BRIEF

Recovery still elusive: 2023–24 student achievement highlights persistent achievement gaps and a long road ahead

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KEY FINDINGS

- Growth during 2023–24 fell short of prepandemic trends in nearly all grades. This continues the trend of stalled progress observed in the previous school year and indicates that pandemic recovery remains elusive.
- The gap between pre-COVID and COVID test score averages widened in 2023–24 in nearly all grades, by an average of 36% in reading and 18% in math.
- The average student will need the equivalent of 4.8 additional months of schooling to catch up in reading and 4.3 months in math. These estimates are similar to last year for math, and larger for reading.
- Comparing across race/ethnicity groups, growth for all students lagged prepandemic trends in 2023–24. Marginalized students remain the furthest from recovery.

This brief is a continuation of NWEA's research series examining the impact of the COVID-19 pandemic on student achievement and progress toward academic recovery. Initiated in the early phase of the pandemic, this series has leveraged NWEA's large national sample of longitudinal MAP® Growth™ data to track student performance and compare it to historical trends. We have tracked two critical aspects of student performance in the wake of the pandemic: achievement and growth.

Achievement data reveals the extent of unfinished learning. We refer to the distance between current test scores and prepandemic trends as "achievement gaps." Growth data estimate how much test scores increase over time. We use these data to indicate whether students are making gains that keep pace with prepandemic trends.

Understanding and tracking both achievement and growth is important. Achievement gaps quantify how much unfinished learning remains, while growth patterns help us gauge the rate at which gaps will close. The system needs accelerated or above-average growth for students to catch up. Our data provide insights into how effectively this is happening.

Our cumulative research shows that the harmful effects of the pandemic on student achievement steadily accumulated over the course of the 2020–21 school year (Lewis, Kuhfeld, Ruzek, & McEachin, 2021). Growth generally returned to, or slightly exceeded, prepandemic trends in the 2021–22 school year (Kuhfeld & Lewis, 2022). Progress stalled in 2022–23 when growth in nearly all grades fell short of prepandemic trends (Lewis & Kuhfeld, 2023).

In this analysis, we use 2023–24 school year data to examine the current progress toward recovery. We examine test scores from approximately 7.7 million students currently in grades 3–8 in 22,400 public schools who have taken MAP Growth reading and math assessments since the onset of the pandemic.[1] Our "COVID sample" consists of six separate cohorts of students we followed longitudinally across the last three school years. For instance, current fifth-graders are part of the grade 3–5 cohort; we measure this cohort's achievement across third grade in 2021–22, fourth grade in 2022–23, and fifth grade in 2023–24.[2] We compared this COVID sample to a comparable group of 10 million students who tested in grades 3–8 in the pre-COVID school years of 2016–17 through 2018–19.

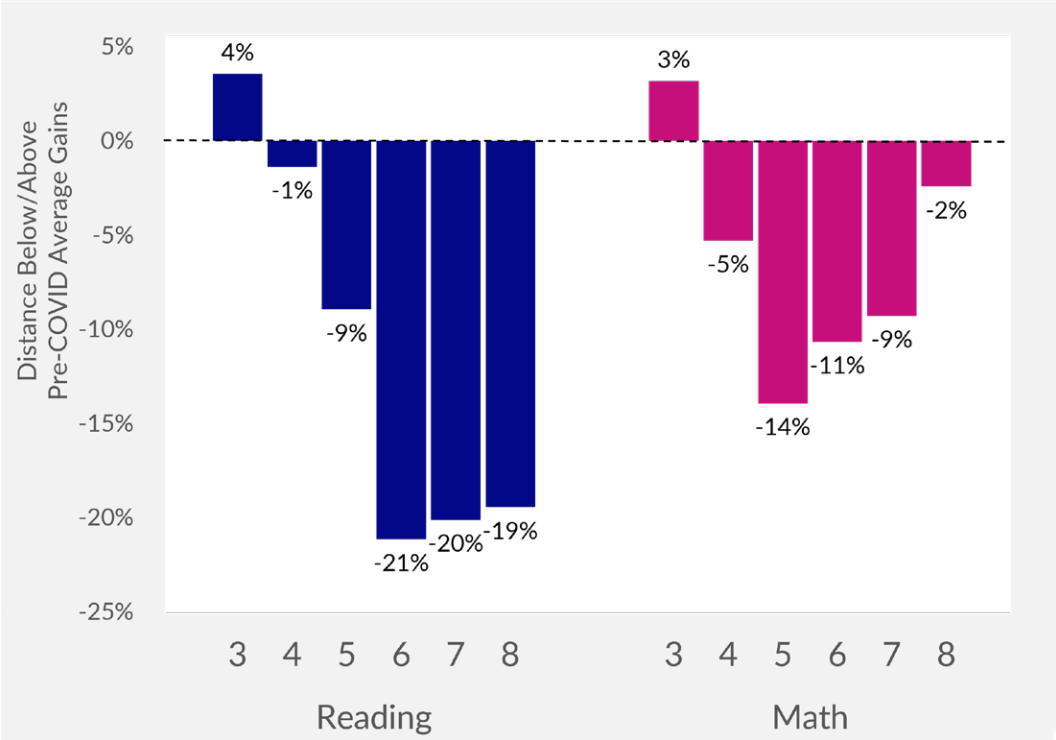
1 A new version of MAP Growth was introduced in 19 states in 2023–24. To allow for comparisons between the new version and historic data, we concorded test scores from the new version. See the technical appendix for more details.

2 We did not require students to be present in all test seasons to be retained in the longitudinal COVID sample. See the technical appendix for more details and a discussion of sensitivity to sample inclusion rules.

Growth during the 2023–24 school year fell short of prepandemic trends

We first calculate the change in test scores between fall 2023 and spring 2024 in each grade and subject. We compare these changes to average fall-to-spring growth rates in the pre-COVID sample. Figure 1 depicts 2023–24 gains as a percentage of pre-COVID trends separately for reading (blue bars) and math (magenta bars). To simplify interpretation, we centered the percentage gains relative to 100%. Positive values indicate gains above pre-COVID averages and negative values indicate gains below pre-COVID averages. Gains exceeding prepandemic trends (i.e., values above 0 in the graph) are necessary to reduce achievement gaps between the COVID and pre-COVID samples; conversely, when gains lag prepandemic trends (i.e., values below 0 in the graph), the achievement gaps widen.

Figure 1. Fall-to-spring growth during 2023–24 relative to pre-COVID trends



Note. The bars depict the percentage difference between 2023–24 fall-to-spring growth and pre-COVID growth trends. We calculate these relative gains ratios by taking the average fall to spring change in RIT score for the COVID sample and dividing by the average for the pre-COVID sample. The pre-COVID baseline was the aggregate fall-spring growth across the 2016–17, 2017–18, and 2018–19 school years.

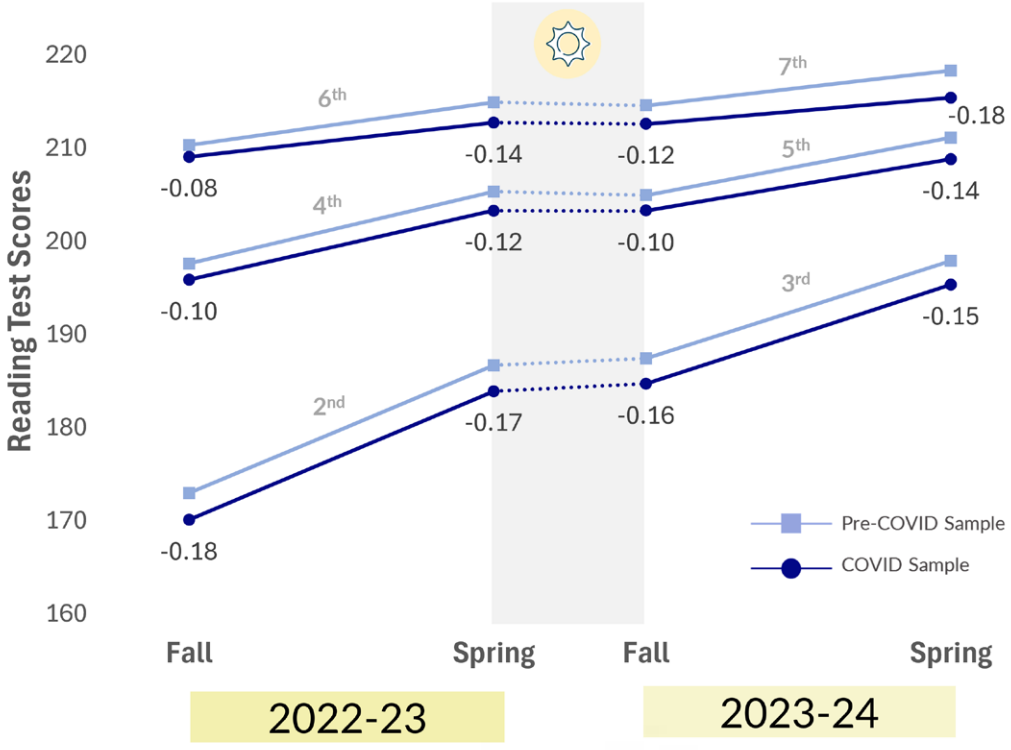
Growth in 2023–24 lagged prepandemic trends in all but the youngest cohort of students, falling short of prepandemic averages by 1–21% in reading and by 2–14% in math. Similar to what we observed in 2022–23, the most notable departure from prepandemic trends is evident in the upper grades in reading.

Substantial achievement gaps remain at the end of the 2023–24 school year

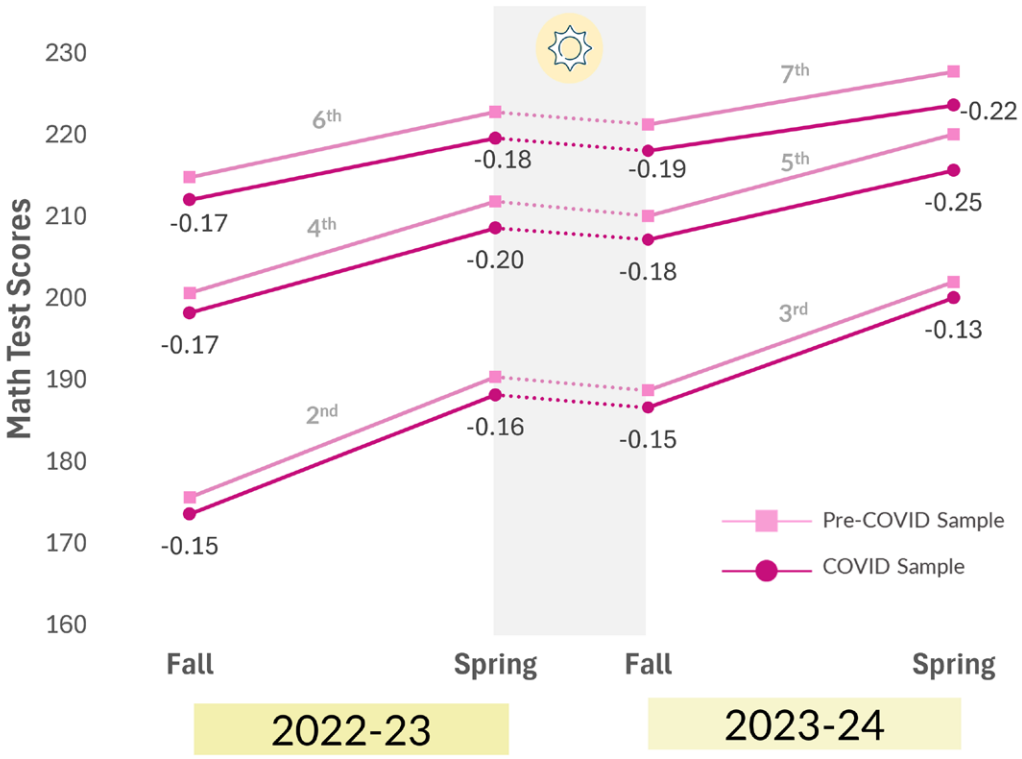
To understand current achievement gaps and changes in the magnitude of these gaps over time, Figure 2 plots average fall and spring achievement (shown as points). It also plots test score gains during each school year and summer (solid and dashed lines respectively that connect the points) over a two-year period. We show this for both the COVID sample (darker shaded line) and the pre-COVID sample (lighter shaded line). For simplicity, Figure 2 shows results for three of the six cohorts in the study.[3]

The numbers below the points in Figure 2 reflect the achievement gap between the COVID sample and the pre-COVID sample calculated as standardized mean difference within a term (negative values indicate that achievement for the COVID sample was lower than for the pre-COVID sample). We use standardized differences to help us understand the magnitude of the gap regardless of the original scale of the scores. This makes it possible to compare across grades and other studies.

Figure 2. Average MAP Growth achievement across 2022–23 and 2023–24 in reading (top panel) and math (bottom panel).



3 Figures for the nondepicted cohorts show similar patterns and can be found in the technical appendix that accompanies this brief. Results for 2021–22 are described in the technical appendix.



Note. Test score means within each term for the COVID sample are plotted in the darker shade, while means for the pre-COVID sample are plotted in the lighter shade. The shaded vertical area denotes summer. Standardized mean differences between the groups are shown, with negative values indicating that achievement for the COVID sample was lower than the pre-COVID sample. Results for the other cohorts as well as details on calculations are available in the technical appendix.

As foreshadowed by the below-average gains in most grades in 2023–24, the gap between pre-COVID and COVID means widened further between fall 2023 and spring 2024 for most grades in our sample. For example, the reading achievement gap for current seventh-graders grew from -0.12 in fall 2023 to -0.18 in spring 2024. *This gap is now more than twice as large as it was in fall 2022 for this cohort*. In math, the increase in gaps is less dramatic, but in both subjects, initial rebounding in 2021–22 has largely been undone by below-average growth in both 2022–23 and 2023–24.

The youngest cohort of students' above-average gains in 2023–24 bucks this trend. Their achievement gaps shrank modestly in 2023–24.

Similar to what we observed in summer 2022 (Lewis & Kuhfeld, 2022), Figure 2 also shows that there is some evidence of shrinking achievement gaps over the summer between spring 2023 and fall 2023. However, the below-average gains during the school year negate those modest reductions in achievement gaps.

Table 1 summarizes the magnitude of achievement gaps in fall 2023 and spring 2024 as well as the percentage change in the gaps between these two seasons with shading to indicate the magnitude of the change. Negative values indicate gaps have decreased and positive values indicate gaps have increased. On average, reading gaps increased by 36% during 2023–24 and math gaps increased by 18%.

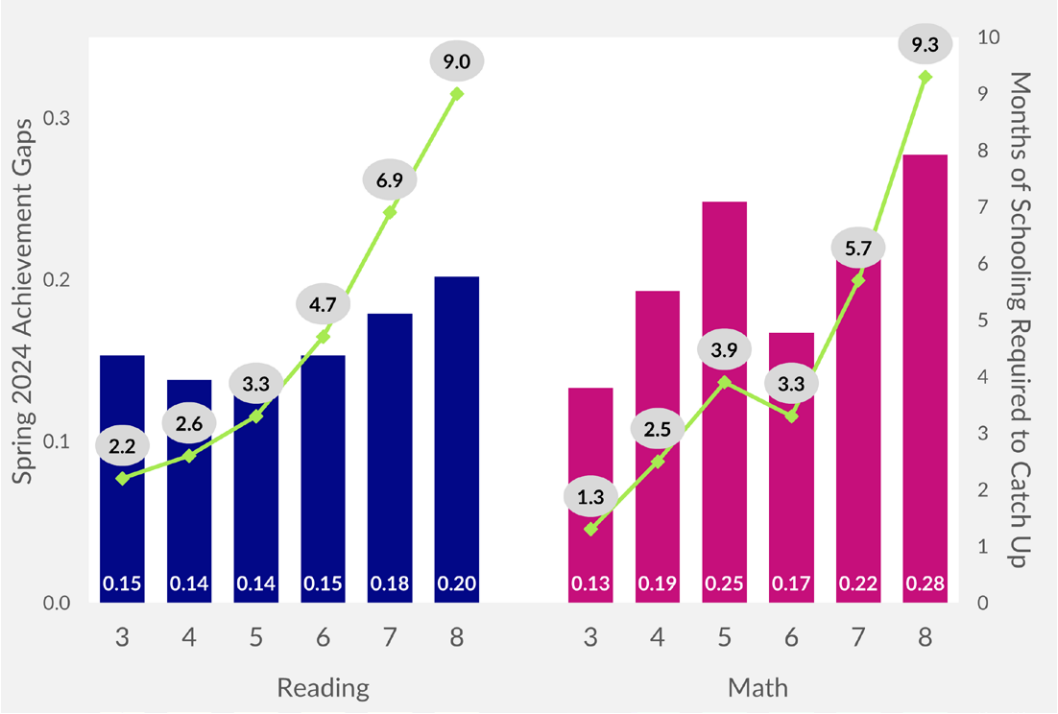
Table 1. Differences in achievement gaps between fall 2023 and spring 2024 in reading and math by grade

	GRADE	FALL 23 GAP	SPRING 24 GAP	% CHANGE IN GAP
READING	3	0.16	0.15	-4%
	4	0.12	0.14	19%
	5	0.10	0.14	42%
	6	0.08	0.15	82%
	7	0.12	0.18	48%
	8	0.15	0.2	31%
MATH	3	0.15	0.13	-13%
	4	0.16	0.19	24%
	5	0.18	0.25	38%
	6	0.12	0.17	40%
	7	0.19	0.22	17%
	8	0.27	0.28	3%

Recovery will require months of additional schooling, particularly for middle school students

To contextualize the magnitude of the gaps, we estimated the amount of additional learning required to catch students up to pre-COVID achievement levels. To do this, we calculated the difference in test scores between the COVID and pre-COVID samples and divided it by the average monthly gains in the pre-COVID sample. These estimates are depicted as lines in Figure 3, plotted on top of bars that reflect the size of achievement gaps that remain in reading and math in spring 2024.

Figure 3. Spring 2024 achievement gaps and months of school required to catch up to pre-COVID achievement levels



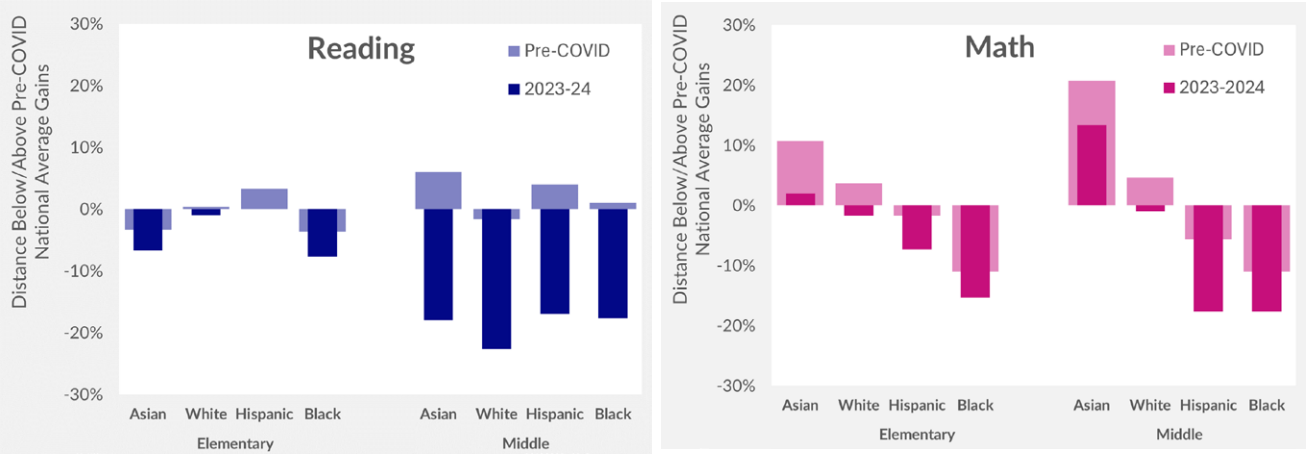
Note. The bars (scaled to the left axis) depict the absolute magnitude of spring 2024 achievement gaps for reading (in blue) and math (in magenta). The values at the bottom of each bar are the standardized mean differences between the COVID and pre-COVID sample for each cohort. The green line and accompanying values in gray ovals (scaled to the right axis) capture months of schooling required to close achievement gaps and catch up to pre-COVID achievement levels. Estimates were calculated by taking the mean score differences between the COVID and pre-COVID samples and dividing by the average pre-COVID fall-to-spring growth rates.

At the end of the 2023–24 school year, across all grade levels, the average student will require the equivalent of 4.8 months of additional schooling to catch up to pre-COVID levels in reading and 4.3 months in math. Prepandemic rates of learning vary across grades and subjects. Younger students tend to make larger gains per year compared to older students, and math gains tend to be slightly larger than reading gains. These differential rates of gains are reflected in the estimates of months of schooling required to catch up to pre-COVID achievement levels. For instance, although the size of achievement gaps in reading are of roughly similar magnitude across grades, more months of schooling will be required to catch up middle school students because older students tend to make smaller gains per year.

Growth in 2023–24 lagged prepandemic trends across race/ethnicity groups

Finally, we examined whether the overall trends we observed in 2023–24 differed across race and ethnicity categories. Figure 4 shows 2023–24 growth (darker shaded bar) separately by race/ethnicity as a percentage of overall average pre-COVID growth trends. Figure 4 also highlights the pre-existing disparities in gains across groups by showing how each group's average pre-COVID gains (lighter shaded bar) compared to national pre-COVID averages. For example, in reading, pre-COVID average gains for Asian middle school students were slightly above national pre-COVID averages, whereas 2023–24 gains were below national pre-COVID averages.

Figure 4. Achievement gains in 2023–24 and pre-COVID relative to overall pre-COVID national average by race/ethnicity



Note. The bars reflect average achievement gains for each group as a percentage below/above pre-COVID national growth trends. The darker shade represents 2023–24 gains relative to pre-COVID trends, and the lighter shade represents pre-COVID gains for each group relative to national pre-COVID averages. Percentages were calculated by taking the average fall-to-spring growth for each grade/group combination, dividing by average national achievement gains for the pre-COVID period (i.e., 2016–17 to 2018–19), and then averaging the racial/ethnic group estimates separately for grades three through five (elementary) and grades six through eight (middle) grades.

Overall, Figure 4 shows that across all groups, 2023–24 gains also lagged pre-COVID group averages (i.e., the darker bars are always lower than the lighter bars). Additionally, Figure 4 shows that 2023–24 gains for nearly all groups lagged pre-COVID national averages (i.e., the dark bars are generally below 0). These differences are especially notable for middle school students in reading. Math gains were more disparate across groups in the pre-COVID samples (i.e., there is an obvious stairstep pattern across groups in the lighter magenta bars) and this continues to be true in 2023–24, which reinforces the widened disparities across groups.

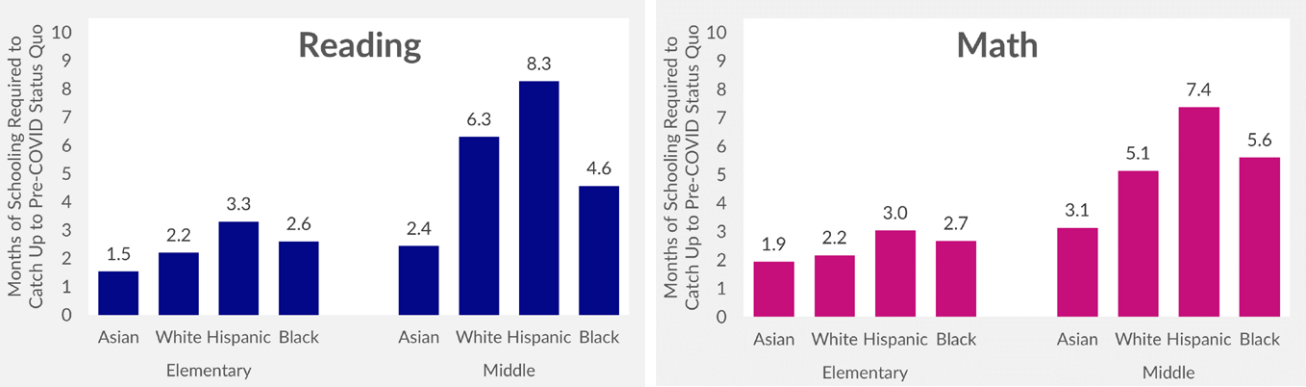
Framing

Focusing on differences across race and ethnicity can have negative implications, potentially perpetuating a deficit-oriented perspective that blames students and fails to recognize academic strengths, which may not be accurately reflected in standardized metrics. At the same time, it is crucial to disaggregate outcomes by race and ethnicity to shine light on the profound inequities existing within our education system. Inequities were stark before the pandemic and have only widened over the last four years.

In this context, we share data on the students disproportionately harmed during the pandemic, not to assign blame, but to emphasize the "educational debt" owed to these students, as coined by Gloria Ladson-Billings (2006). These data underscore the need for substantial resources and support to address the cumulative impacts of the pandemic and rectify the harm these students have experienced.

Figure 5 displays the months of schooling required to return to each group's pre-COVID achievement levels. Consistent with overall averages, here too we see that more schooling will be required to catch up to pre-COVID achievement levels for middle schoolers compared to elementary students. Comparing across groups, estimates for Hispanic students are generally larger than for other groups, typically by a month or more.[4] *It is important to emphasize that the estimates in Figure 5 only show the months of schooling required to return students to the significantly inequitable prepandemic status quo* (see Lewis & Kuhfeld, 2023).

Figure 5. Months of schooling required to catch up to pre-COVID achievement by race/ethnicity



Note. The bars depict months of schooling required to catch up to pre-COVID achievement levels of achievement, broken down by subject, school level, and racial/ethnic group. Estimates were calculated by taking the mean score difference between the COVID and pre-COVID sample of each grade and group, dividing by the average rate of pre-COVID fall-to-spring growth for that group, and averaging across each grade band.

4 These figures may underestimate group differences in months of schooling required to catch up given estimates are based on overall average rates of pre-COVID gains and do not reflect pre-COVID disparities across groups in average gains (as shown in Figure 4).

Inconsistent evidence of academic recovery across different metrics

Our findings for the 2023–24 school year largely mirror what we reported at the end of 2022–23: growth continues to fall short of prepandemic trends in most grades, indicating that little progress has been made toward closing achievement gaps. Students, especially older ones, remain a long way from recovery.

Our findings present a less optimistic picture of recovery compared to trends reported from some state assessments (Halloran, Hug, Jack, & Oster, 2023). In general, our findings suggest minimal recovery, whereas most state tests are showing evidence of at least partial recovery in math, with a more mixed story in reading (Barnum & Belsha, 2023; Fahle, Kane, Reardon, & Staiger, 2024).

Why might the test used to measure recovery matter?

Interim assessments and state summative tests serve different purposes and measure achievement with varying levels of specificity. Interim assessments, like NWEA's MAP Growth, are designed to provide more detailed, frequent insights into student progress throughout the year, allowing for a continuous measurement of growth and achievement. This can highlight more nuanced trends and immediate impacts. In contrast, state summative tests occur once a year and categorize achievement into broader levels (e.g., below basic, basic, proficient). This lack of nuance may mask important changes in achievement for students who are further from benchmarks (Ho, 2008). The differing methodologies and purposes of these assessments likely play a significant role in the observed discrepancies in recovery data.

Another key difference is how we track recovery. State summative tests, administered annually, cannot measure student growth within the academic year. These assessments typically examine COVID impacts cross-sectionally (e.g., how does the achievement of third-graders in 2024 compare to the achievement of third-graders in 2023?).

In contrast, since MAP Growth is administered multiple times throughout the year, we can use longitudinal models to understand how cohorts of students are progressing toward recovery (e.g., how do the achievement gaps for third-graders this spring compare to the achievement gaps for those students at the end of second grade last spring?). This approach captures more incremental changes and trends that annual state assessments might miss.

For instance, we found in this report and in prior reports that the magnitude of achievement gaps increased between fall and spring but decreased slightly over the summer. An analysis that only compares spring to spring in cross-sectional samples would not capture this nuanced seasonal pattern.

We conducted an additional grade-level analysis with MAP Growth scores that mirrors the approach used by NAEP and state summative assessments. This analysis allows us to better situate results from the MAP Growth assessment with cross-sectional data from states' summative tests, providing a closer comparison of recovery trends between these different assessment types.

Figure 6 shows trends in average achievement from spring 2017 to spring 2024 by grade and subject among a consistent set of approximately 7,000 schools that tested in each school year.[5] The numbers below the points in Figure 6 reflect the standardized difference in mean achievement compared to the pre-COVID reference year of 2019, with negative values indicate that achievement in that year was lower compared to spring 2019.[6]

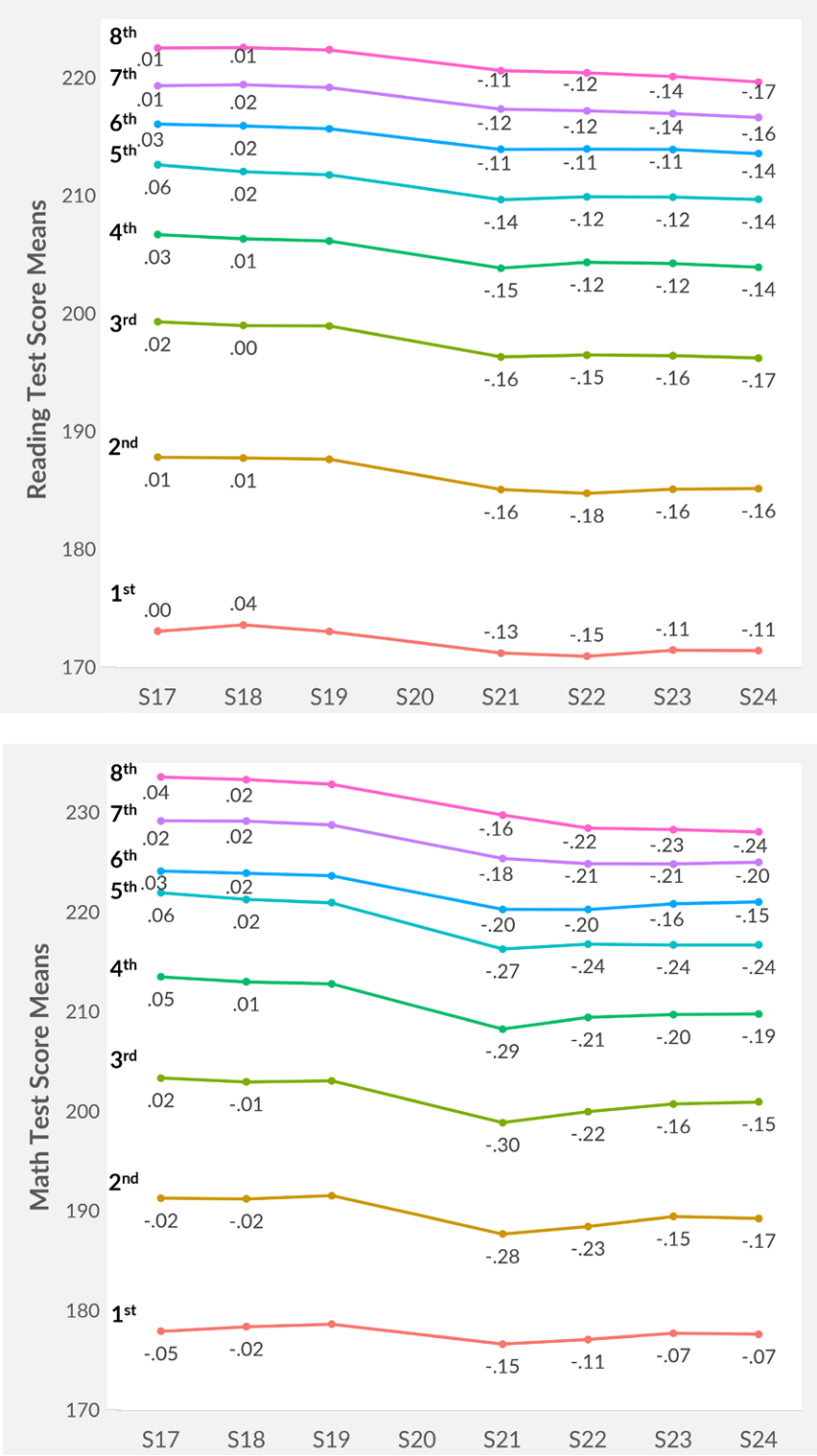
Similar to trends from state summative tests (Barnum & Belsha, 2023), these analyses also show less evidence of recovery in reading compared to math. Here we see almost no evidence of recovery in reading: the initial achievement gaps incurred in spring 2021 have largely remained stagnant over the last three years in the elementary grades, while the gaps actually widened between 2021 and 2024 in the middle school grades. For instance, second-grade reading achievement was 0.16 standard deviations (SDs) below 2019 levels in spring 2021 and remains 0.16 SDs below in spring 2024. In contrast, eighth-grade reading achievement was 0.11 SDs below 2019 levels in spring 2021 but has declined further to 0.17 SDs below 2019 levels by spring 2024.

There is more consistent evidence of recovery in math. Excluding seventh and eighth grade, there is a pattern of incremental reductions in achievement gaps each year since spring 2021 when gaps were at their largest. These reductions are more substantial in the youngest grades, where gaps have been reduced by about half of their largest size. However, seventh- and eighth-grade achievement levels continue to lag behind prepandemic levels and the magnitude of the difference has widened by spring of 2024.

5 We include three pre-COVID years (2017, 2018, and 2019) to give some context for how achievement fluctuated year to year prior to the onset of COVID-19. We excluded spring 2020 due to low testing rates.

6 The effect sizes for spring 2024 in Figure 6 are very similar to, but not an exact match with, the effect sizes for spring 2024 reported in the other sections of this brief (i.e., Table 1, Figures 2 and 3). These slight discrepancies arise because the analyses in Figure 6 use a different pre-COVID reference group. Specifically, for Figure 6, the pre-COVID reference group is spring 2019. In contrast, the rest of the brief uses an aggregated pre-COVID sample that averages data from 2016–17, 2017–18, and 2018–19. Additionally, there are slight differences in the exclusion rules for these two different analyses. For more details, refer to the technical appendix.

Figure 6. Average spring achievement levels from spring 2017 to spring 2024 in reading (top panel) and math (bottom panel)



Note. This figure shows RIT score means for grades 1 to 8 from spring 2017 to spring 2024. Means were calculated using a sample of approximately 7,000 schools that tested consistently over the last eight years (spring 2020 was excluded due to low testing rates). Effect sizes are reported relative to the spring 2019 mean and standard deviation per grade (see Table 10 in the technical appendix for the estimates).

It is important to note that current first- and second-graders were not yet in school during the first year COVID-19 interrupted schools (2019–20) nor the subsequent year when most schools continued virtual learning to a significant degree (2020–21). Despite this, their achievement has taken a significant hit, with achievement gaps comparable to those observed for older students who faced more direct disruptions. This underscores the pervasive impact of the pandemic on the education system, demonstrating how its effects have impacted students entering schools even after the initial shocks subsided.

Comparing these cross-sectional analyses to our longitudinal research is challenging given they approach the problem in different ways and use different samples. Some high-level key findings emerge as parallel across methods. First, recovery has not yet been realized for any of the grades we have studied, and although math has been impacted to a greater extent than reading, recovery has been nearly nonexistent in reading. Second, both analyses underscore the persistent challenges for older students who are not recovering in either subject; instead, their achievement gaps continue to accumulate.

Conclusion

Our findings make it clear that the road to recovery from the pandemic's impact on student achievement is far from over. The effects continue to reverberate, even for the youngest students entering the education system years after the initial onset of the pandemic. At the end of 2021–22, we optimistically concluded that the worst was behind us and that recovery had begun. Unfortunately, data from the past two school years no longer support this conclusion. Growth has slowed to lag prepandemic rates, resulting in achievement gaps that continue to widen, and in some cases, now surpass what we had previously deemed as the low point.

These trends are particularly concerning given the sunsetting of ESSER funds this coming fall. The looming budgetary shortfalls may tempt schools to withdraw or significantly reduce their academic recovery interventions. However, the persistent achievement gaps we observe force us all to ask ourselves: are we willing to accept this new status quo? If the answer is no, we must create a system that embraces equitable recovery efforts and weaves them into standard operating procedures in a sustained way. Instead of treating COVID recovery interventions as temporary crisis-mitigation tactics, we must make targeted academic supports, such as high-dosage tutoring and summer programming, a permanent part of our new normal. Providing students with the additional instructional time they need to close achievement gaps is the only way to make meaningful progress. This will likely require states to step into the void left by dwindling federal relief dollars, or for federal policymakers to recognize the need for ongoing resources to support student success.

Our most pressing concerns should lie with students who were already teetering on the edge within our education system when COVID-19 hit—those grappling with systemic racism, poverty, and restricted access to opportunity and resources. We already owe these students a great educational debt, and it is a debt we carry with compounding interest. Achievement disparities that predate the pandemic have been starkly exacerbated over the last four years, and marginalized students remain the furthest from recovery. By failing to close gaps for these students, we prevent them from achieving their full potential as they progress through the education system.

Throughout the pandemic, we have often believed that we were finished with COVID before it was finished with us, and this is yet another example of that. Pandemic fatigue is real, but accepting a new normal of lower achievement and *widened inequities is not an option*. Instead, we must remain committed to using data-driven strategies to understand and address the specific impacts on our students, ensuring they receive the necessary supports to thrive. By integrating sustained recovery efforts into our educational framework, we can make lasting changes and ensure a brighter future for all students.

ABOUT THE AUTHORS

Dr. Karyn Lewis is Director of Research and Policy Partnerships at NWEA, where she leads a team of researchers who operate at the intersection of K–12 education research, practice, and policy. Her research interests focus on the interplay between students' academic achievement and growth, their social-emotional development and well-being, and how they experience their school's climate. Prior to joining NWEA, she was a senior researcher at Education Northwest/REL Northwest, where she led a diverse portfolio of applied research, technical assistance, and evaluation projects centered around social-emotional learning. Dr. Lewis is a former data fellow with the Strategic Data Project at the Harvard Center for Education Policy Research. She completed a National Science Foundation funded postdoctoral fellowship at the University of Colorado Boulder and earned a PhD from the University of Oregon in social psychology.

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