 257); and declined by 4 points for White students (from 269 to 264). Scores for Hispanic students, American Indian/Alaska Native students, and Asian students were not measurably different.
* Students who reported reading for fun more often tended to score higher, but a rising percentage of 13-year-olds say that they “never or hardly ever” read for fun.

**How Results Are Reported**

Student performance on the LTT assessments is reported in several ways: scale scores, percentile scores, performance levels, student group scores, and score gaps.

Scale scores represent the average performance of students on a scale of 0 to 500. Scores are reported at the national level and for groups of students based on race/ethnicity, gender, and other demographic characteristics.

**About the Assessment**

Since the 1970s, the National Assessment of Educational Progress (NAEP) has monitored student performance in reading and mathematics through the long-term trend (LTT) assessments. The LTT assessments are age-based, rather than grade-based, and assess 9-year-old, 13-year-old, and 17-year-old students.

The LTT assessments measure basic reading and mathematics skills to gauge how the performance of U.S. students has changed over time. At age 13, reading was first assessed in 1971 and mathematics was first assessed in 1973. The LTT reading assessment asks students to read short texts and answer mostly multiple-choice questions, though there are a few questions requiring written responses. For mathematics, students answer mostly multiple-choice questions related to basic math facts, computations, formulas, and real-life applications. Survey questionnaires, which are administered to students, teachers, and school administrators who participate in an LTT assessment, are used to collect and report contextual information about students’ learning experience in and out of the classroom.

The 2023 long-term trend assessment for 13-year-olds was administered between October and December of 2022, during the 2022–23 academic year. The assessment schedule was amended so that NCES could collect, analyze, and report data on 13-year-old students during the 2022–23 school year to report a snapshot of how student achievement has changed since immediately before the onset of the COVID-19 global health emergency.

Visit <https://www.nationsreportcard.gov/> to view the report.

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*The National Center for Education Statistics, a principal agency of the U.S. Federal Statistical System, is the statistical center of the U.S. Department of Education and the primary federal entity for collecting and analyzing data related to education in the U.S. and other nations. Founded in 1867, NCES fulfills a congressional mandate to collect, collate, analyze, and report complete statistics on the condition of American education; conduct and publish reports; and review and report on education activities internationally.*

*The National Assessment of Educational Progress (NAEP) is a congressionally authorized project sponsored by the U.S. Department of Education. The National Center for Education Statistics, within the Institute of Education Sciences, administers NAEP. The commissioner of the National Center for Education Statistics is responsible by law for carrying out the NAEP project. Policy for the NAEP program is set by the National Assessment Governing Board (NAGB), an independent, bipartisan board whose members include governors, state legislators, local and state school officials, educators, business representatives and members of the general public. Since 1990, NAGB has been developing achievement levels, which are being used on a trial basis.*