Curriculum Associates RESEARCH

Student Growth in the Post-COVID Era: Middle School

Reading and Mathematics
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Research Report

SUMMARY

Prior research has shown variable recovery patterns by student grade. Some work has shown middle school students making strong recovery, while others identify this group as the students most impacted. To provide more insight into these conflicting findings, Curriculum Associates traced three years of academic growth post-pandemic for two middle school cohorts: the first from Grades 5–7 and the second from Grades 6–8. Utilizing longitudinal growth modeling, we compared three-year growth trajectories in reading and mathematics to those of pre-COVID cohorts in the same grades. Results show middle school students are keeping pace with historical growth rates in reading and show signs of recovery in mathematics. As of the latest full school year, in 2023–2024, both cohorts appear on par with, or close to, historical growth trends in both reading and mathematics. Similar to elementary cohorts, these patterns differed depending on student and school-level factors, with historically underserved communities the furthest from pre-COVID trends. Although more work is needed, these results help provide insight into a mixed landscape of academic recovery post-pandemic.

INTRODUCTION

A key question for educators and policymakers is whether students are showing signs of academic recovery post-pandemic. To address this important question, Curriculum Associates (CA) examined student growth comparing pre-pandemic with post-pandemic learning trends (Young & Young, 2024). This report showed that, to a large extent, student growth post-pandemic has yet to catch up or keep pace with pre-pandemic trends. These results were particularly concerning for students who required extra academic support and marginalized populations including low-income communities, schools serving majority Black or Hispanic students, or schools in urban settings. Despite these troubling patterns, CA's analyses revealed a few signs of recovery, depending on various factors. For example, academic growth patterns among students in late elementary were close to, or on par with, pre-pandemic trends (see Young & Young, 2024 for full report).

These results, demonstrating small recovery in older cohorts, adds to already mixed findings among middle school students. For example, some prior work suggests middle school students were most impacted by the pandemic (Lewis & Kuhfield, 2023), whereas state test results show encouraging signs of recovery for students in Grades 3–8 (Fahle et al., 2024; Halloran et al., 2023). These inconsistencies make it unclear how middle school students are faring post-pandemic. And, as federal COVID-19 funds expired and shifts in federal education expenditures continue, evaluating trends in achievement is becoming particularly important.

In this short report, CA extends its previous work to middle school students, adding two cohorts. Using the same methods as prior work (Young & Young, 2024), CA tracked these cohorts for three years (up to spring 2024) to examine longitudinal trends in reading and mathematics performance and compare them to pre-pandemic data. These large-scale analyses provide critical insight into academic growth following major changes in education, whether pandemic-related disruptions, funding, or policy decisions, with historical points of comparison. Conducting these analyses longitudinally creates the ability to evaluate student progress toward these historical points of comparison while offering insight into potentially new, but consistent trends in student achievement.

METHODOLOGY

Research Questions:

1. How does student academic growth post-pandemic differ from historical growth based on a pre-pandemic trajectory?
2. Are there patterns of growth mirroring or diverging from historical trends by student characteristics, including initial placement level or age during the pandemic?
3. Are there patterns of growth mirroring or diverging from historical trends by school or community characteristics, including demographics, median income, or locale?

To address our research questions, we constructed two longitudinal samples—one for modeling historical (i.e., pre-pandemic) growth and the other for post-COVID growth. We followed both samples for three years. We collected historical student data from fall 2016 to spring 2019 and post-COVID student data from fall 2021 to spring 2024. These samples were split into two cohorts, each beginning in the 2021–2022 school year. The first cohort was in Grade 5 and the second in Grade 6, both followed for three years, until Grades 7 and 8, respectively (Table 1). For more information on methodology, including sample creation, measures, and data analysis, see Young & Young, 2024.

Table 1. Sample Sizes

Period	Sample Sizes		Grade during COVID		Grade during Assessment		
	Reading	Mathematics	2019–2020	2020–2021	2021–2022	2022–2023	2023–2024
Post-COVID 2021–2024	473,184	548,559	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7
	482,247	534,659	Grade 4	Grade 5	Grade 6	Grade 7	Grade 8
					2016–2017	**2017–2018**	**2018–2019**
Pre-COVID 2016–2019	163,079	191,864	-	-	Grade 5	Grade 6	Grade 7
	155,749	169,428	-	-	Grade 6	Grade 7	Grade 8

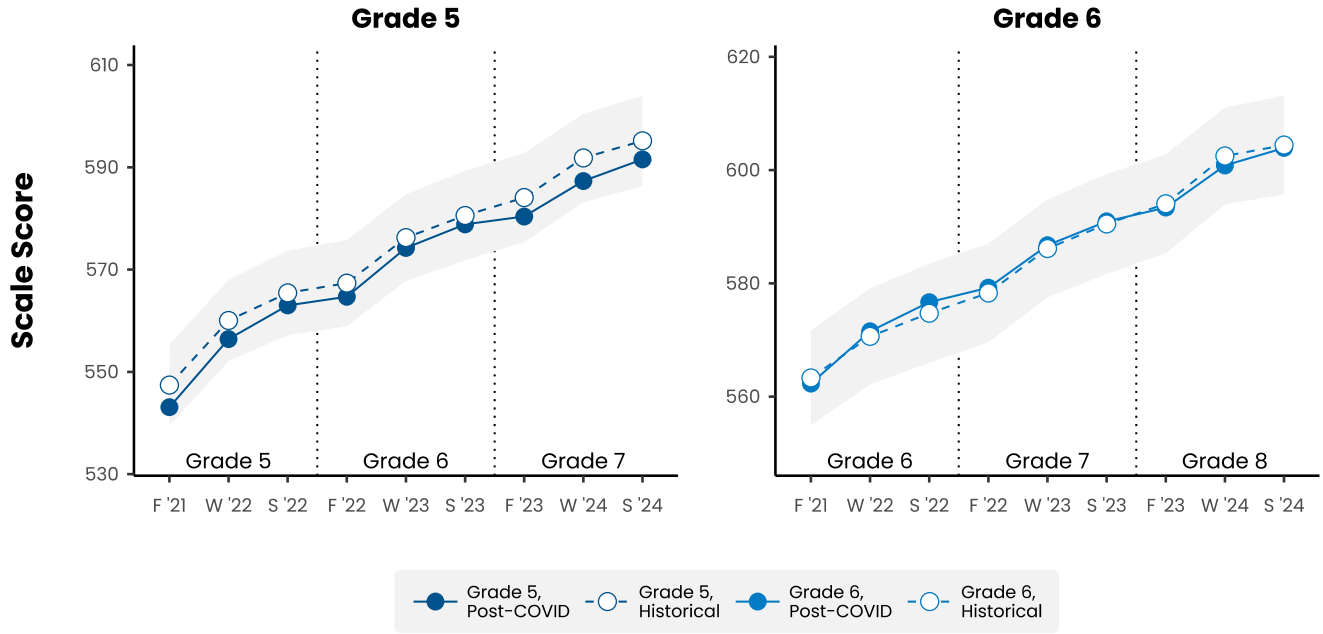
RESULTS

Reading

Overall Growth Comparisons

Comparing pre- and post-pandemic growth trajectories in reading reveals very similar patterns, suggesting minimal decline in reading performance for middle school students (Figure 1). The Grade 5 cohort appeared to begin their 2021 school year below pre-pandemic trends, but these differences are not statistically significant. Both cohorts have shown comparable performance over time, neither exceeding nor declining from historical growth rates, but remaining largely on par. This pattern is especially true in the Grade 6 cohort, in which scale score growth over time is nearly identical to historical growth.

Figure 1. Differences in Historical and Post-COVID Growth in Reading by Cohort



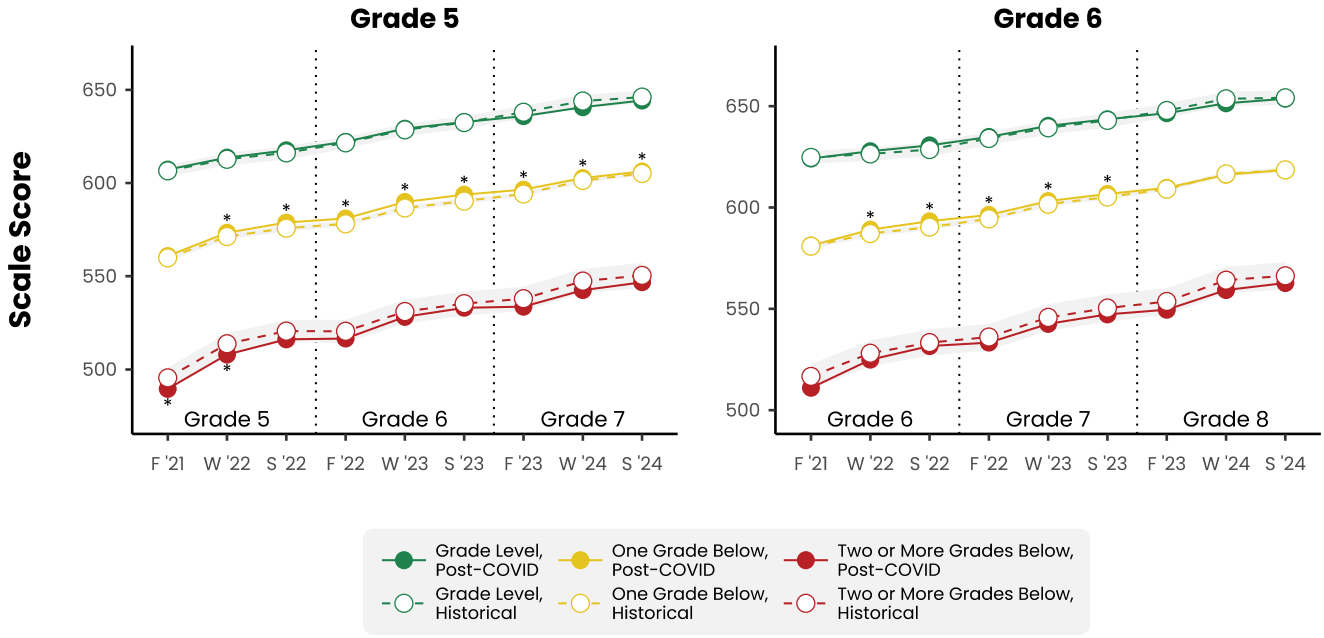
Note: F: Fall; W: Winter; S: Spring. The gray bar represents scale scores that are statistically equivalent to historical trends.

Differences by Student Placement Level

Breaking down overall trends by student starting placement level, or their relative grade-level performance in fall 2021, shows markedly different patterns (Figure 2). Students who began early/on grade level in 2021 demonstrated growth comparable to pre-pandemic trends, with slight departures (though not significant) in

this most recent school year. Students beginning well below grade level (i.e., two or more grades below) began further from historical trends, demonstrated small recovery over time, and again showed a small but insignificant departure in the latest full academic year. Students beginning one grade level below, however, showed much larger departures from historical trends than students in other placement levels. These students began on par with historical trends in 2021 but then far exceeded these historical growth rates in the year following. In this most recent full academic year (i.e., 2023–2024), these students have since returned to growth that appears more comparable, albeit still slightly above, historical trends.

Figure 2. Differences in Historical and Post-COVID Growth in Reading by Placement Level



Note: F: Fall; W: Winter; S: Spring. *Significantly different scores from pre-COVID trends. The gray bar represents scale scores that are statistically equivalent to historical trends.

Differences by School and Community Characteristics

For the most part, post-COVID growth patterns by school and community factors largely mirror those in the overall sample, but the magnitude of these differences varies by the subsample, as was seen in the elementary cohorts (Young & Young, 2024). Patterns by school demographics show a similar pattern: Reading performance showed slight recovery in the Grade 5 cohort and stable trends for the Grade 6 cohort, but the differences are much larger for historically underserved communities (Figure 3). Encouragingly, majority Black schools demonstrated recovery, narrowing the differences from majority White schools. Despite these positive trajectories, long-standing disparities remain. Growth patterns by community income level appear similar to demographic trends (Figure 4). Trends follow the same general trajectory across income brackets, but with schools in lower-income communities shifted downward, showing they are still far behind overall historical trends. When parsed by school locale, there are similar patterns as seen with school demographics (Figure 5). Schools in urban regions appear to be making some small recovery, though still trailing schools in town/rural or suburban locations. These schools, in contrast, appear only slightly below historical trends, but with limited to no recovery.

Figure 3. Differences in Historical and Post-COVID Growth in Reading by School Demographics

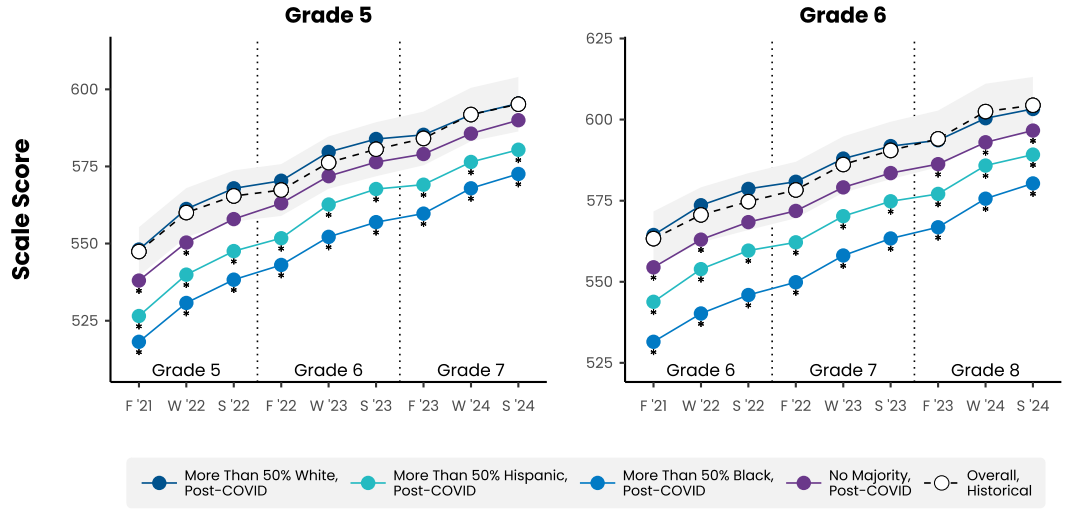


Figure 4. Differences in Historical and Post-COVID Growth in Reading by Community Income

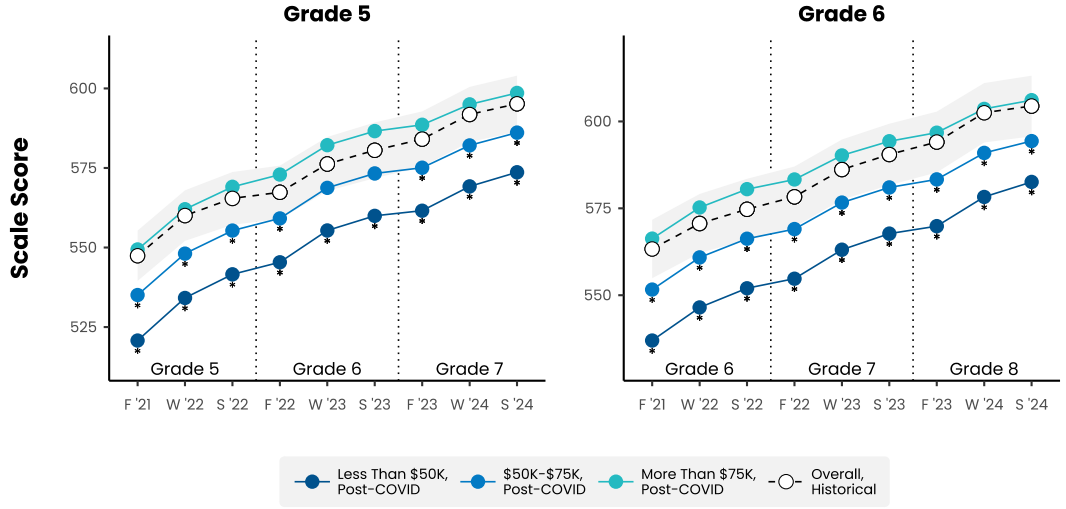
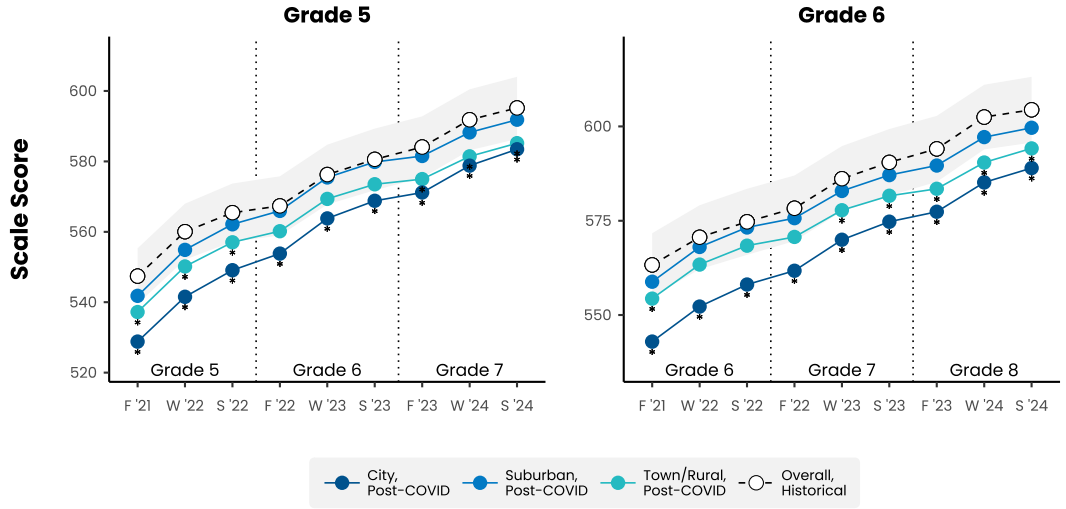


Figure 5. Differences in Historical and Post-COVID Growth in Reading by School Locale



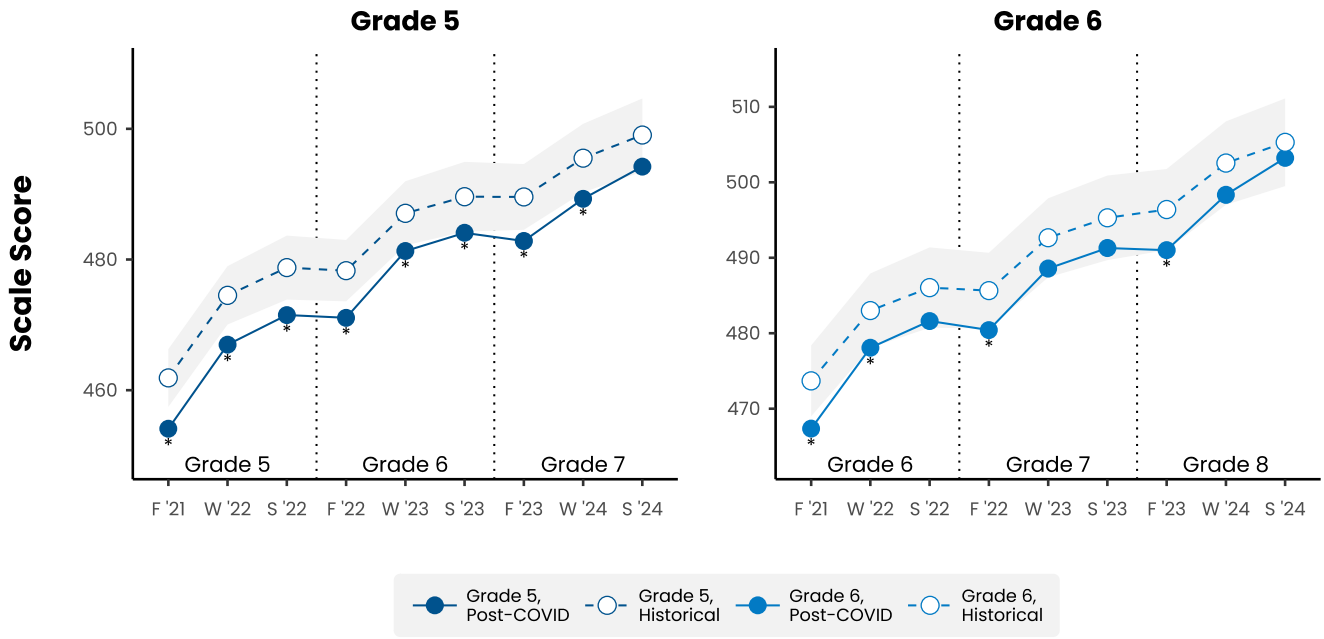
Note: F: Fall; W: Winter; S: Spring. *Significantly different scores from pre-COVID trends. The gray bar represents scale scores that are statistically equivalent to historical trends.

Mathematics

Overall Growth Comparisons

As seen with the elementary school cohorts, trends in mathematics reveal more recovery but larger departures from historical trends initially (Figure 6). As of the latest full school year, students in both the Grade 5 and Grade 6 cohorts are approaching historical trends of academic growth. Both cohorts remain slightly behind where pre-pandemic cohorts were as of spring 2024, but these are not statistically significant differences. Encouragingly, both cohorts are much closer to historical growth as of this latest academic year than they were in the 2021–2022 school year, indicating small but noticeable recovery.

Figure 6. Differences in Historical and Post-COVID Growth in Mathematics by Cohort

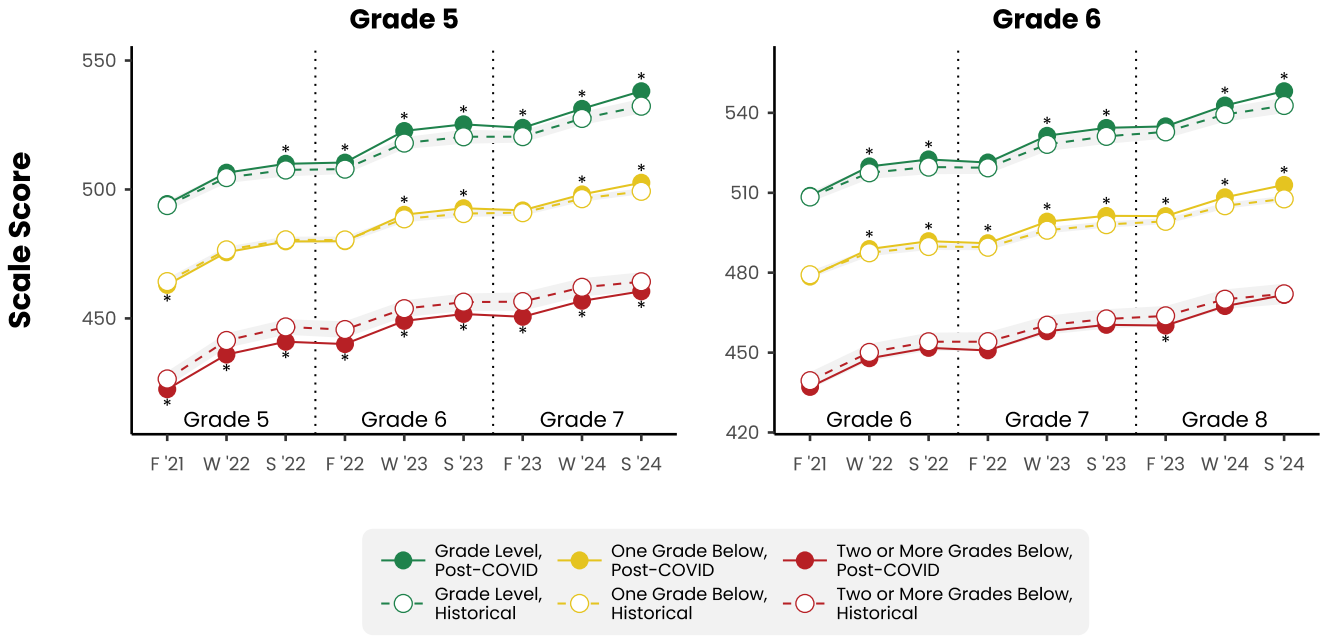


Note: F: Fall; W: Winter; S: Spring. *Significantly different scores from pre-COVID trends. The gray bar represents scale scores that are statistically equivalent to historical trends.

Differences by Student Placement Level

As with reading, placement-level patterns reveal marked differences among students beginning their 2021–2022 school year closer or further from their chronological grade level (Figure 7). Both students one grade level below and early on grade level during the fall began the school year close to historical patterns and have exceeded these patterns in years since. However, students who began two or more grade levels below appeared further from historical growth in fall 2021 with steady growth rates since. While this steady growth rate has kept the Grade 6 cohort largely on pace with historical growth patterns (i.e., nonsignificantly lower scores over time), the Grade 5 cohort has remained below historical patterns, only approaching them this last spring (i.e., spring 2024).

Figure 7. Differences in Historical and Post-COVID Growth in Mathematics by Placement Level



Note: F: Fall; W: Winter; S: Spring. *Significantly different scores from pre-COVID trends. The gray bar represents scale scores that are statistically equivalent to historical trends.

Differences by School and Community Characteristics

As seen with the elementary school cohorts, patterns by school and community characteristics mirror those of the overall sample, with a greater magnitude of differences for historically underserved communities. Examining school demographics, though trends appear quite similar, there is again small but incremental progress in schools serving majority Black students (Figure 8). These trends indicate some recovery, but students in these schools are still far below historical trends and trends for majority White schools, suggesting continued disparities. Community income, on the other hand, shows nearly identical patterns across income levels but much larger differences for schools in lower-income communities (Figure 9). While even high-income communities saw declines immediately post-COVID, these communities have since recovered to historical trends. Lower-income communities demonstrated similar patterns of recovery, but given existing disparities, they are still far below overall historical growth trends. Growth trajectories for schools in different locales show slightly varied patterns (Figure 10). Schools in town/rural or suburban areas saw some initial recovery followed by comparable growth, or even small departures from historical trends. These trends have kept these schools mostly on par with historical growth patterns. In contrast, city schools have seen a little more consistent recovery over time, especially in the Grade 5 cohort. As with other subgroups, however, schools in marginalized settings are the furthest behind overall growth patterns.

Figure 8. Differences in Historical and Post-COVID Growth in Mathematics by School Demographics

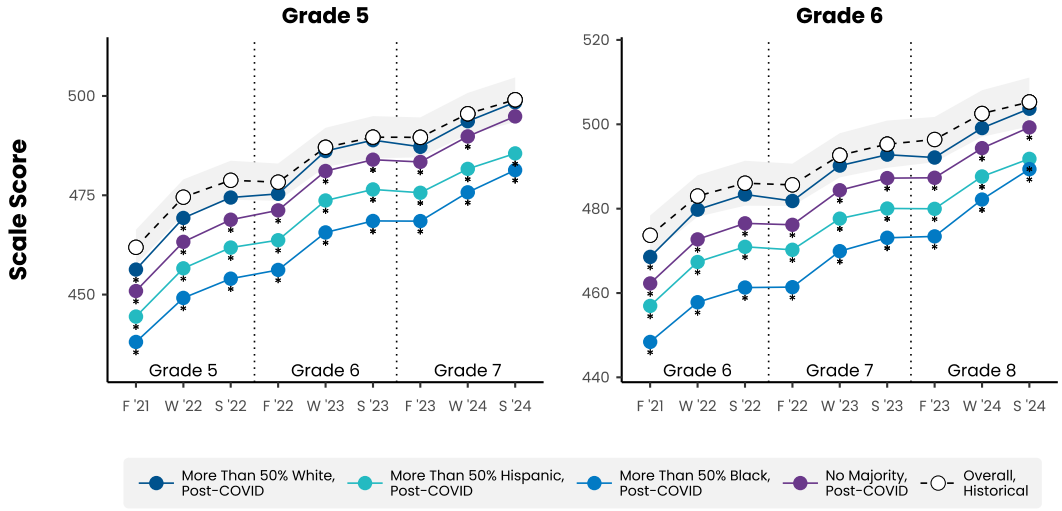


Figure 9. Differences in Historical and Post-COVID Growth in Mathematics by Community Income

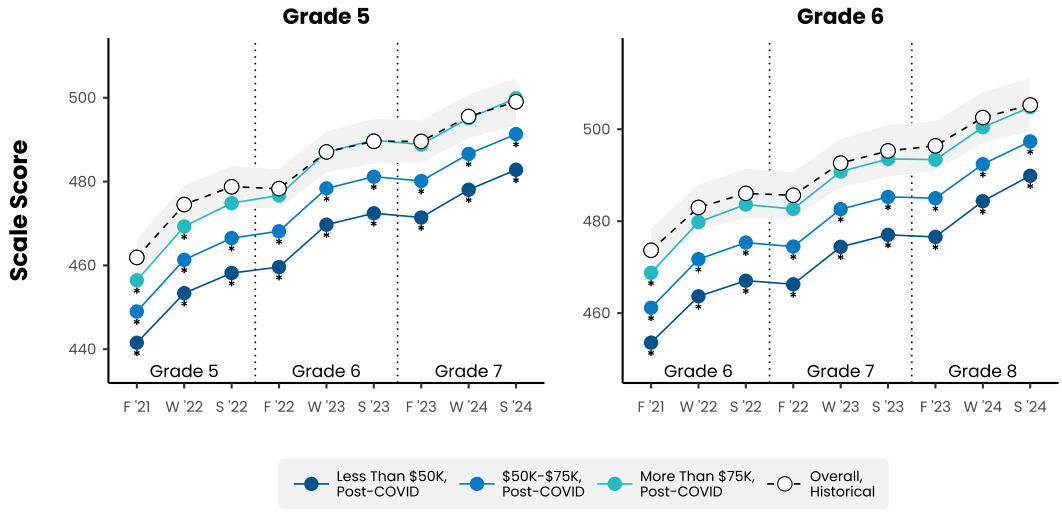
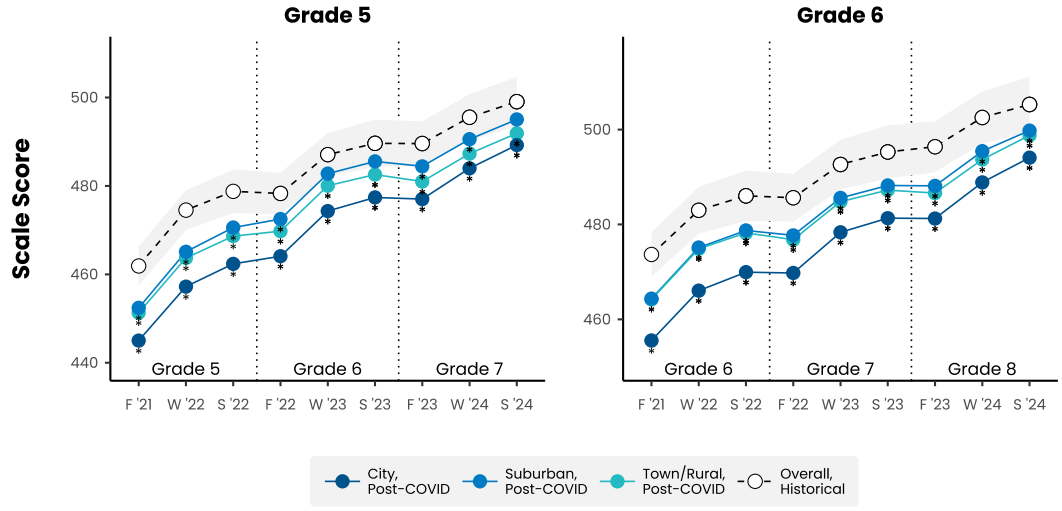


Figure 10. Differences in Historical and Post-COVID Growth in Mathematics by School Locale



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DISCUSSION

As post-pandemic achievement patterns stabilize, it is critical to understand the shape of disrupted learning and where and for whom it manifests. Utilizing longitudinal research methods and careful disaggregation of learning trends offers rich and more specific insights into recovery patterns. For example, they can identify for which students and schools there is recovery, continued or existing discrepancies in achievement, and where these patterns may indicate inequities. Though growth trends in middle school cohorts appear closer to, if not identical to, historical trends, disparities among subgroups remain. Similar to elementary school cohorts, these differences emerged by age of students, placement level, and school/community characteristics.

Though both cohorts were middle school aged, the Grade 6 cohort appeared closer to historical trends than the Grade 5 cohort. This pattern is consistent; across each CA analysis, older cohorts are closer to historical performance than younger cohorts. Despite their consistency, these findings are at odds with other work. Pinning down the exact reasons why is challenging, but one possibility is younger students' learning is more susceptible to disruption. For example, prior work suggests that younger students missed out on foundational literacy and mathematics skills, leaving them less equipped to adjust to a virtual learning environment (Young & Young, 2024). In contrast, older students may be more resilient to disruption because they have already established foundational skills, helping them adapt to changes in instructional format.

Despite interesting contrasts between younger and older students, in every cohort—Grades K–6—students most in need of academic support experienced the largest departures from historical trends. Students who began the year well below grade level were further from historical growth patterns than their grade-level peers. There was also evidence of continued disparities for other populations, with the magnitude of differences much larger in majority Black and Hispanic schools, and low-income schools, despite some small signs of recovery.

In summary, overall trends suggest students in middle school are keeping better pace with historical patterns of growth but were still affected by pandemic closures. These closures, unfortunately, had much greater effects on certain student populations. More work is needed to fully understand what this means for students' academic progression and to help identify pathways for making academic progress, especially in those communities most in need.

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