Work Session
Tuesday, December 7, 2021 7:00 PM

Dr. Matthew Prophet Education Center -
Mazama Conference Room (floor 2)
501 N. Dixon St.
Portland, OR 97227

Agenda

1. 7:00 pm - Fall 2021 Data Dive

Data Dive: Fall 2021

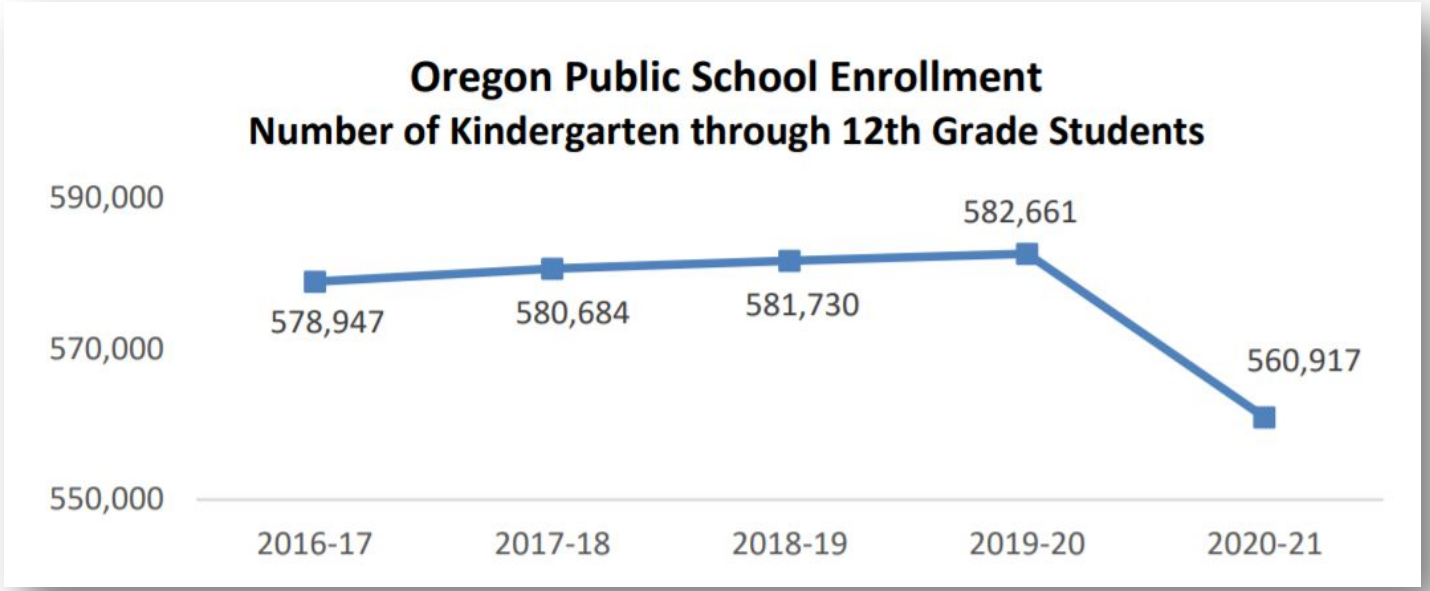
December 2021

Guiding Questions

- What is our current enrollment compared to last year's actual and this year's projected enrollment?
- What is the new baseline of performance for our students?
- How did the Class of 2021 perform on post-secondary indicators of college and career readiness?

Enrollment

Statewide Enrollment



Enrollment Comparisons

Grade Band	2020 Actual	2021 Projected	2021 Actual	Δ 2020 Actual to 2021 Actual	Δ 2020 Actual to 2021 Projected
K-5	21,836	22,944	20,324	-1512 (6.9%)	-2,620 (11.4%)
6-8	11,017	11,118	10,345	-672 (6.1%)	-773 (6.9%)
9-12	14,084	14,587	14,336	252	-251 (1.7%)
K-12 Total	46,937	48,649	45,005	-1,932 (4.1%)	-3,644 (7.5%)

Conclusions/Take-aways

PPS student enrollment is down compared to last year's actual enrollment and this year's projected enrollment.

PPS is in discussion with the Population Research Center to further understand and refine our enrollment projections methodology in order to increase the accuracy of the projections since the beginning of the COVID-19 pandemic.

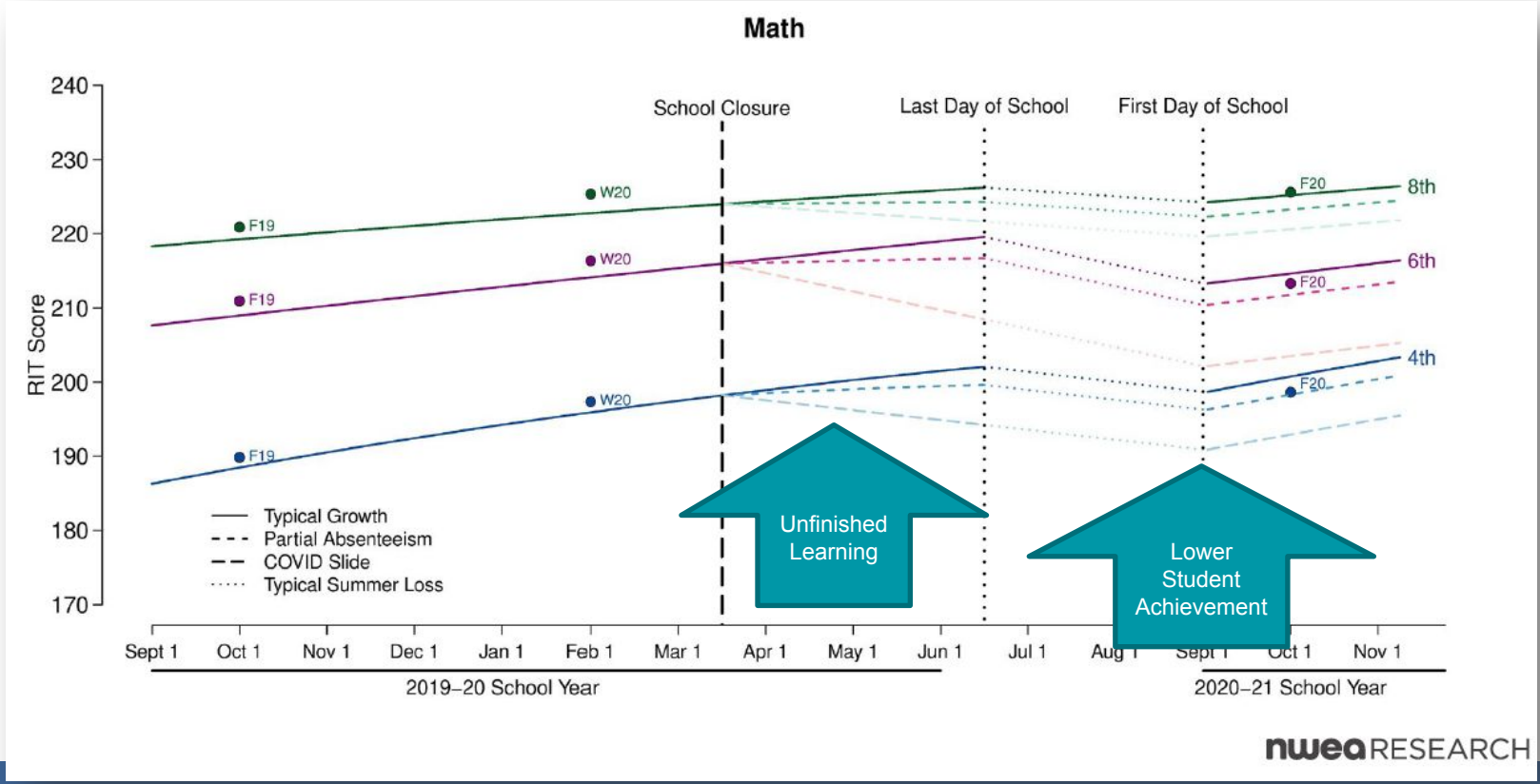
Revenue and resource adjustments may be required for the 2022-2023 school year.

The Pandemic and Data Availability

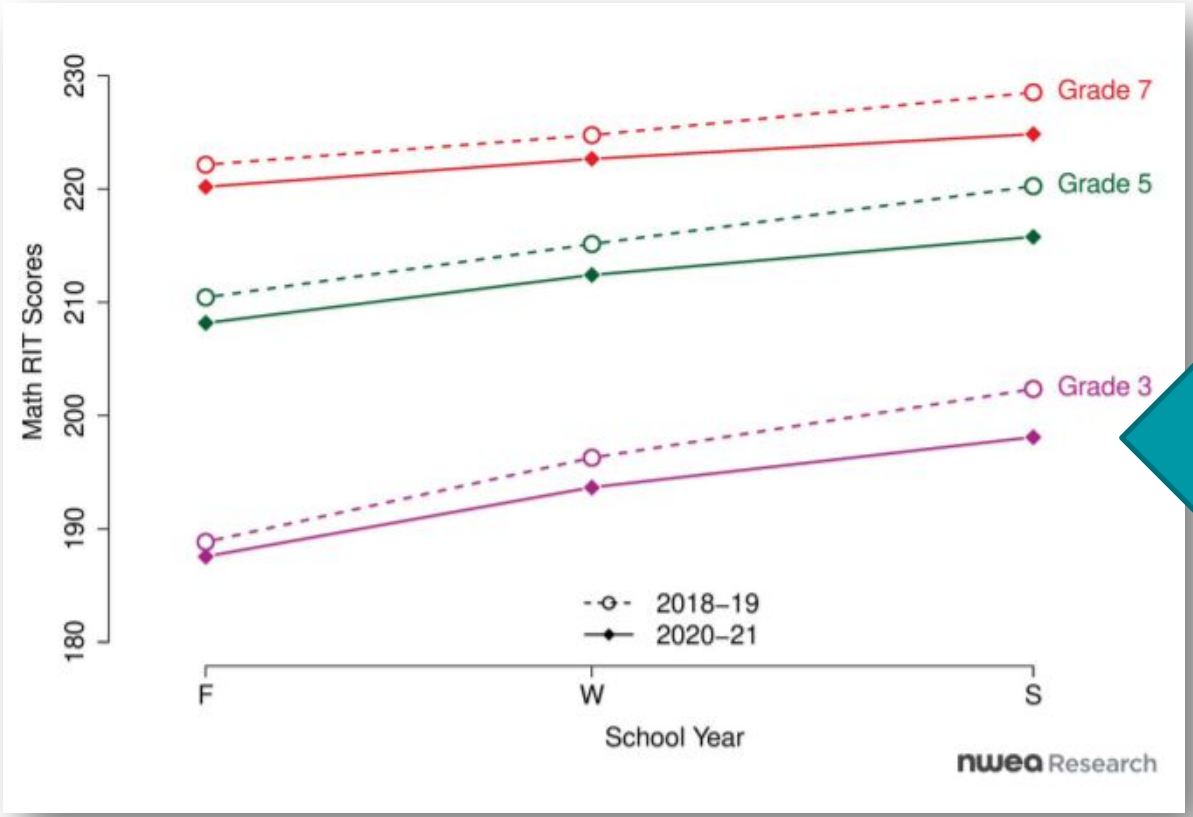
MAP Assessment Window	2018-2019	2019-2020	2020-2021	2021-2022
Fall	✓	✓	✗	✓
Winter	✓	✓	✓	
Spring	✓	✗	✗	

Establishing a New Baseline

What Might We Expect?



What Might We Expect?



Lower student achievement and growth

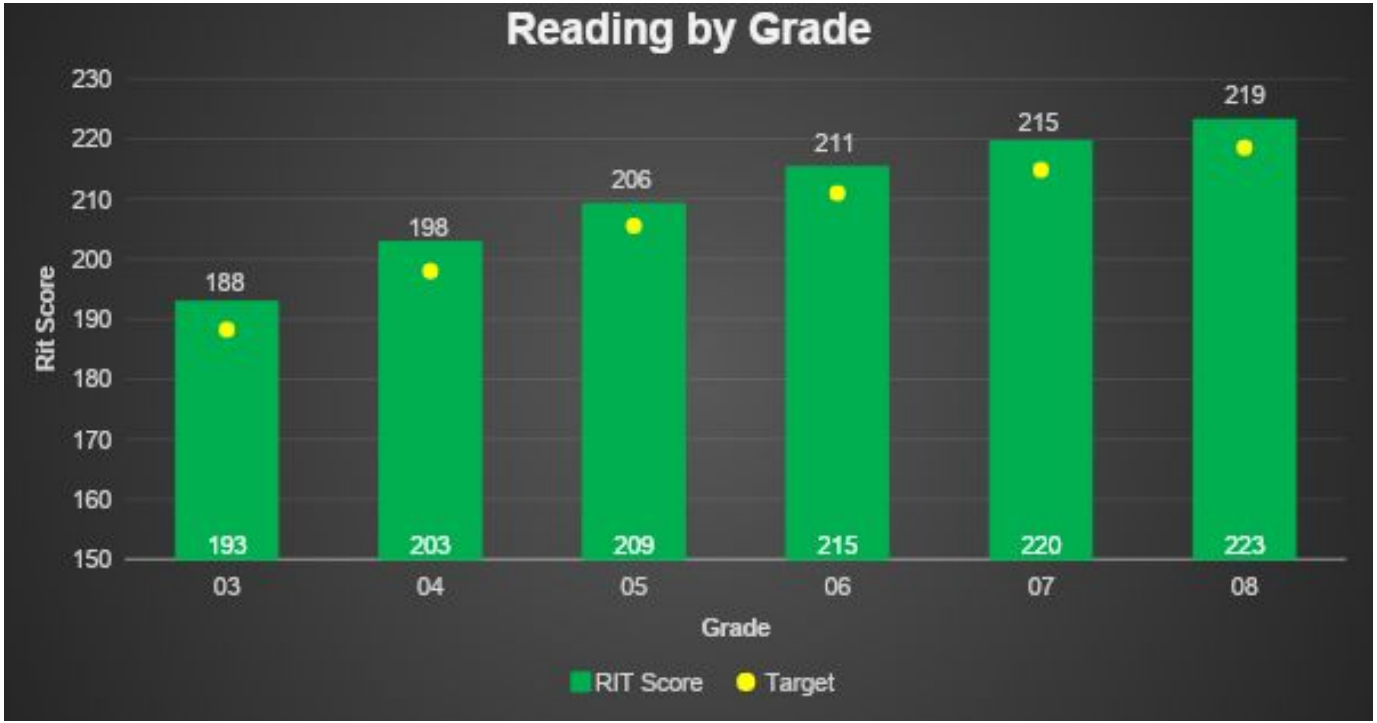
Fall MAP Results

MAP Reading

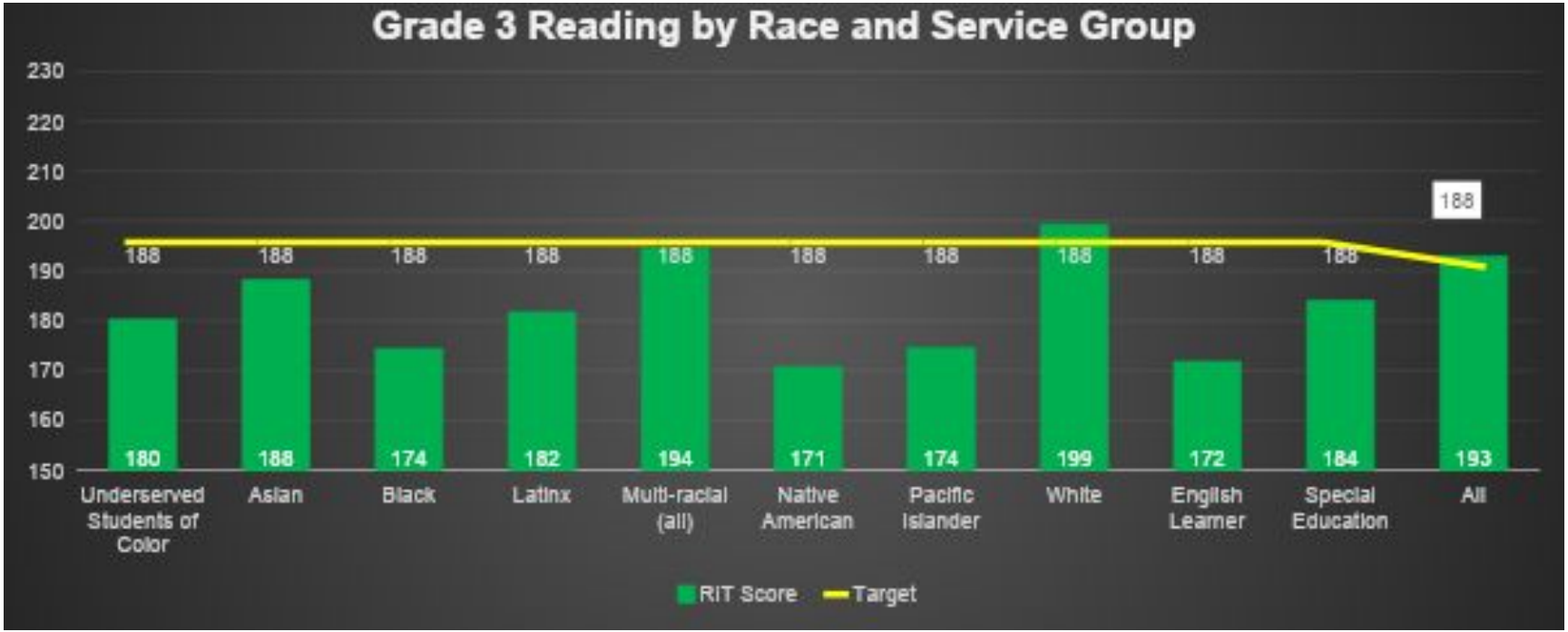
Grades 3-8

TOGETHER WE WILL

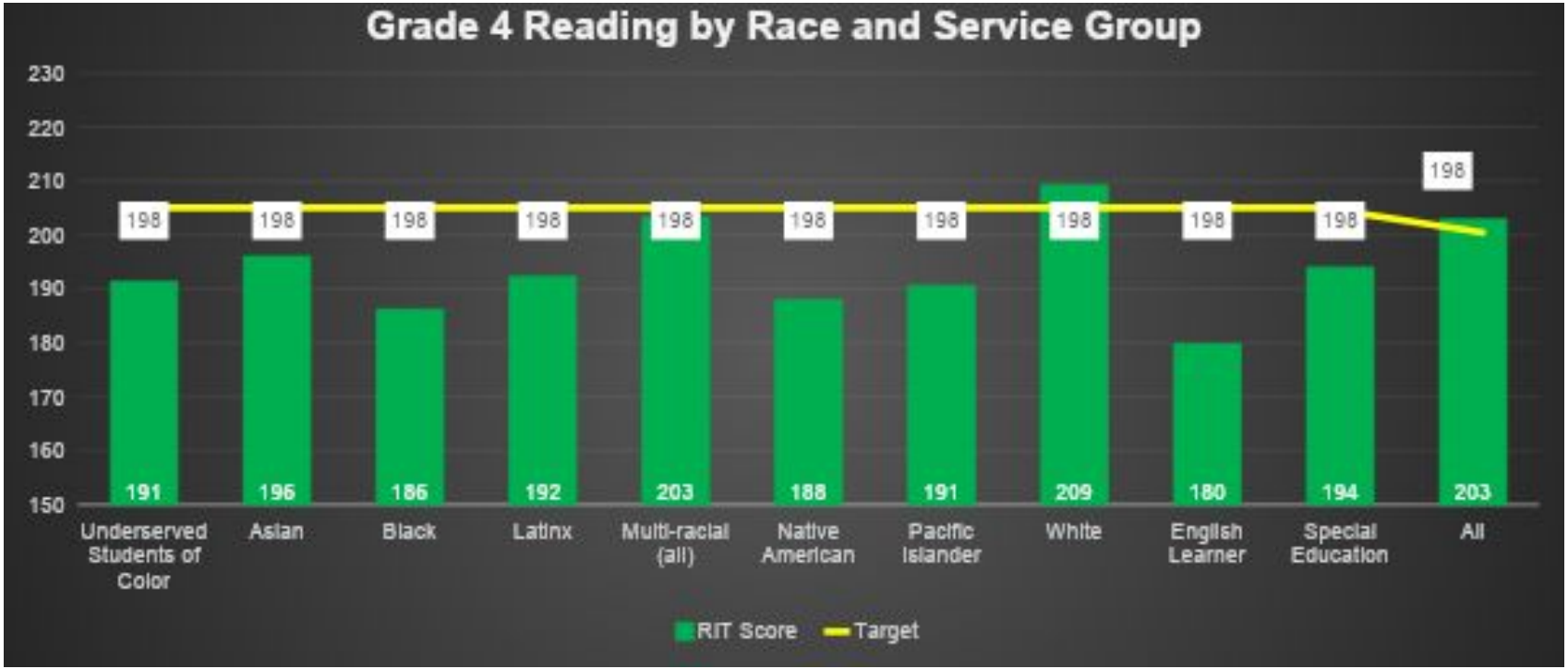
Reading Grades 3-8



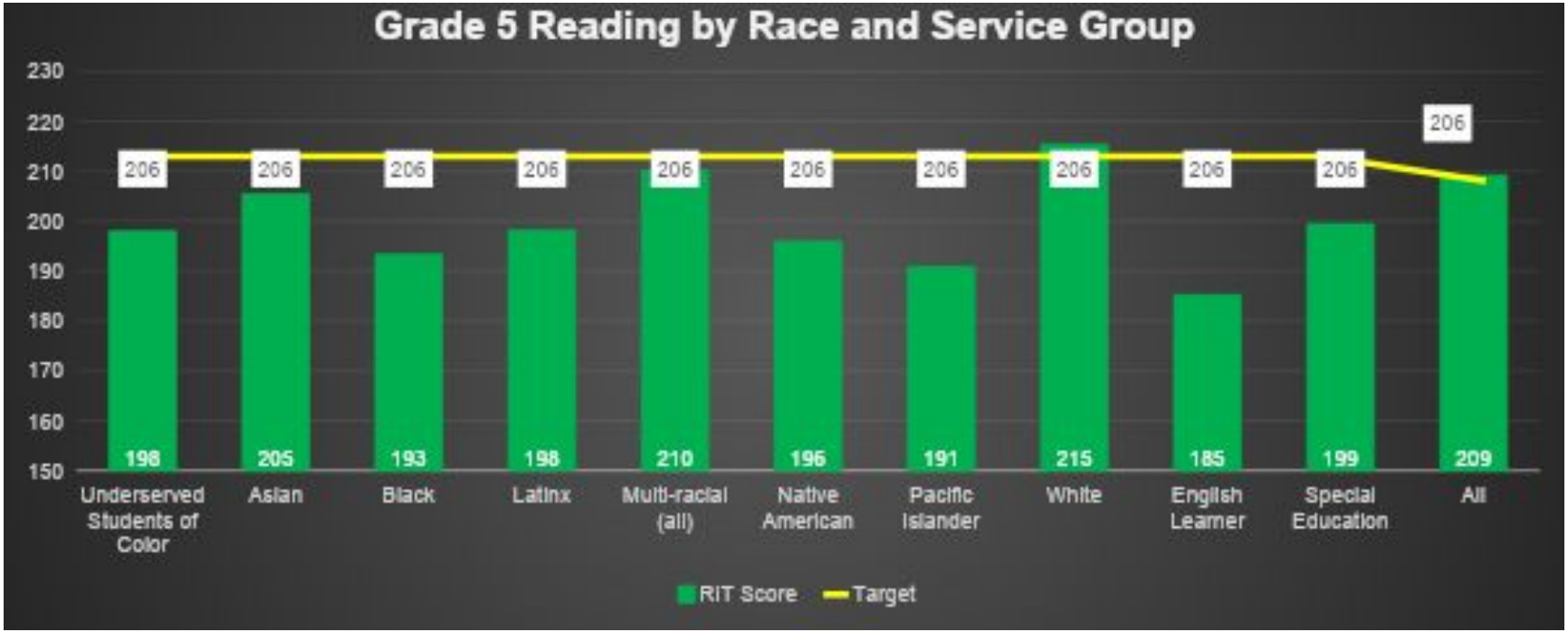
Reading Grade 3 by Student Group



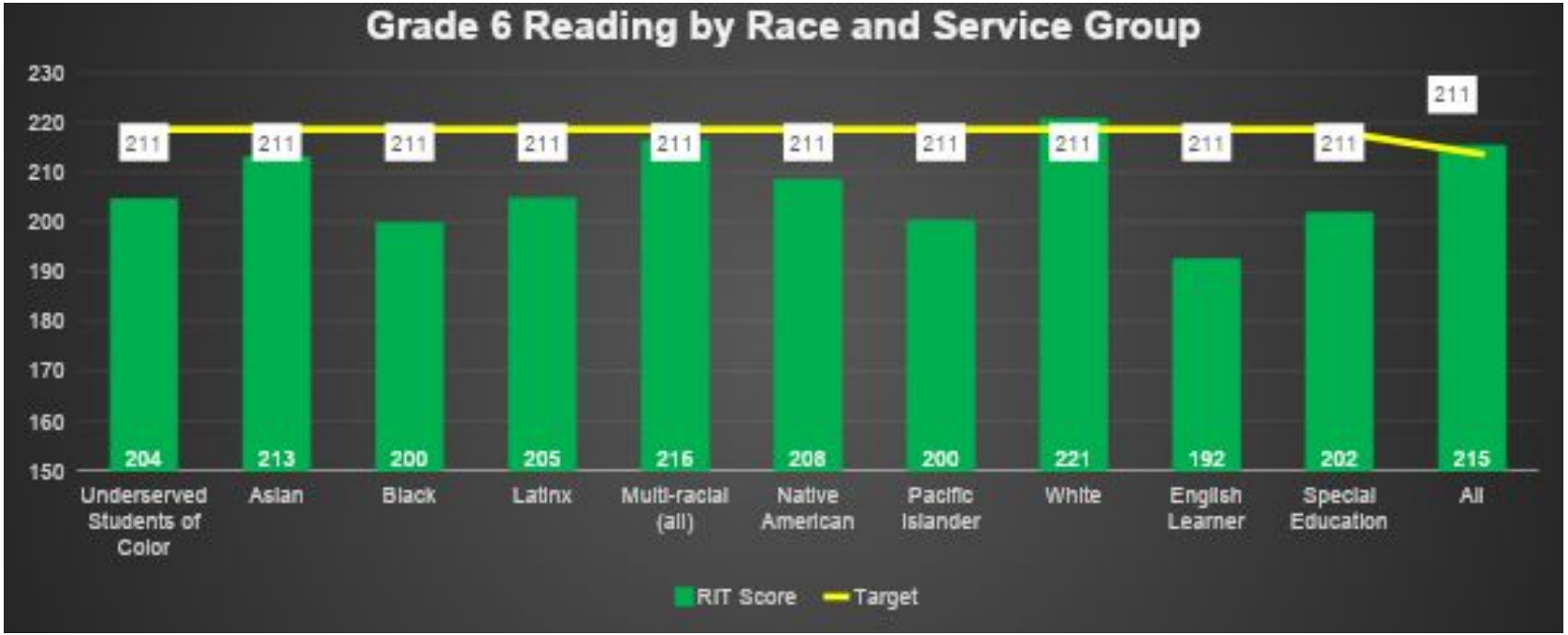
Reading Grade 4 by Student Group



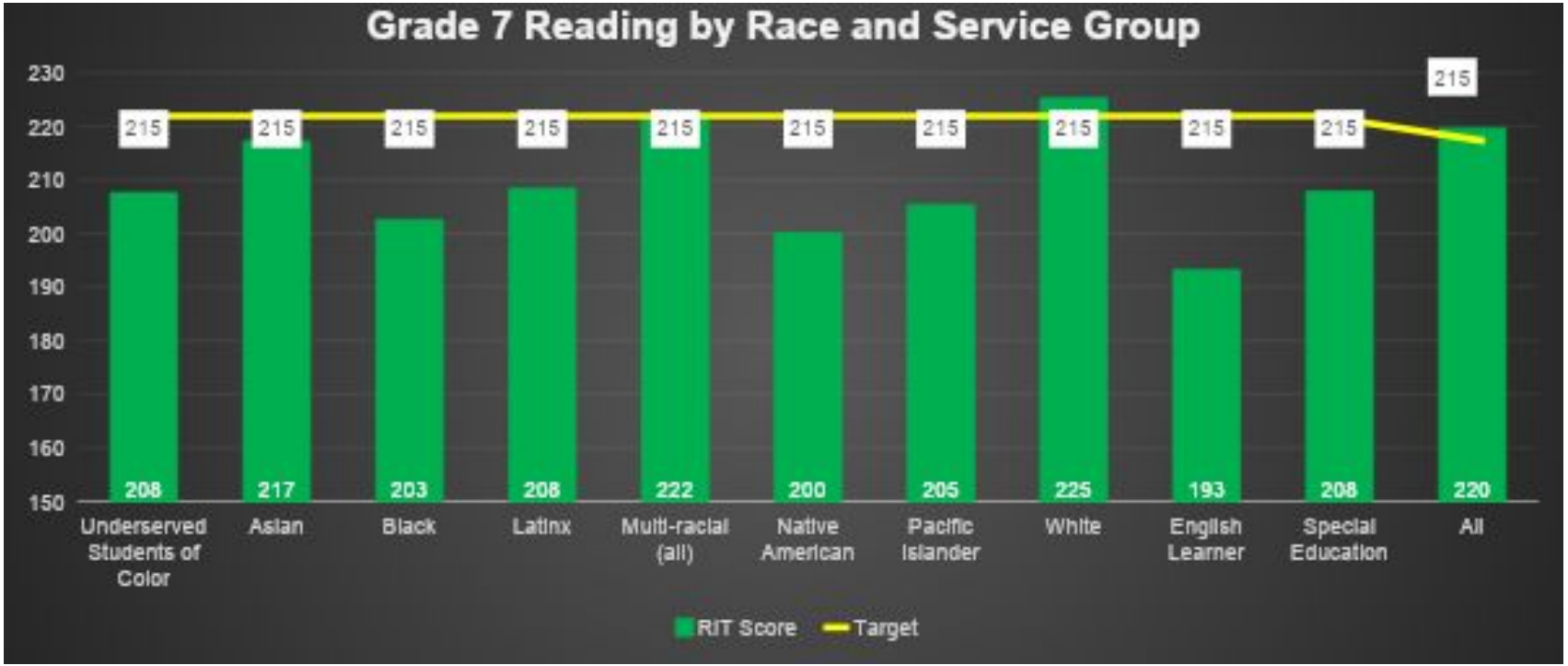
Reading Grade 5 by Student Group



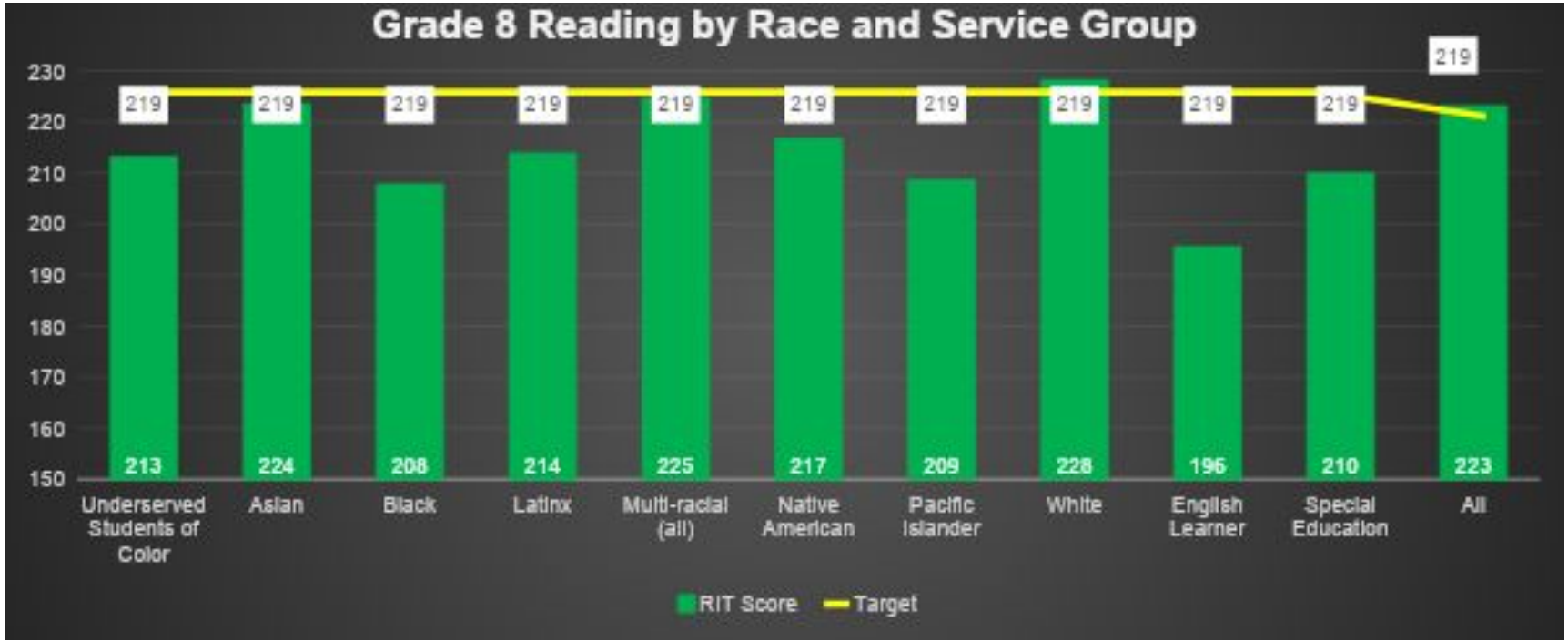
Reading Grade 6 by Student Group



Reading Grade 7 by Student Group



Reading Grade 8 by Student Group

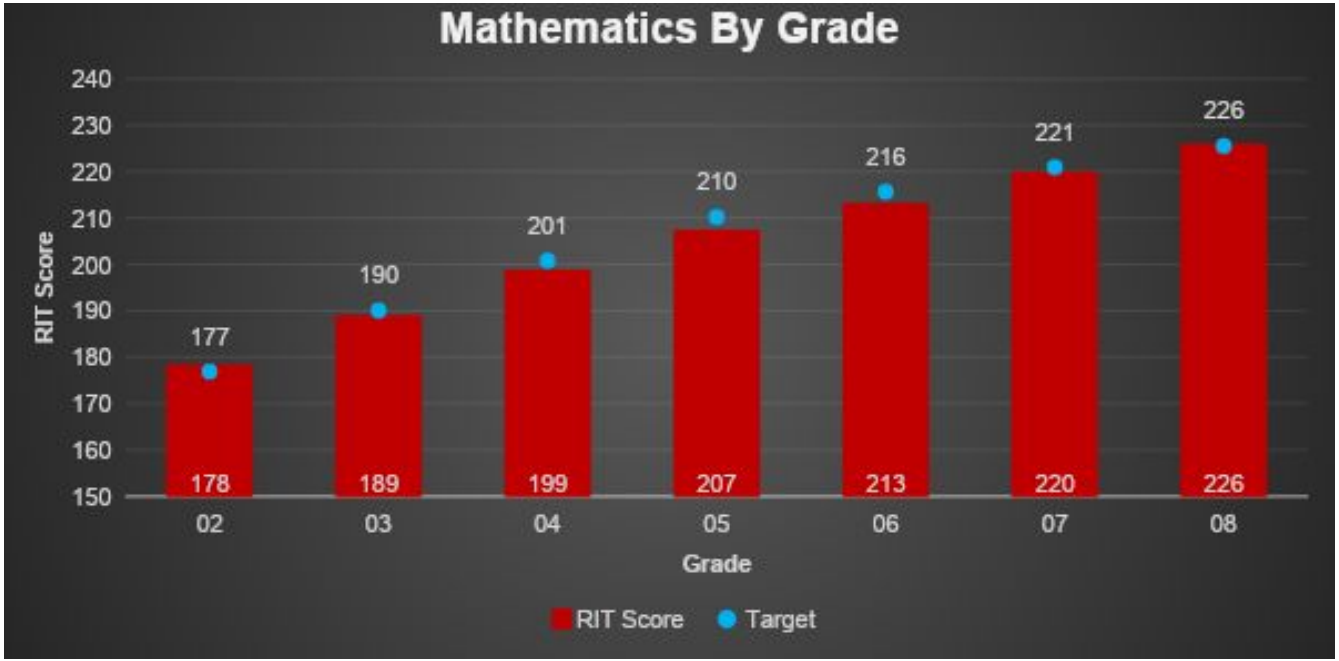


MAP Mathematics

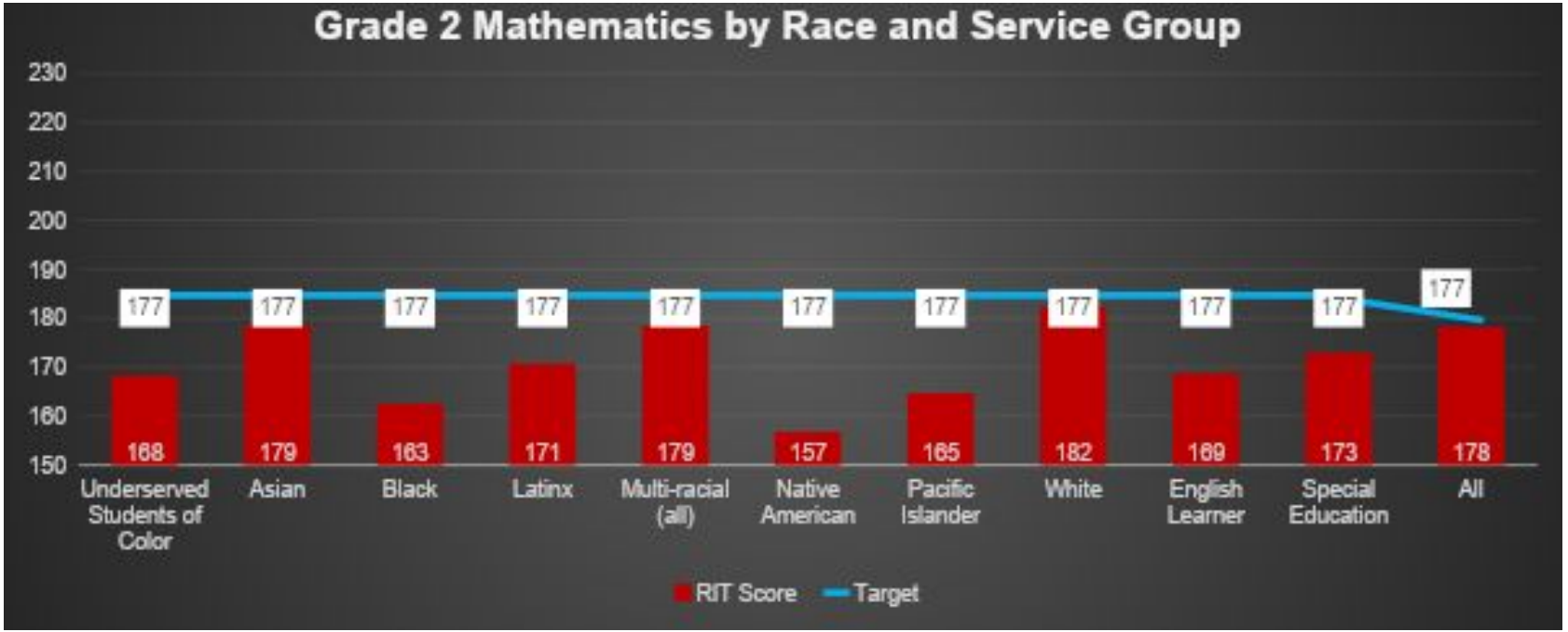
Grades 2-8

TOGETHER WE WILL

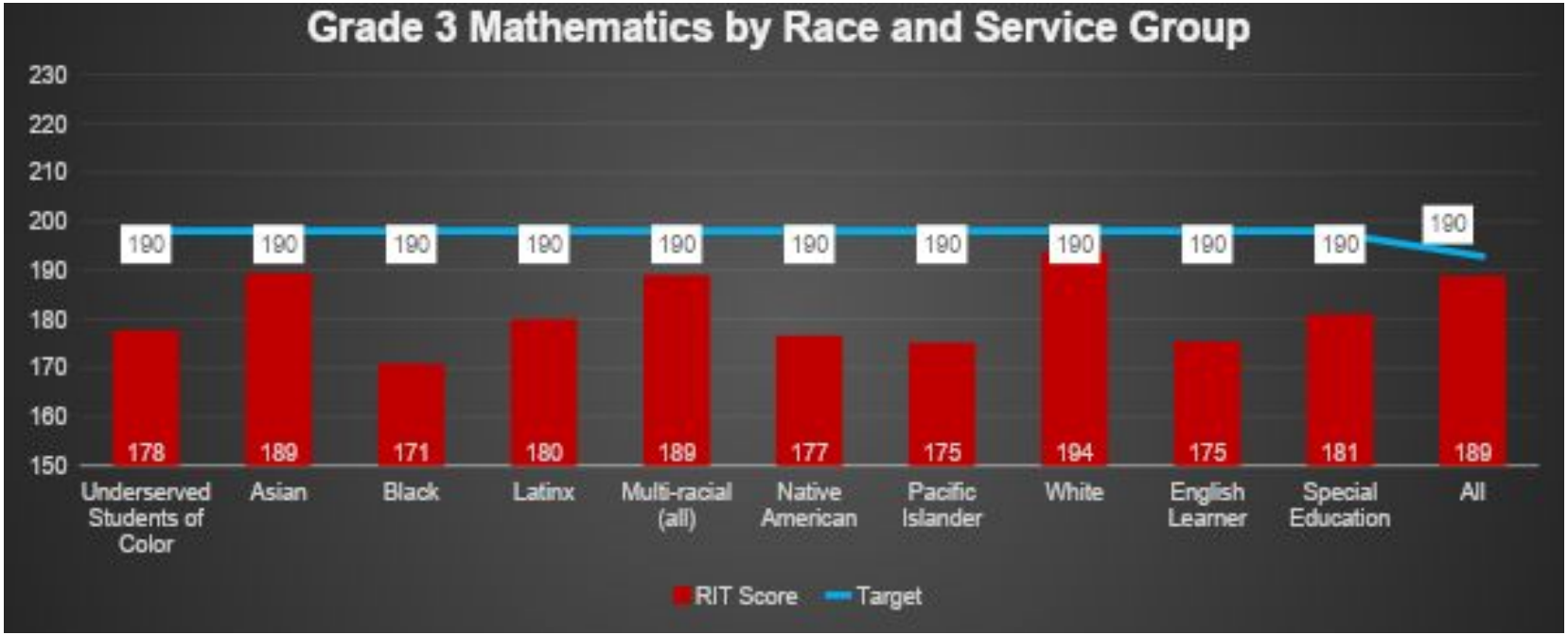
Math Grades 2-8



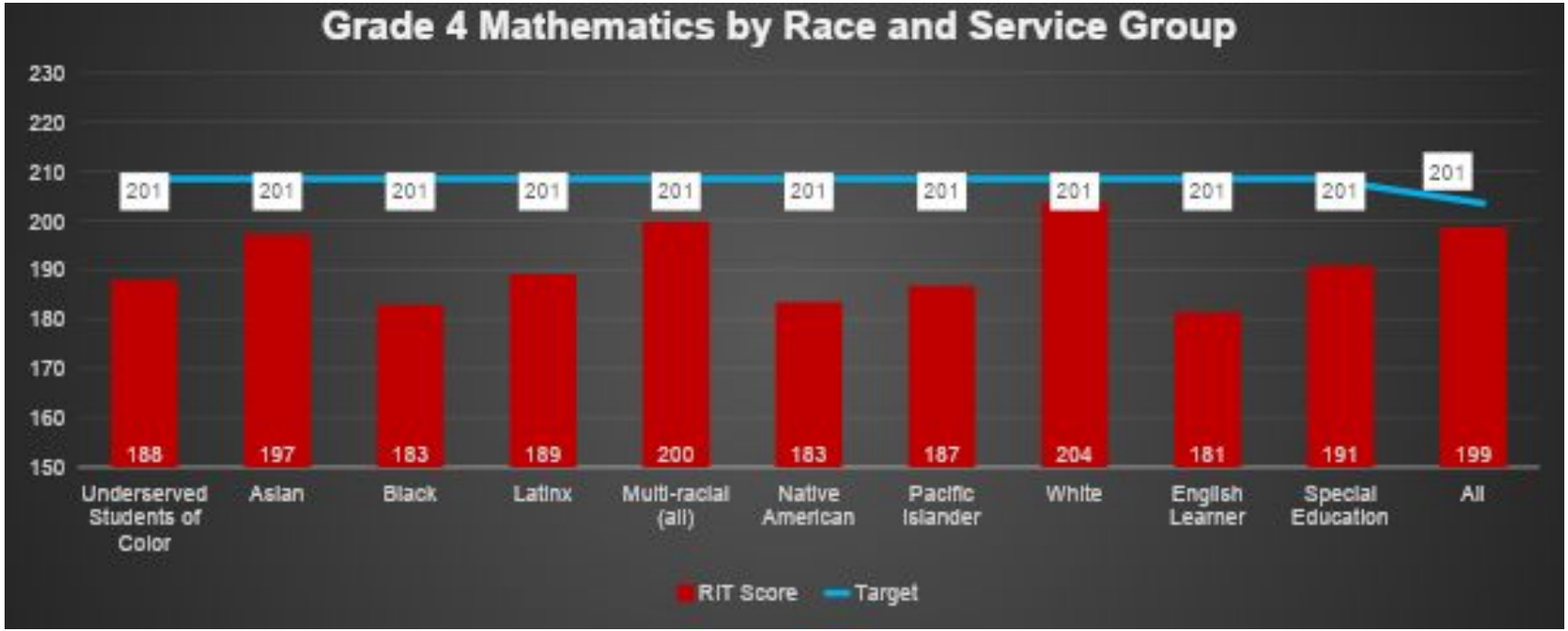
Math Grade 2 by Student Group



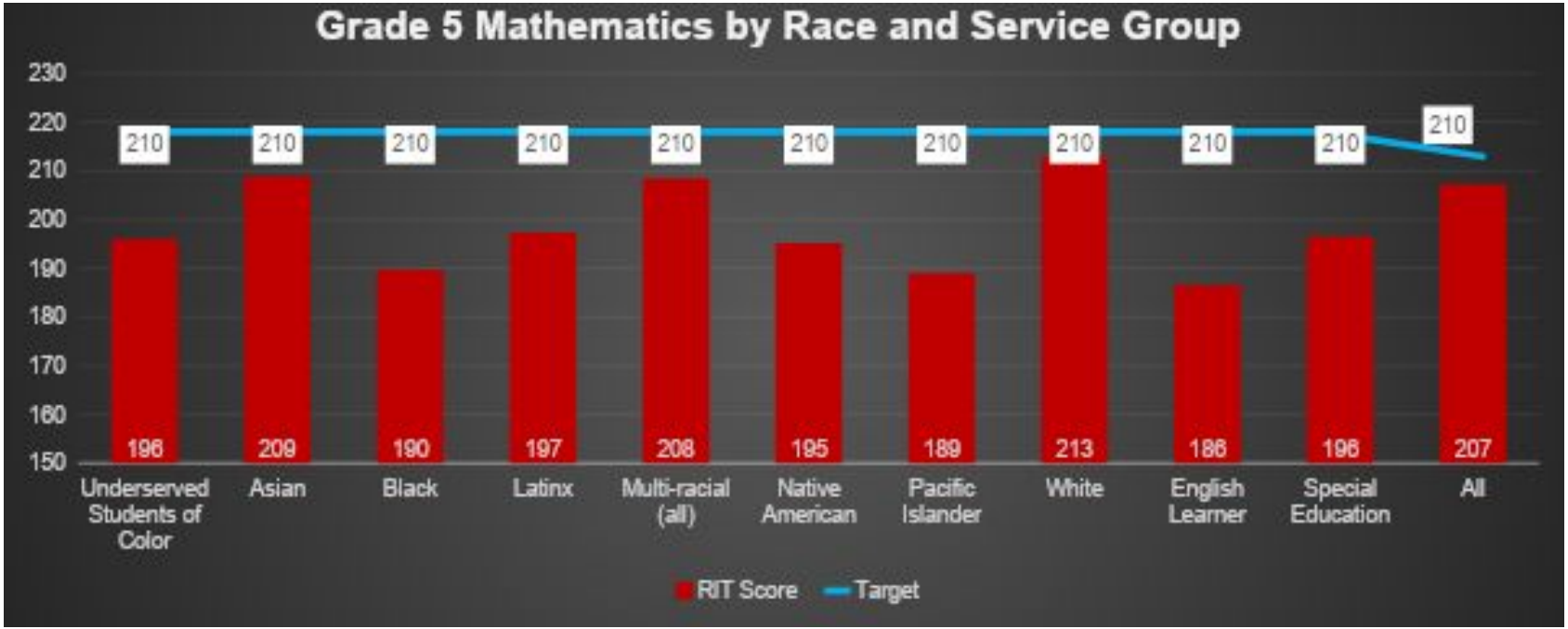
Math Grade 3 by Student Group



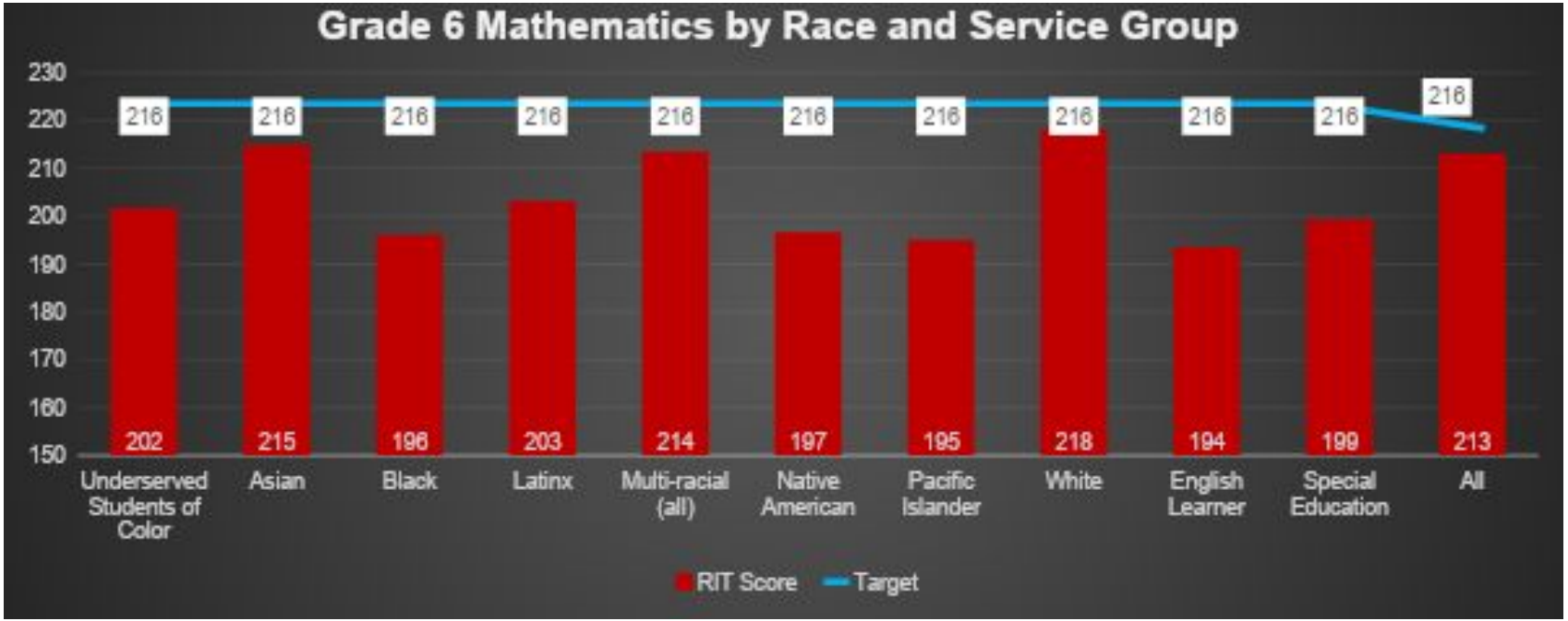
Math Grade 4 by Student Group



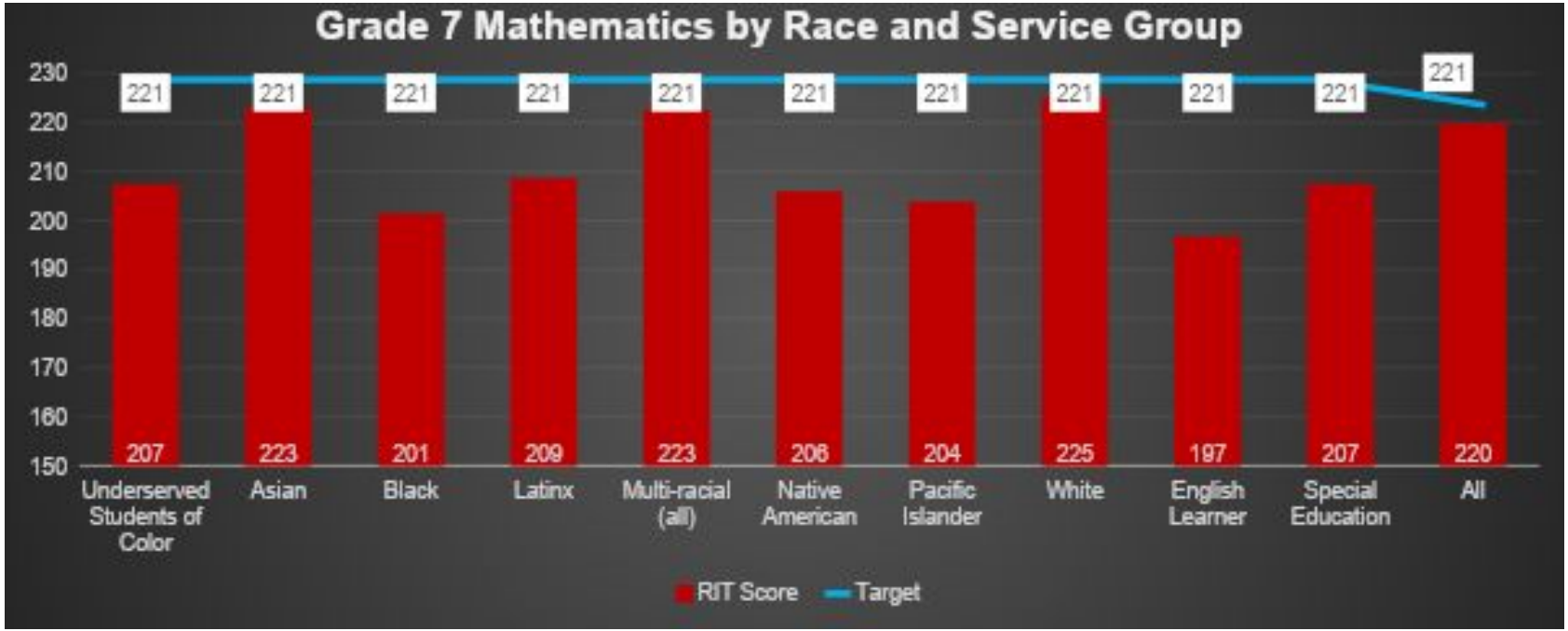
Math Grade 5 by Student Group



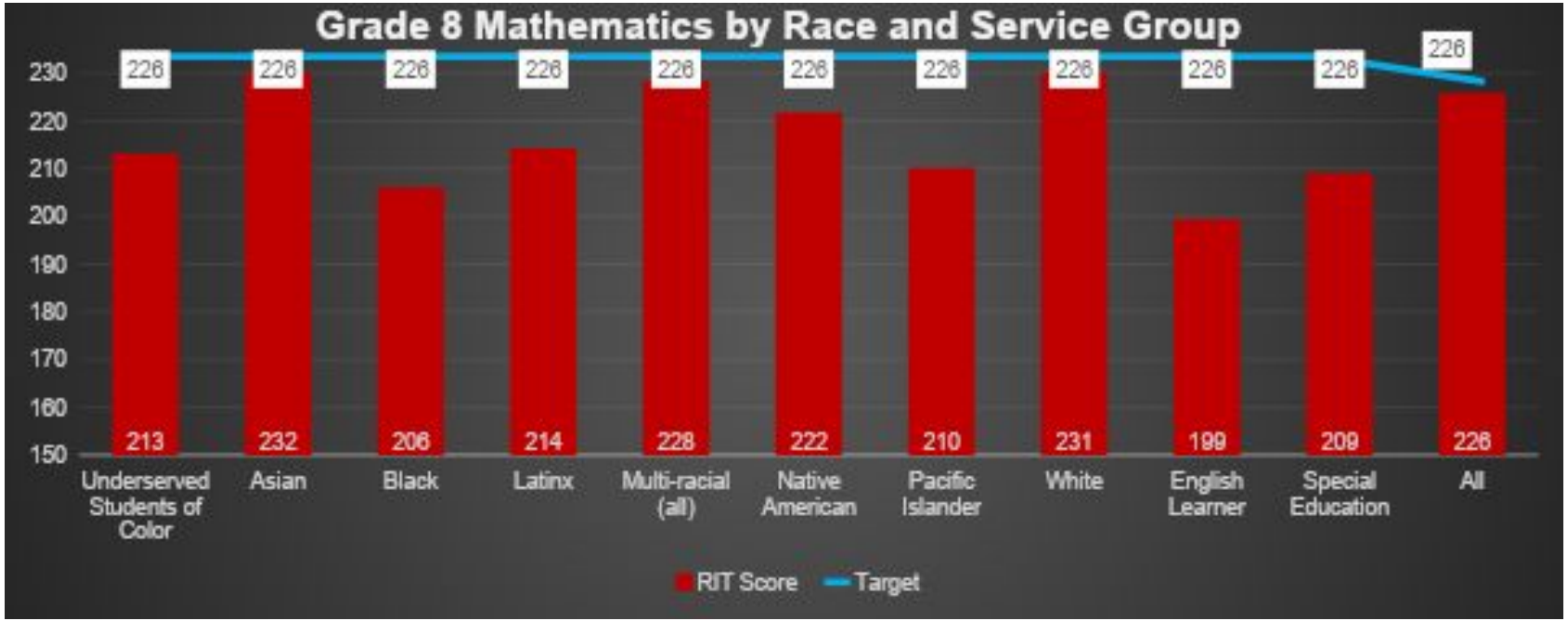
Math Grade 6 by Student Group



Math Grade 7 by Student Group



Math Grade 8 by Student Group



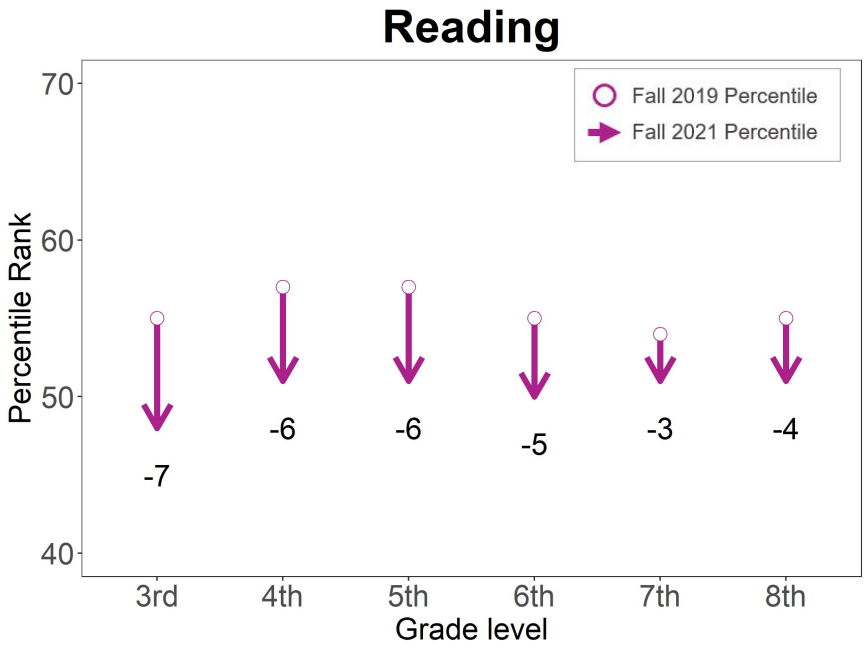
Conclusions/Take-aways

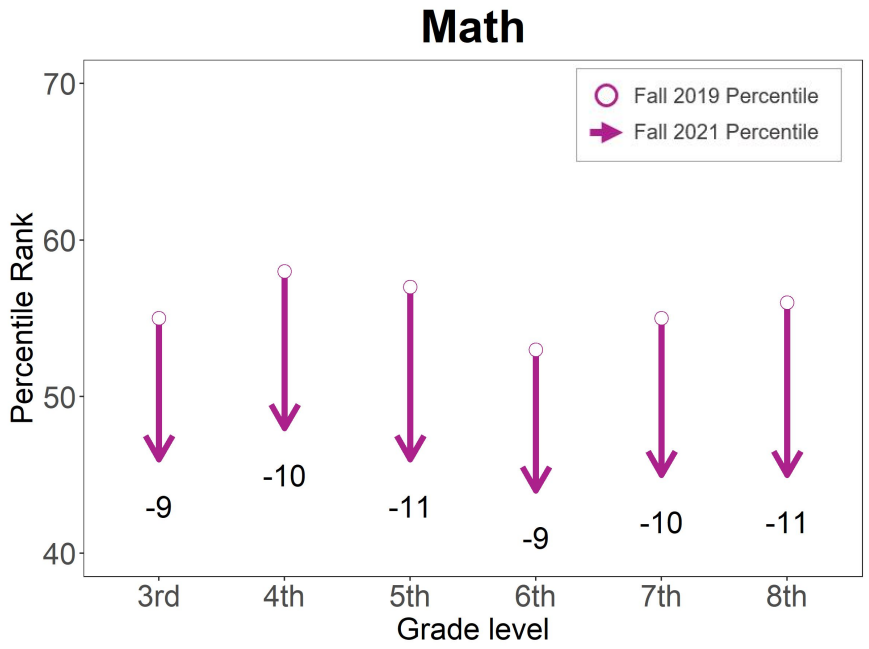
In the aggregate, Reading achievement exceeds grade level expectations, although persistent gaps exist among student groups.

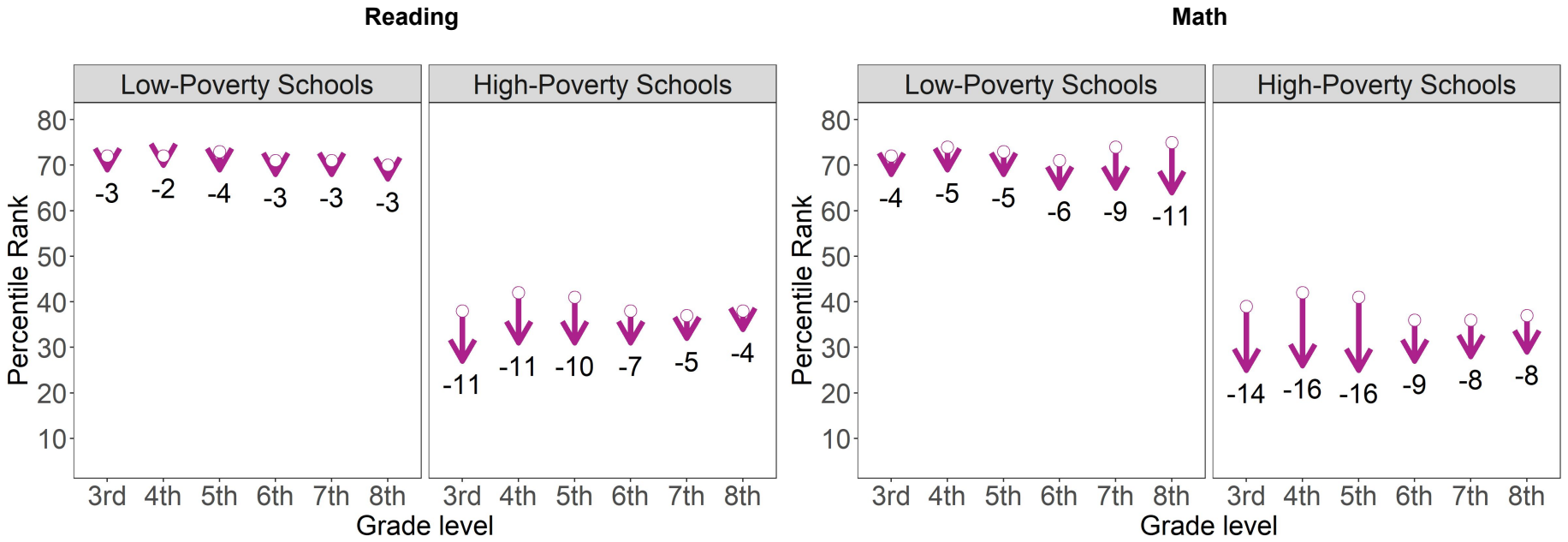
In the aggregate, Math achievement was lower than grade level expectations in all grades save Grades 2 and 8.

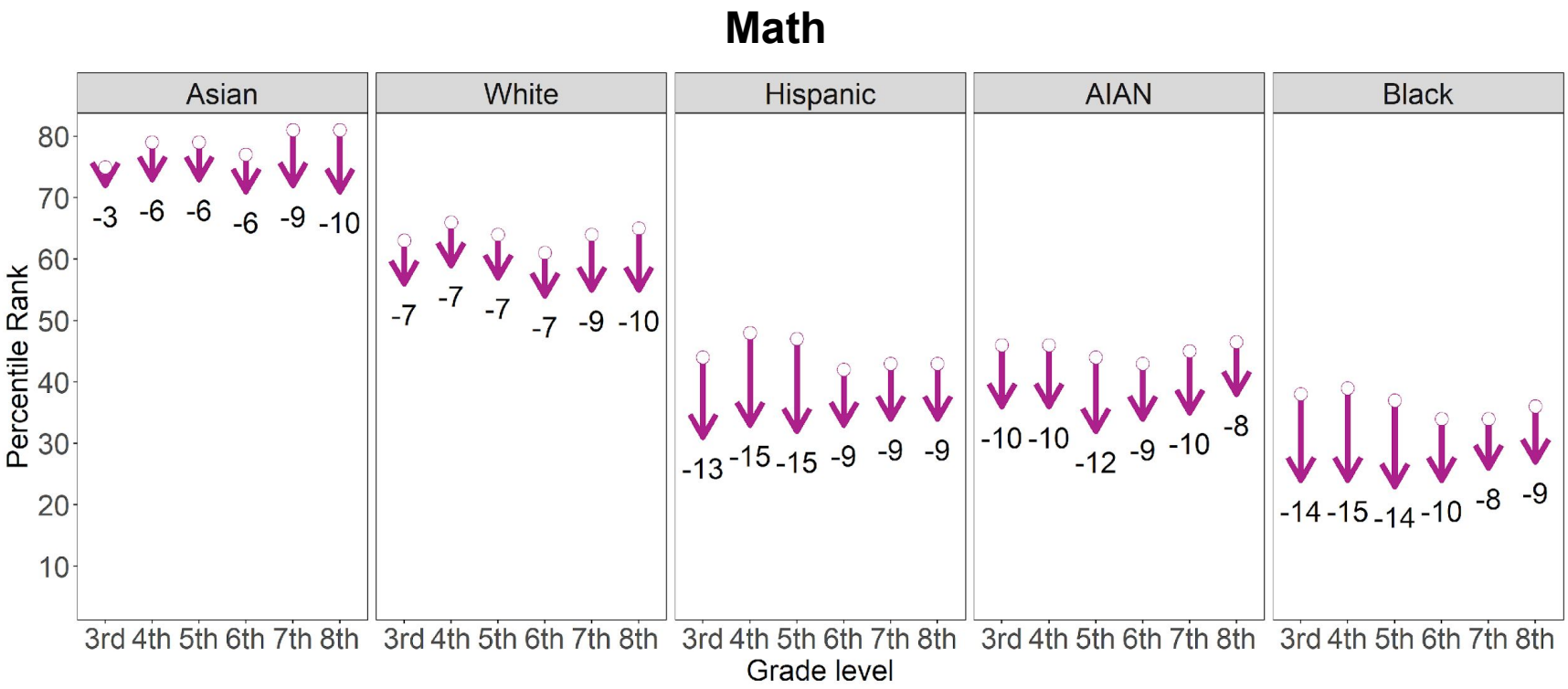
Students of color show greater levels of unfinished and interrupted learning in reading and mathematics, often demonstrating achievement levels far below grade level expectations.

National Context


Reading
Fall 2019 Percentile
Fall 2021 Percentile
Percentile Rank
70
60
50
40
-7
-6
-6
-5
-3
-4
3rd
4th
5th
6th
7th
8th
Grade level


Math
Fall 2019 Percentile
Fall 2021 Percentile
Percentile Rank
70
60
50
40
-9
-10
-11
-9
-10
-11
3rd
4th
5th
6th
7th
8th
Grade level


Reading
Low-Poverty Schools
High-Poverty Schools
Percentile Rank
80
70
60
50
40
30
20
10
-3
-2
-4
-3
-3
-3
-11
-11
-10
-7
-5
-4
3rd
4th
5th
6th
7th
8th
Grade level
Math
Low-Poverty Schools
High-Poverty Schools
-4
-5
-5
-6
-9
-11
-14
-16
-16
-9
-8
-8


Math
Asian
White
Hispanic
AIAN
Black
Percentile Rank
80
70
60
50
40
30
20
10
-3 -6 -6 -6 -9 -10
-7 -7 -7 -7 -9 -10
-13 -15 -15 -9 -9 -9
-10 -10 -12 -9 -10 -8
-14 -15 -14 -10 -8 -9
3rd 4th 5th 6th 7th 8th
Grade level

Postsecondary Readiness

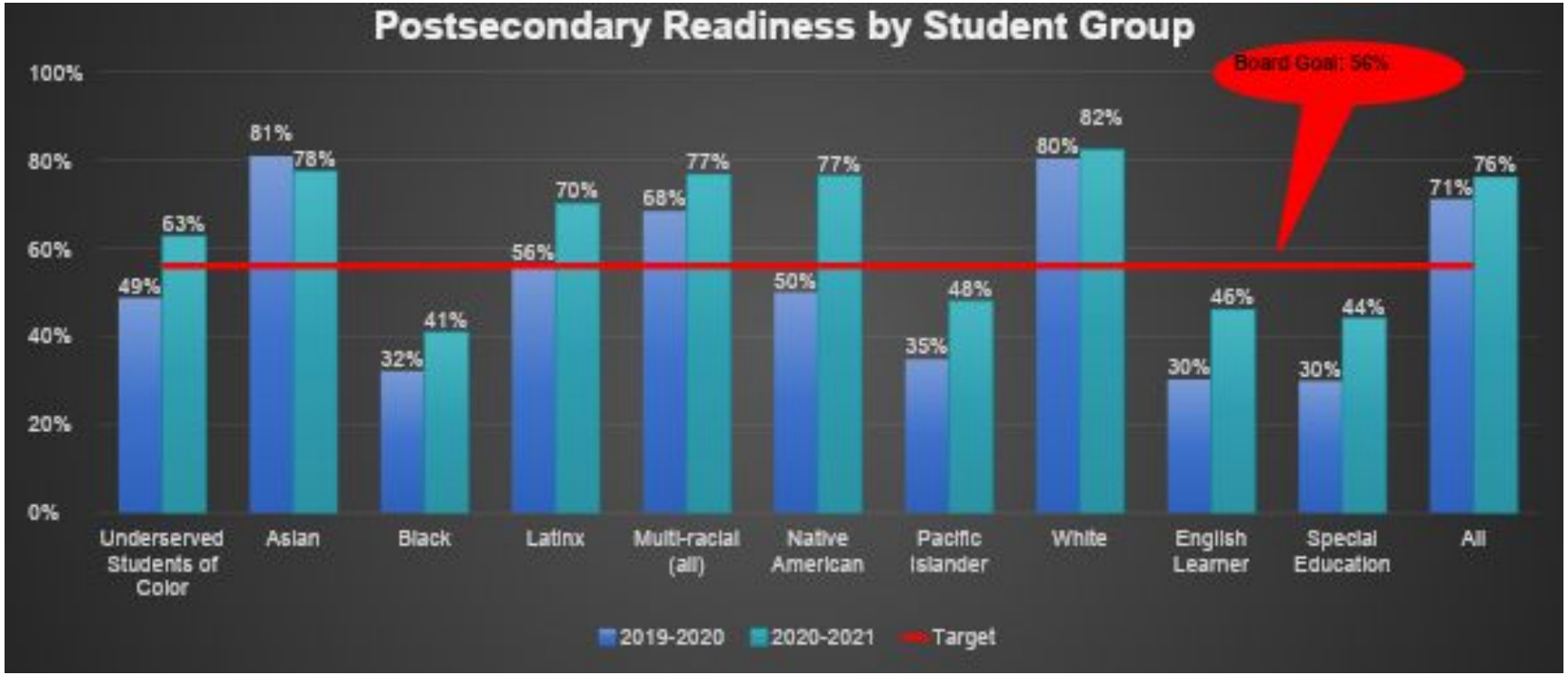
Board Goal

By the spring of 2022, Portland Public Schools graduates, who are underserved students of color, will move from 50.3% (2018-2019 baseline) to 56% successfully completing one or more of the post-secondary indicators.

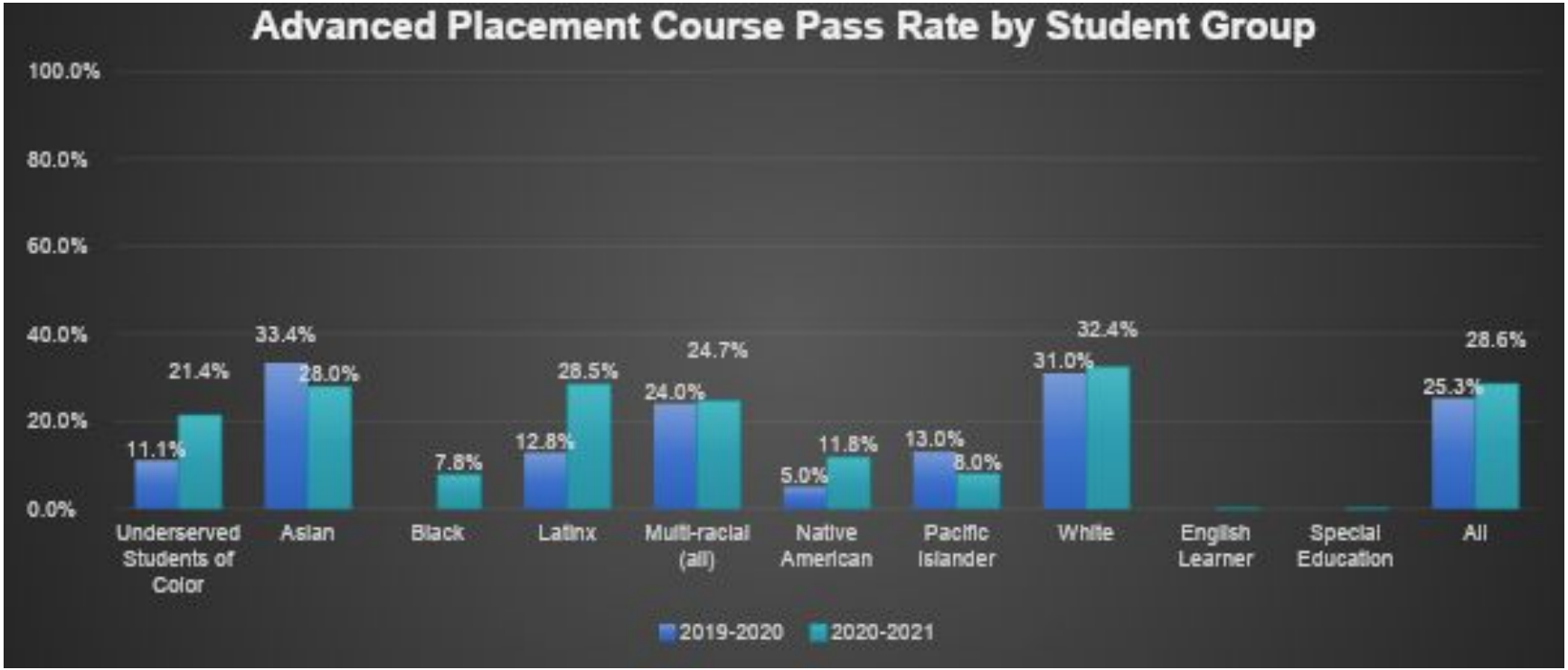
Postsecondary Readiness Indicators

1. Successful completion (C or better) of 3 or more Advanced Placement courses,
2. Successful completion (C or better) of 3 or more International Baccalaureate courses,
3. Successful completion (C or Better) of 3 or more Dual Credit courses,
4. Successful completion of a Career and Technology Pathway (2 or more courses in the same path), or
5. Successful achievement of the Seal of Biliteracy.

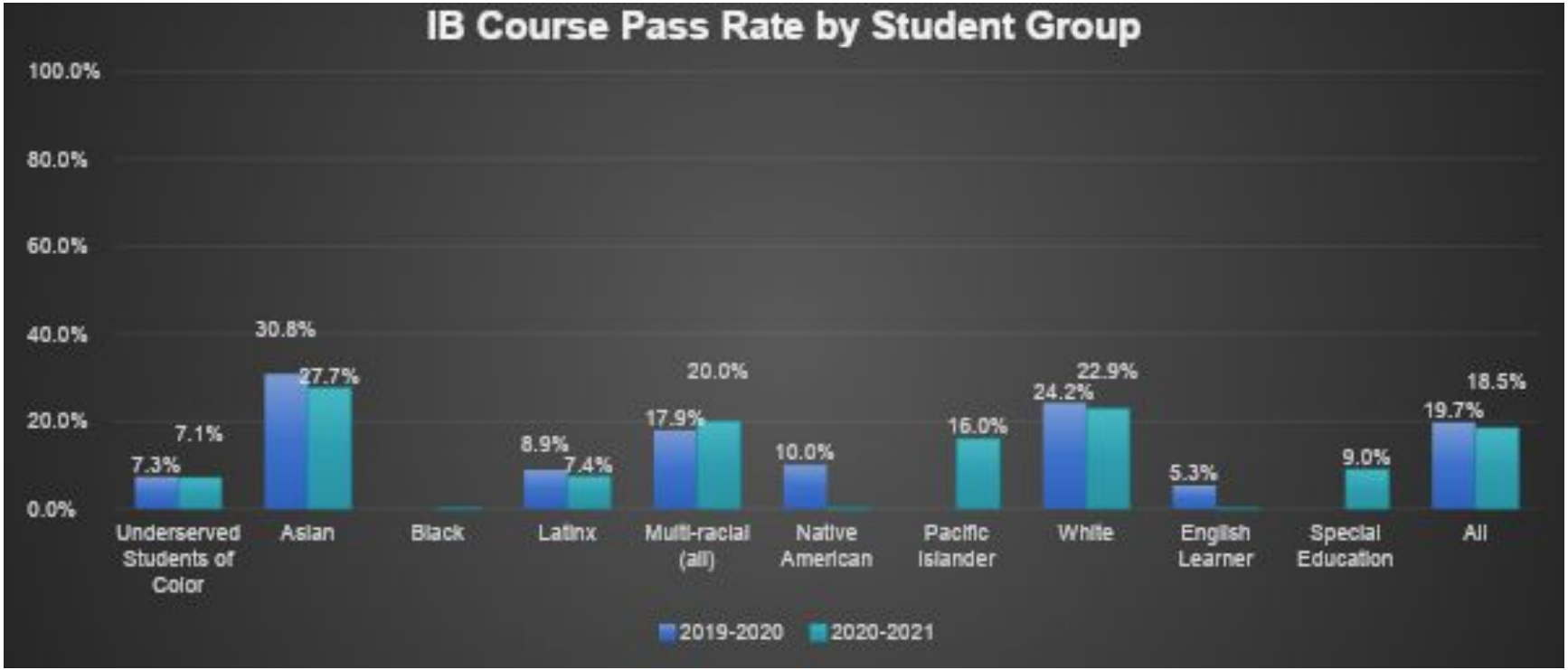
Postsecondary Readiness



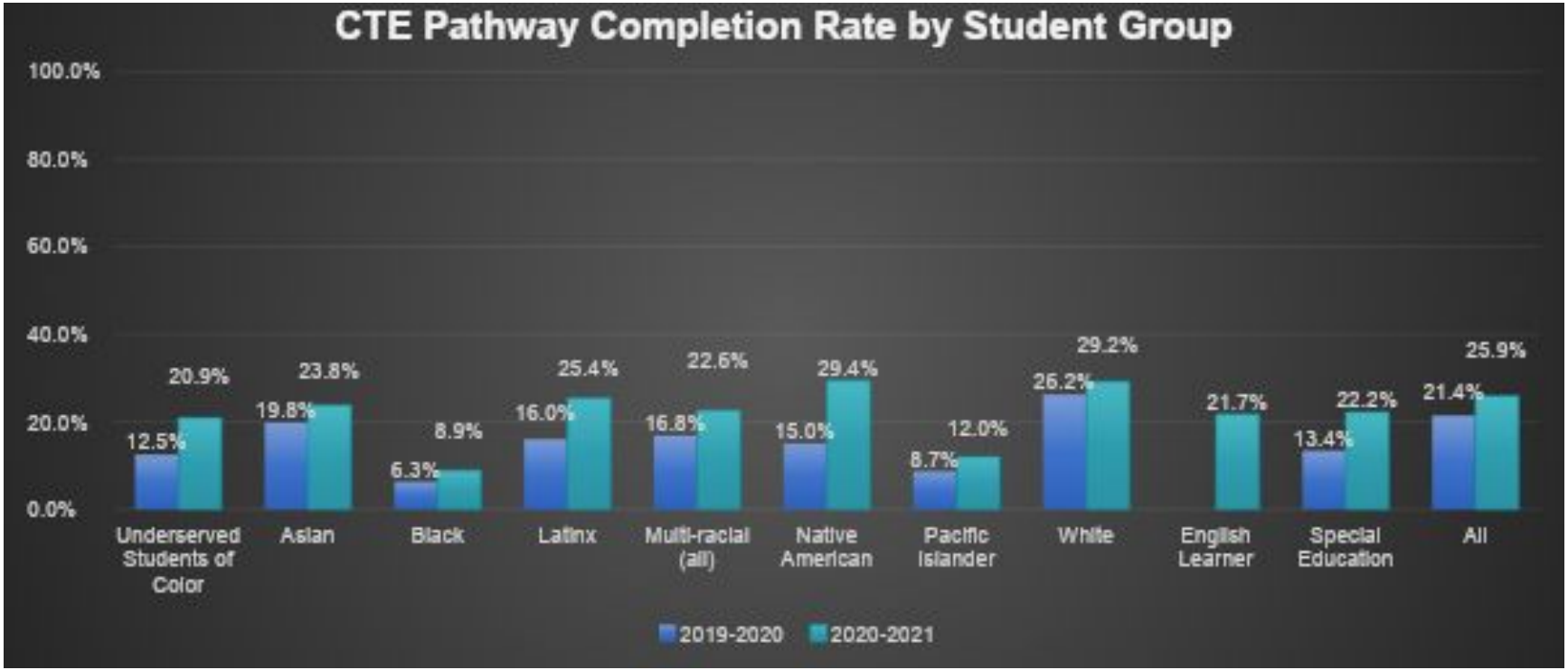
AP Pass Rates



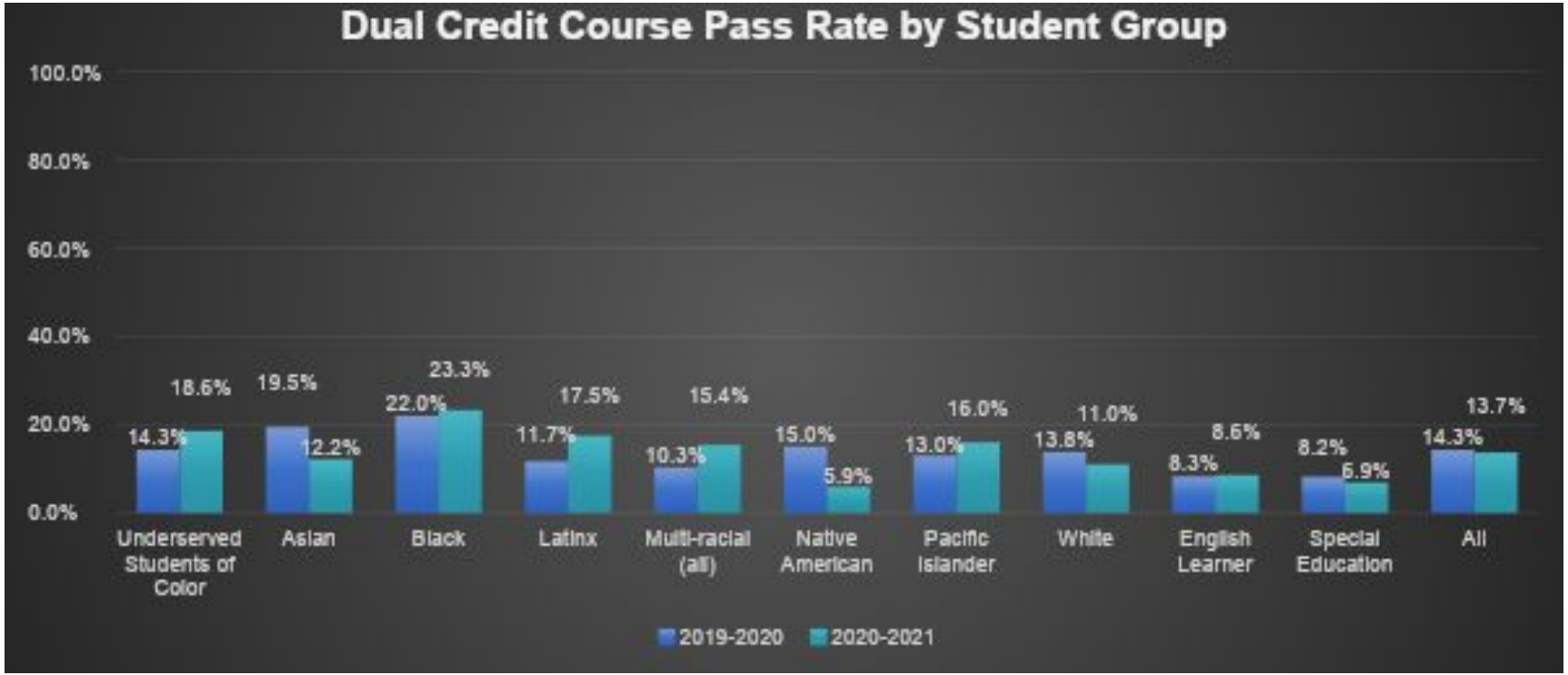
IB Pass Rates



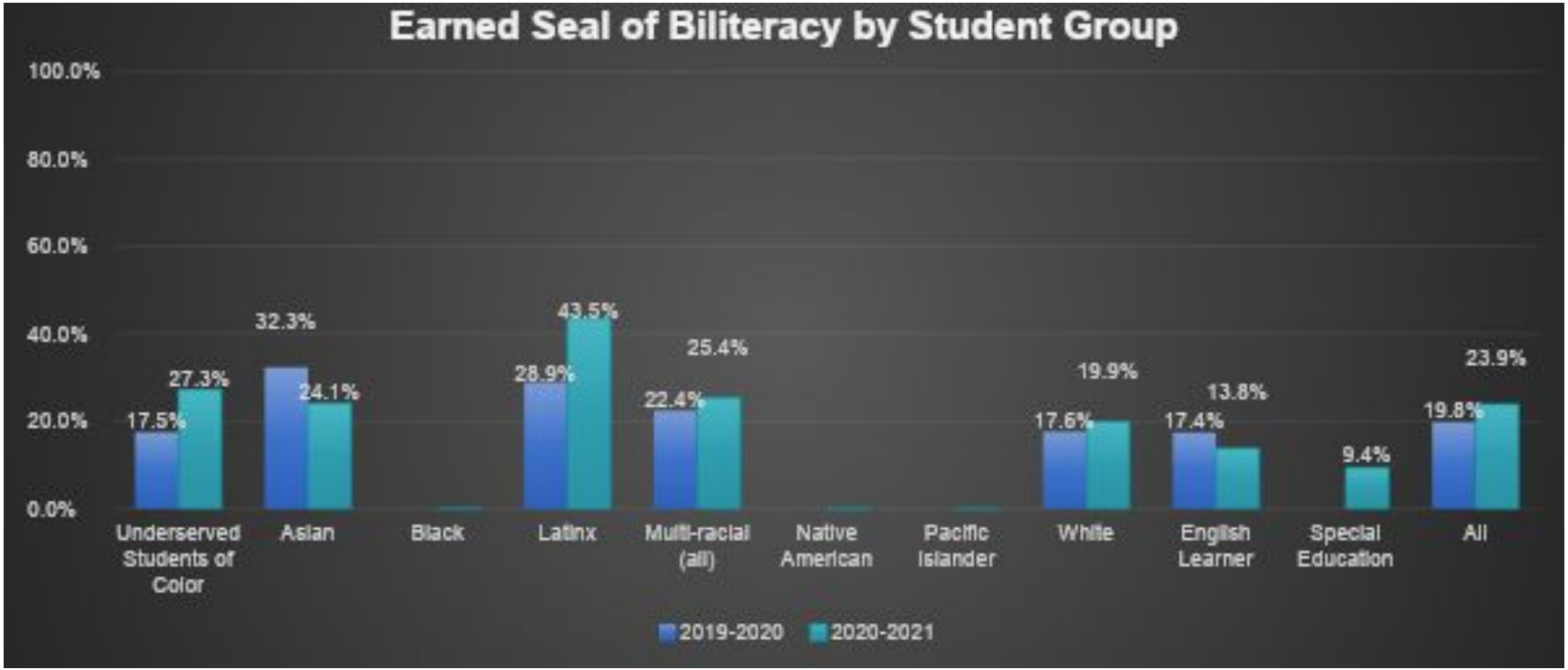
CTE Pathway Completion



Dual Credit Course Pass Rates



Seal of Biliteracy



Conclusions/Take-aways

As a group, our underserved students of color continue to make progress in college and career readiness.

For the following indicators, additional supports and increased access are needed for our Black, Native, and Pacific Islander students: AP pass rates, IB pass rates, and the Seal of Biliteracy.

For all indicators except CTE Pathway completion, additional supports and increased access are needed for students with disabilities and English Learners.


Thank You!

Research on
Unfinished Learning

i-Ready

Understanding Student Learning

Insights from Fall 2021

Curriculum Associates Research Brief | November 2021

Curriculum Associates

The mission of Curriculum Associates is to make classrooms better places for teachers and students.

Executive Summary

At Curriculum Associates, we have been studying the effects of the COVID-19 pandemic since schools first closed their buildings and moved to remote learning in the spring of the 2019–2020 school year. This report provides a snapshot of where students are as they return to school in fall 2021 relative to grade-level standards and historical averages. It is the fourth publication in a series of research papers that examine students' academic achievement during the pandemic. Using the *i-Ready Diagnostic*'s criterion-referenced grade-level placement data from more than nine million students across the country, our findings are focused on students who are on grade level and below grade level as of the present fall compared to a pre-pandemic historical average. We also examine the progress made since last fall by comparing a subset of students who tested in school during fall 2020 and 2021 within a matched sample of schools.

In the current report's on-grade level analysis, we see that students in the early elementary grades who are typically still learning to read have not yet caught up to pre-pandemic on-grade level performance. By contrast, the academic achievement of students in the upper-elementary and middle school grades who are typically reading to learn is closer to where it was before the pandemic disrupted teaching and learning. In mathematics, a different story emerges. The percentage of students who are on grade level is not yet reaching pre-pandemic levels in most grades, and the gaps are largest in upper-elementary and middle school grades. This difference in mathematics performance could be attributable to the content standards as students typically shift from number sense and fluency in early grades to problem solving and algebraic thinking in later grades. Furthermore, demographic data results show that some of the historical inequities pre-dating the pandemic persist today: fewer students in schools serving mostly Black and Latino students than White students and fewer students in schools located in lower-income zip codes than higher-income zip codes are starting this school year on grade level.

However, looking at students who are on grade level does not show us the full picture of student achievement. Our below-grade level analysis reveals that more students are two or more grade levels below their actual grade level this fall than before the pandemic began. This means that teachers will not only have fewer students beginning the school year on grade level, but they will also have more students in need of intensive intervention and support. The pattern of the below-grade level results is similar to that of the on-grade level analysis: the pandemic has been detrimental for students in mathematics more than in reading, for students in schools serving mostly Black and Latino students more than White students, and for students in schools located in lower-income rather than higher-income neighborhoods.

When we compare performance in schools where students tested in school during both fall 2020 and fall 2021, we see a fair amount of variability based on subject and grade level. Overall, a similar number of students are on grade level in reading, and more students are on grade level in mathematics this fall compared to last fall. The below-grade level analysis reveals that more students are below grade level in reading in the upper-elementary and middle school grades and that fewer students are below grade level in mathematics across nearly all grades.

The findings in this paper shed light on the state of unfinished learning across the nation in a way that we hope is useful for educators as they seek to understand how to best support students in their local communities during the remainder of the current school year and beyond.

Key Findings

- In reading, the percentage of students who are on grade level in the upper-elementary and middle school grades is close to pre-pandemic levels, whereas in the early grades the percentage of students who are on grade level is lower than before the pandemic.
- In mathematics, the percentage of students who are on grade level is lower in nearly all grades than what we saw prior to the pandemic.
- Fewer students attending schools serving mostly Black and Latino students are on grade level this fall than students attending schools serving mostly White students, and these inequities predate the pandemic.
- Fewer students attending schools in lower-income zip codes are on grade level than students attending schools in higher-income zip codes, and these inequities also predate the pandemic.
- As for students who are below grade level, more students are below grade level in the early grades for reading and across all grades for mathematics; both observations are even more so for students in schools serving mostly Black and Latino students as well as for students in schools in lower-income zip codes.
- Compared to last fall, the percentage of students who are on grade level or below grade level this fall varies depending on the grade level and subject. Overall, students have made improvements in mathematics, and there are mixed results (i.e., small upticks and downticks) in reading.

Contents

Introduction

In spring 2020 and throughout the 2020–2021 school year, students experienced ongoing and repeated disruptions to learning due to the COVID-19 pandemic. The research of Curriculum Associates and others found the impact to be significant and concerning (Curriculum Associates, 2020; Kuhfeld, Tarasawa, Johnson, Ruzek, & Lewis, 2020; Dorn, Hancock, Sarakatsannis, & Viruleg, 2020). Overall, more students are underprepared for grade-level work compared to historical benchmarks, and pre-existing inequities in learning that existed for students of color and students in lower-income communities before the pandemic are being exacerbated by the condition of education during the pandemic.

We have been following the impact of the pandemic since schools first shut down in spring of the 2019–2020 school year (Curriculum Associates, 2020a, 2020b, 2021a, 2021b). We acknowledge that the pandemic has most likely affected our students' education in ways we have yet to fully comprehend. To shed light on what we do know about students' academic achievement as of fall 2021, we have prepared our findings—the fourth in a series on what many call learning loss and we call unfinished learning. In this latest publication, we examine student learning as they returned to school for the 2021–2022 school year. As with our previous research on unfinished learning, we will continue to focus on assessment data for students who tested in school, which now provides a much clearer picture of overall student achievement since the vast majority of students tested in school this fall.

To learn more about the language we use to describe learning and why we focus on in-school assessment data, please see the Appendix.

Methodology

Research Questions

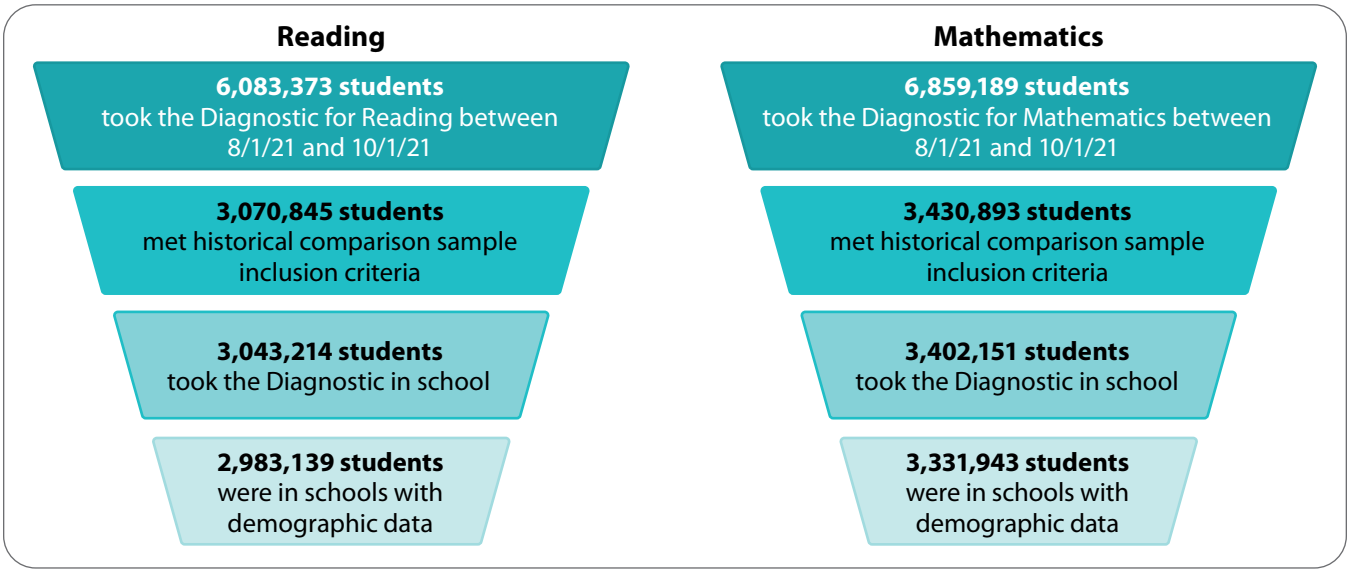
The primary research questions addressed in this paper are as follows:

1. Are more or fewer students on grade level during fall 2021 compared to what we have seen in those same schools historically?
2. How does the proportion of students who are on grade level vary by subject and grade level?
3. How does the proportion of students who are on grade level vary by the racial or ethnic makeup of schools?
4. How does the proportion of students who are on grade level vary by the median household income of schools' locations?
5. Have differences in grade-level learning increased or decreased since fall 2020, relative to what we would expect based on the historical average?

Sample Description

For this study, we examined grade-level placement results from students in fall 2021 compared to prior school years. We constructed a historical average to represent typical performance for students in Grades 1–8 across the three most recent fall testing windows prior to the pandemic: 2017, 2018, and 2019. Student-level data was matched at the school level, so the current and historical samples consist of students in the same schools. To have what we consider to be a fair basis of comparison for this analysis, we have only included students who tested in school in fall of the 2021–2022 school year between August 1 and October 1, 2021. With these criteria in place, the final analytic sample consisted of 3,043,214 students in Grades 1–8 in the Diagnostic for Reading analysis and 3,402,151 students in Grades 1–8 in the Diagnostic for Mathematics analysis. School-level demographic data was sourced from the National Center for Education Statistics (NCES) Common Core of Data. This analysis represents students from all 50 states, plus the District of Columbia. The number of students per state varied by subject and is not statistically representative of each state. See Appendix A for more details on the methodology and sample description.

Figure 1: How Was the Fall Assessment Sample Selected?

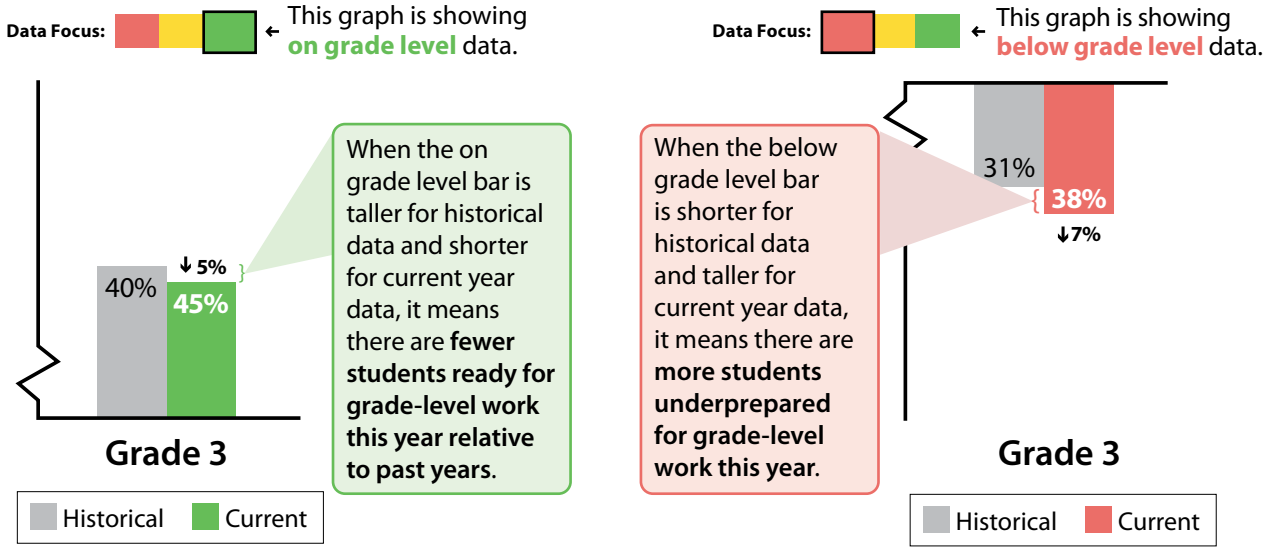


Results

Overview

The following section reports the findings from assessment data for students who took the Diagnostic for Reading and Diagnostic for Mathematics in school. We will begin by sharing the national trends across grade levels for each subject and grade level this school year, relative to the historical average, and then discuss the findings for demographic groups by race and ethnicity and income level. We will also look at a subset of students who tested in school during both fall 2021 and fall 2020 and look at how student performance changed from fall to fall as well as relative to the historical average fall performance. For the purposes of these analyses, students who placed Early On Grade Level or higher were considered on grade level, and students who placed Two or More Grade Levels Below were considered below grade level. Students who are Early On Grade Level have partially met grade-level college- and career-readiness standards, and students who are Mid or Above Grade Level have met grade-level college- and career-readiness standards. Students who are Two or More Grade Levels Below are not yet close to meeting grade-level college- and career-readiness standards and may need additional instruction to fill in gaps in foundational concepts and knowledge.

Understanding Grade-Level Placements in This Paper



Why Focus on Grade 3? Throughout this paper, results for Grade 3 students will be illustrated as Grade 3 is a pivotal year for student learning, and research shows performance in Grade 3 is predictive of high school outcomes (Hernandez, 2011).

What Are Grade-Level Placements?

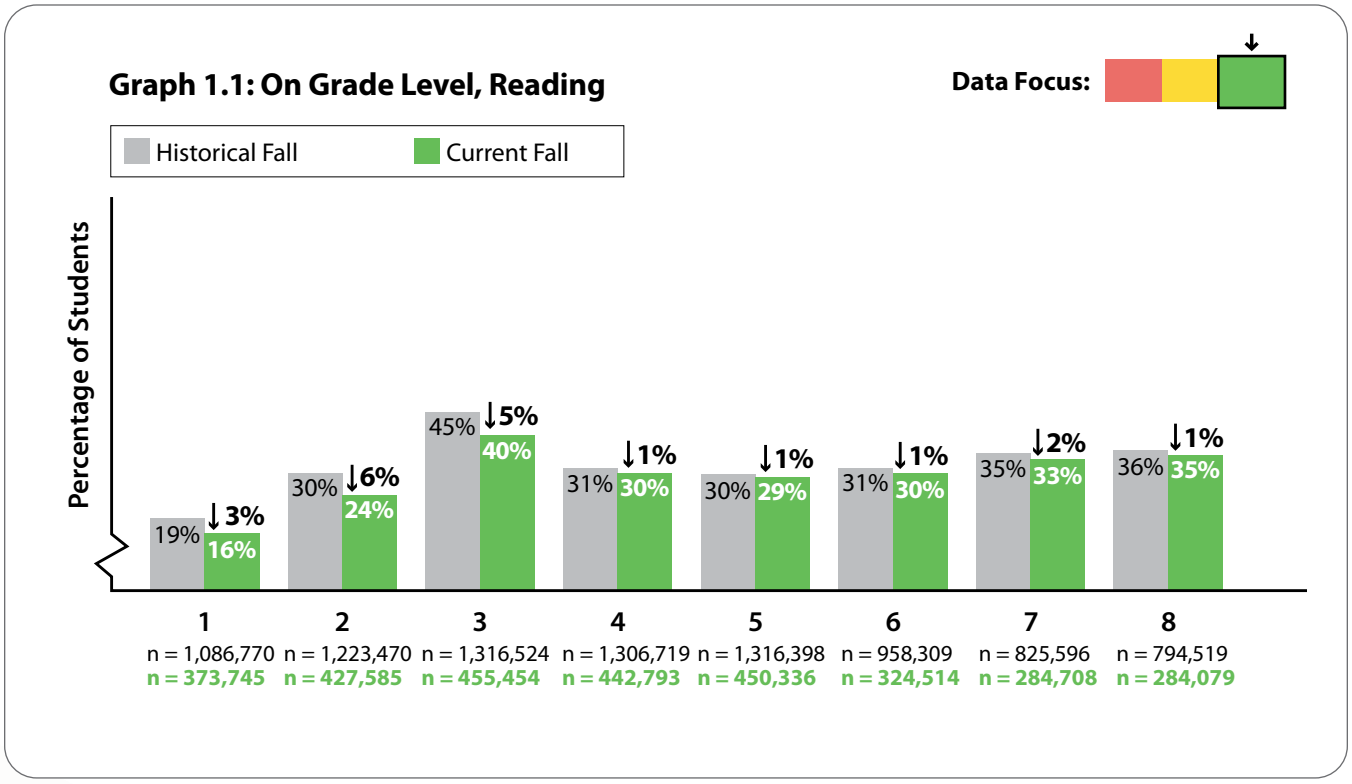
When students take the *i-Ready Diagnostic*, they are given a placement level relative to their chronological grade level that designates the student performance as being on grade level, below grade level, or above grade level. For example, a Grade 5 student can place below grade level at the Grade 4 level (i.e., One Grade Level Below), at the Grade 3 level (i.e., Two Grade Levels Below), and at the Grades K–2 levels (i.e., Three or More Grade Levels Below). A Grade 5 student can also place above grade level at the Grades 6–8 levels (i.e., Above Grade Level). See Appendix for *i-Ready* placement-level descriptors.

Finding 1

Fewer Students Are On Grade Level in Reading This Fall Compared to Historical Averages

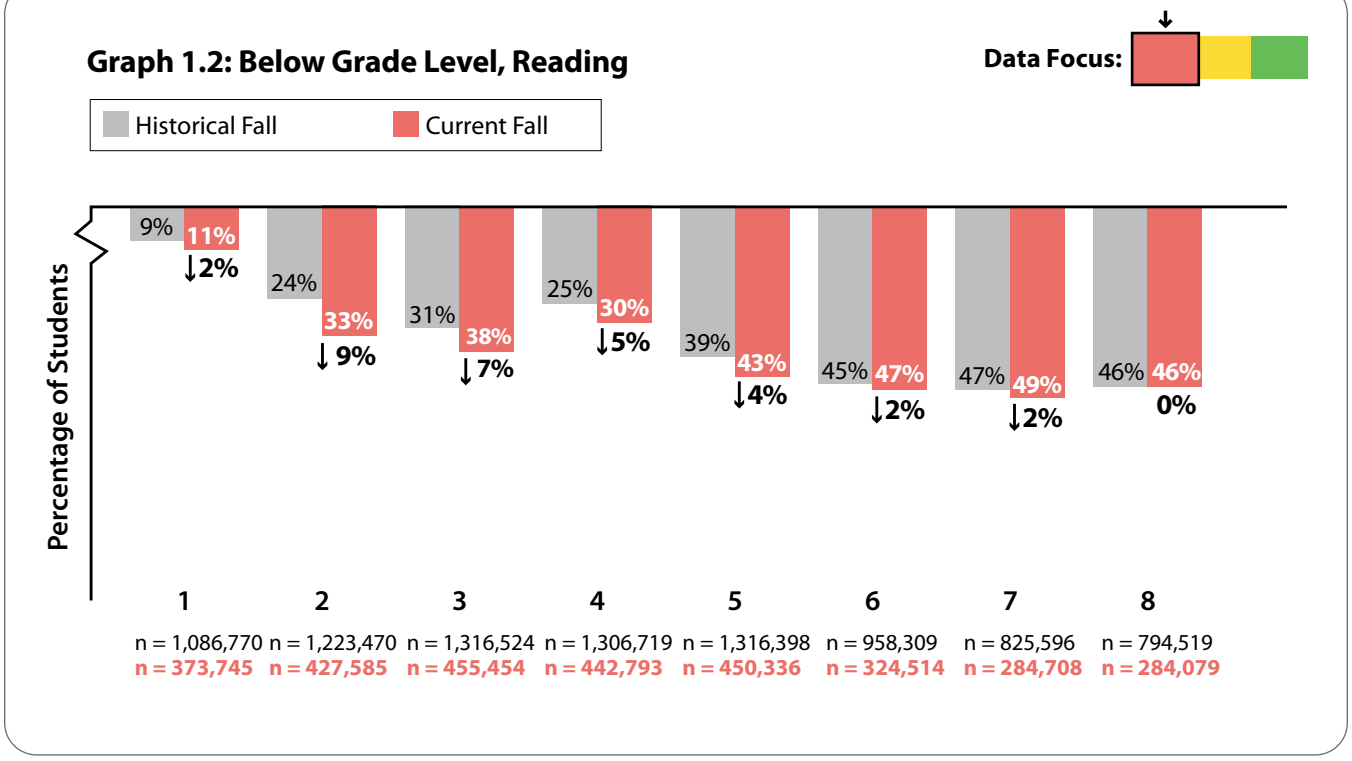
Reading

In reading, the percentage of students who are on grade level is nearly that of pre-pandemic levels in the upper-elementary and middle school grades. However, there is a greater amount of unfinished learning in the early elementary grade levels, particularly in Grades 2 and 3. The percentage of students who are ready for grade-level work (i.e., Early On Grade Level or Above) remains lower during the fall of the 2021–2022 year relative to the historical average across all Grades 1–8. The largest decreases are in Grade 2 (6 percentage points lower) and Grade 3 (5 percentage points lower).



Within the same sample, we also looked at the percentage of students who are underprepared for grade-level work (i.e., Two or More Grade Levels Below). In reading, the percentage of students who are underprepared for grade-level work is higher during fall of the 2021–2022 school year relative to the historical average for students in Grades 1–7, while Grade 8 remains flat. The largest increases are in Grade 2 (9 percentage points higher) and Grade 3 (7 percentage points higher).

Graph 1.2: Below Grade Level, Reading



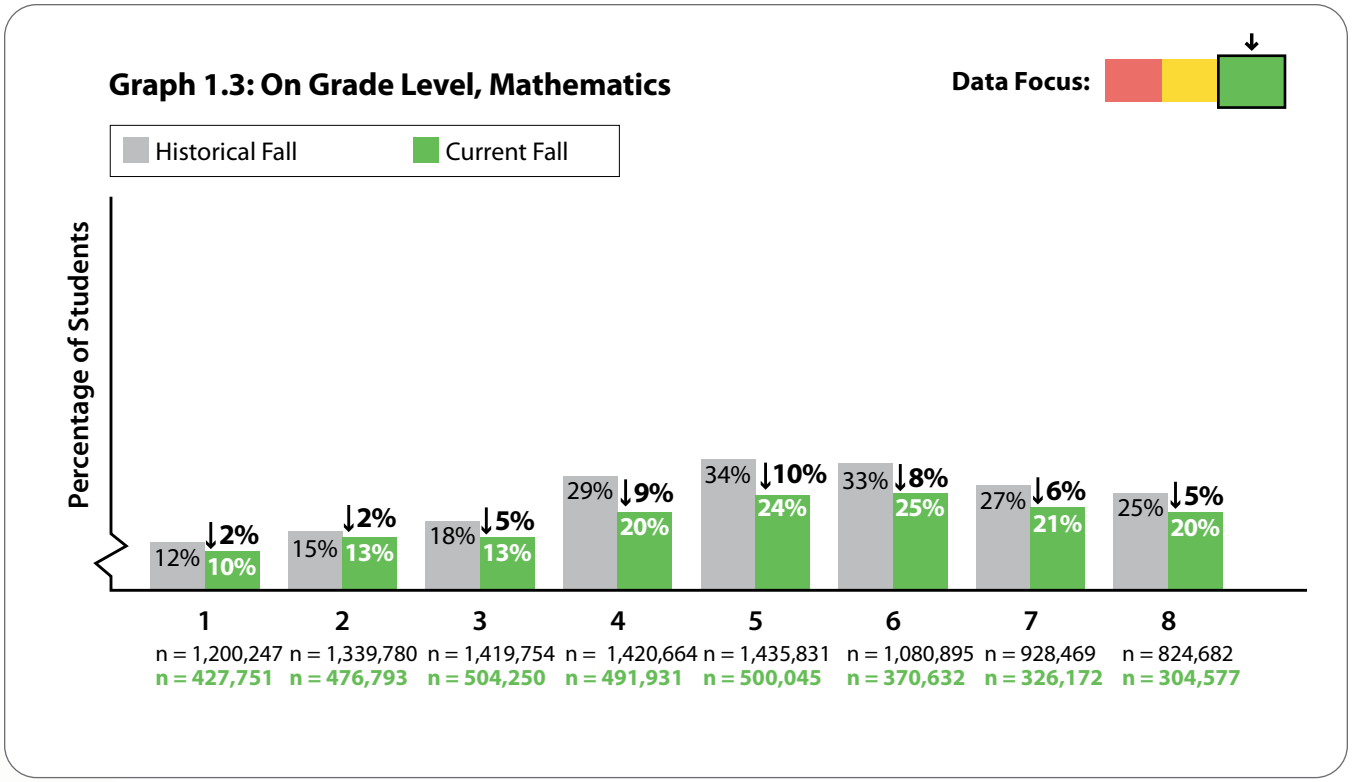
Finding 1

Fewer Students Are On Grade Level in Mathematics This Fall Compared to Historical Averages

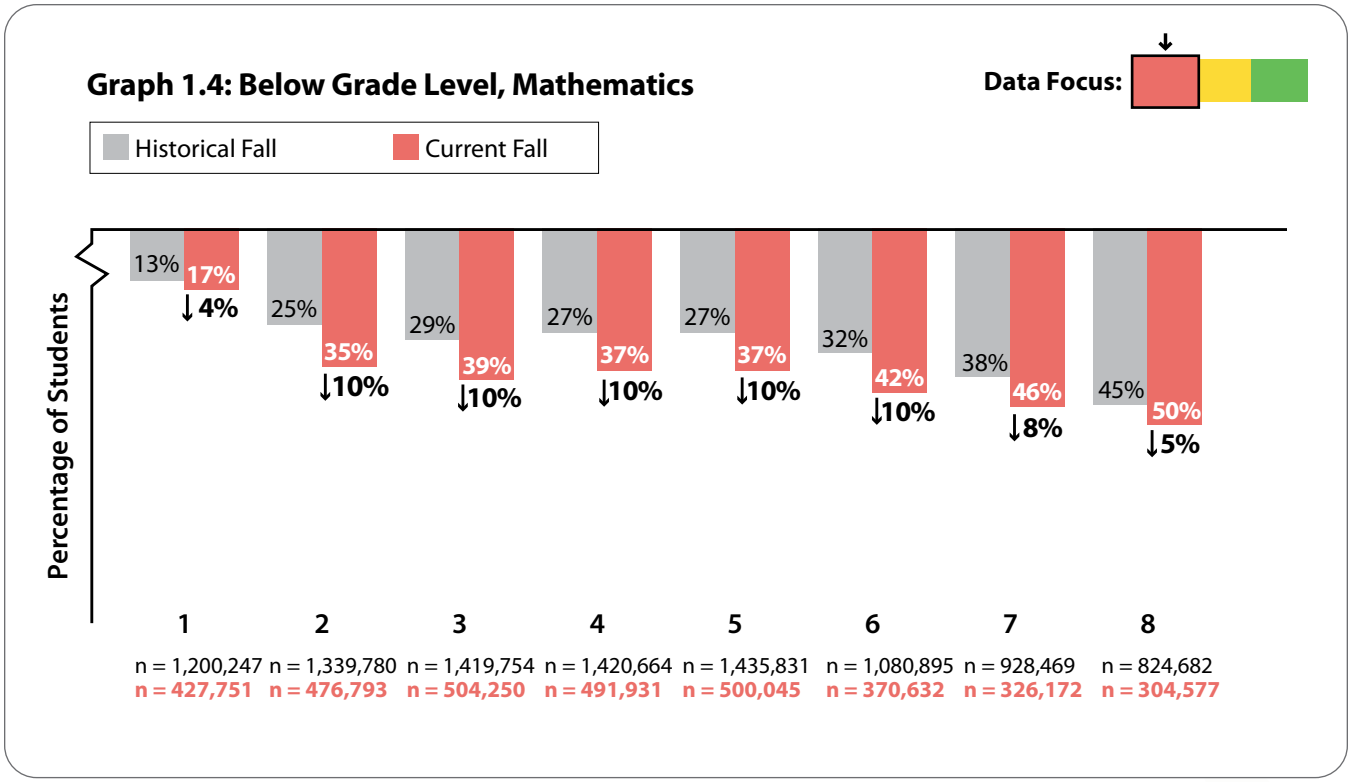
Mathematics

In mathematics, there is a greater amount of unfinished learning in fall 2021 compared to the historical average across all grade levels, particularly in upper-elementary and early middle school grades. The percentage of students who are ready for grade-level work (i.e., Early On Grade Level or Above) is lower during fall of the 2021–2022 school year relative to the historical average across all Grades 1–8. The largest decreases are in Grades 4, 5, and 6 (9, 10, and 8 percentage points lower, respectively).

Within the same sample, we also looked at the percentage of students who are underprepared for



grade-level work (i.e., Two or More Grade Levels Below). In mathematics, the percentage of students who are underprepared for grade-level work is higher during the fall of the 2021–2022 school year relative to the historical average for students across all grades. Grades 2–7 show the greatest increases in unfinished learning, ranging from 8 to 10 percentage points.



Finding 2

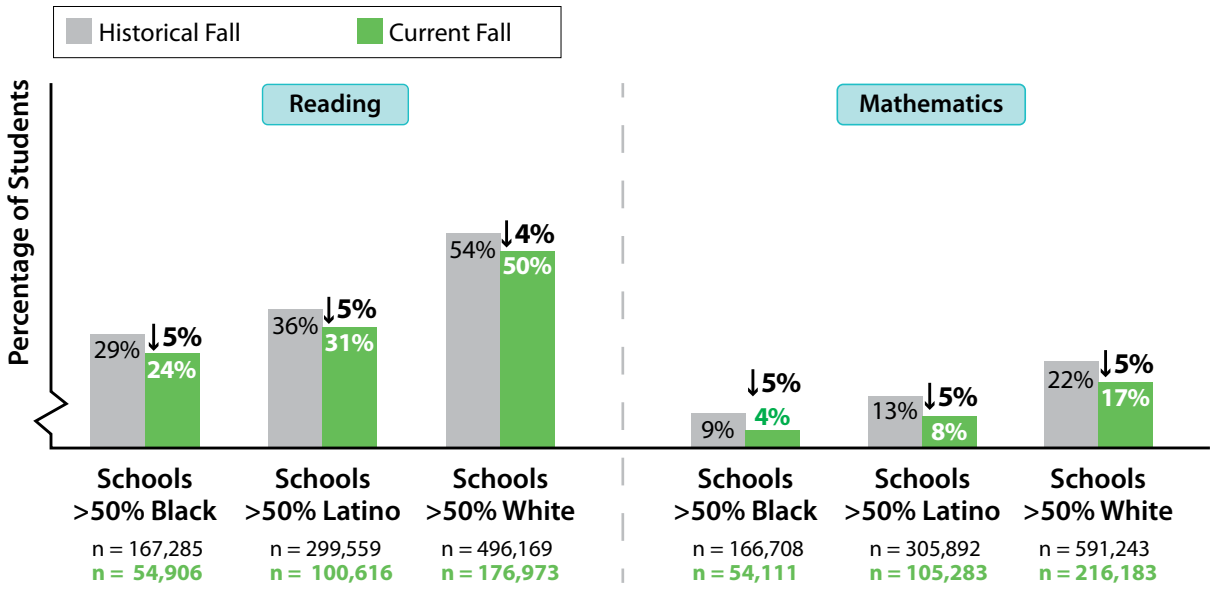
Fewer Students in Schools Serving Mostly Black or Latino Students Are On Grade Level Compared to Schools Serving Mostly White Students

In this section, we examine the data disaggregated by school-level demographic information to look at schools that serve a majority of Black, Latino, or White students. While schools with a majority of Black, Latino, or White students may contain varying levels of diversity, we chose to group schools this way to ensure we had a sufficient sample size for each school-level demographic group.

Across all grades, the percentage of students who are ready for grade-level work has decreased across schools that serve a majority of Black, Latino, and White students in reading and mathematics. To illustrate this finding, we are highlighting the results for Grade 3 below. In reading and mathematics, the percentage of Grade 3 students who are ready for grade-level work has decreased, relative to the historical average for students across all three demographic groups examined. In reading, the decreases are similar for students in schools serving a majority of Black students (5 percentage points), Latino students (4 percentage points), or White students (4 percentage points). In mathematics, the decreases are the same for students in schools serving a majority of Black students (5 percentage points), Latino students (5 percentage points), or White students (5 percentage points).

While the decreases across the three demographic groups are similar, the actual percentages of students who are on grade level are not, and historical averages reveal inequities that predate the pandemic. In fall 2021, 50% of Grade 3 students are on grade level in reading in schools serving mostly White students compared with 31% in schools serving mostly Latino students and 24% in schools serving mostly Black students. In mathematics, 17% of Grade 3 students are on grade level in schools serving mostly White students compared with 8% in schools serving mostly Latino students and just 4% in schools serving mostly Black students.

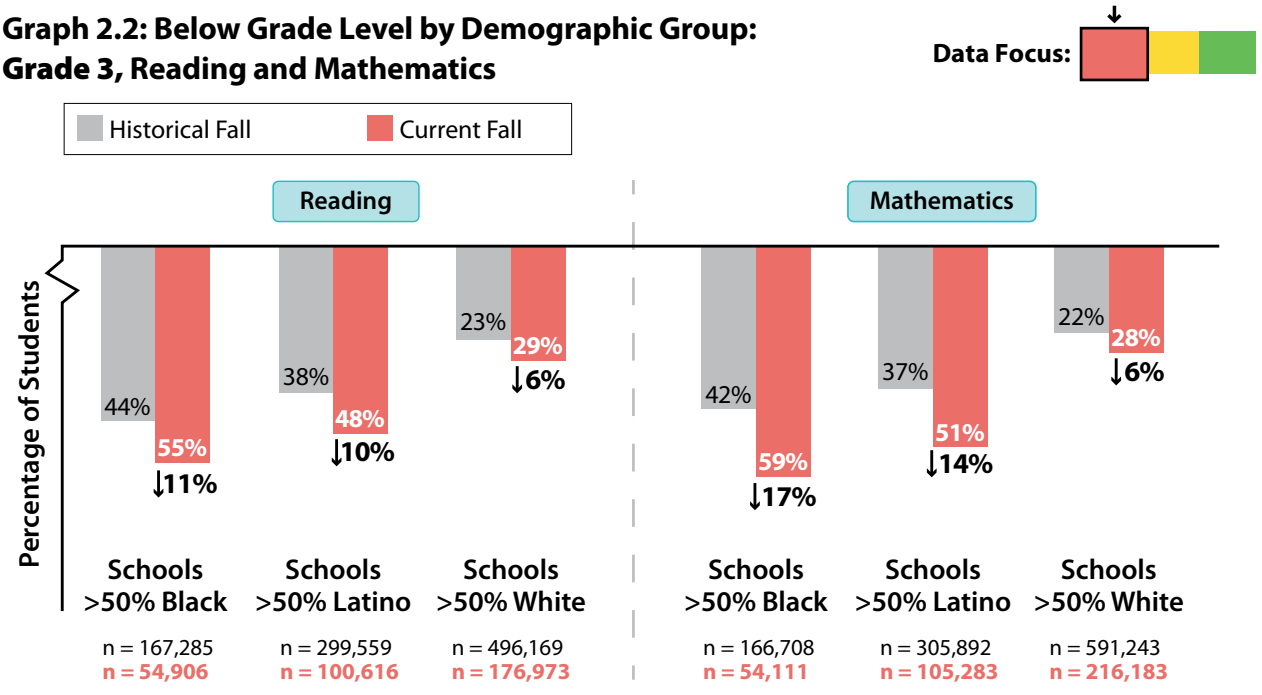
Graph 2.1: On Grade Level by Demographic Group: Grade 3, Reading and Mathematics



When looking within the same sample at the percentage of Grade 3 students who are underprepared for grade-level work, we can see a larger increase in unfinished learning in reading for students in schools serving a majority of Black students (11 percentage points) or Latino students (10 percentage points) than schools serving a majority of White students (6 percentage points). In mathematics, there is a larger increase in unfinished learning for Grade 3 students among schools serving a majority of Black students (17 percentage points) or Latino students (14 percentage points) compared to schools serving mostly White students (6 percentage points).

As with the data for students who are on grade level, the data for students who are below grade level reveal inequities in both the current averages of students who are below grade level as well as historical averages that pre-date the pandemic. In reading, 55% of Grade 3 students in schools serving mostly Black students began the school year two or more grade levels behind, compared to 48% in schools serving mostly Latino students and 29% in schools serving mostly White students. In mathematics, the data follows a similar trend with 59%, 51%, and 29% of Grade 3 students scoring two or more grade levels below their chronological grade in schools serving mostly Black, mostly Latino, or mostly White students, respectively.

Graph 2.2: Below Grade Level by Demographic Group: Grade 3, Reading and Mathematics



Across all grades, the percentage of students who are ready for grade-level work has decreased across schools that serve a majority of Black, Latino, and White students in reading and mathematics. The following tables present the percentage of students by placement level, subject, and grade for each of the three demographic groups represented in the figures on the previous pages. The results for students in schools serving less than 25% Black, Latino, and White students, as well as students in schools serving between 25% and 50% Black, Latino, and White students, are included in the Appendix.

Table 1: Percentage of Students On Grade Level by Demographic Group—Fall Testing Window: Reading and Mathematics, Grades 1–8

	Percentage On Grade Level					
Grade	>50% Black		>50% Latino		>50% White	
	Historical Fall	Current Fall	Historical Fall	Current Fall	Historical Fall	Current Fall
Reading						
1	12%	10%	15%	13%	21%	18%
2	18%	13%	23%	18%	35%	29%
3	29%	24%	36%	31%	54%	50%
4	17%	15%	23%	22%	39%	38%
5	16%	15%	23%	22%	38%	38%
6	17%	16%	25%	23%	39%	37%
7	19%	18%	29%	28%	43%	40%
8	21%	20%	30%	30%	44%	41%
Mathematics						
1	5%	4%	8%	6%	15%	13%
2	7%	4%	10%	7%	20%	17%
3	9%	4%	13%	8%	22%	17%
4	17%	8%	22%	12%	35%	26%
5	19%	9%	26%	15%	41%	31%
6	18%	11%	25%	17%	40%	32%
7	13%	9%	19%	15%	34%	27%
8	12%	9%	16%	13%	32%	25%

Table 2: Percentage of Students Below Grade Level by Demographic Group—Fall Testing Window: Reading and Mathematics, Grades 1–8

	Percentage Below Grade Level					
	Grade	>50% Black		>50% Latino		>50% White	
		Historical Fall	Current Fall	Historical Fall	Current Fall	Historical Fall	Current Fall
Reading	1	12%	16%	13%	16%	5%	6%
	2	35%	49%	31%	43%	17%	24%
	3	44%	55%	38%	48%	23%	29%
	4	37%	46%	32%	38%	18%	22%
	5	55%	62%	47%	52%	30%	32%
	6	63%	64%	53%	54%	36%	38%
	7	65%	67%	54%	55%	38%	40%
	8	62%	63%	53%	53%	37%	38%
Mathematics	1	17%	26%	17%	24%	9%	12%
	2	36%	53%	33%	47%	18%	25%
	3	42%	59%	37%	51%	22%	28%
	4	39%	58%	33%	48%	20%	26%
	5	41%	57%	34%	47%	20%	27%
	6	47%	60%	40%	53%	24%	33%
	7	54%	64%	46%	55%	28%	37%
	8	62%	67%	57%	60%	35%	41%

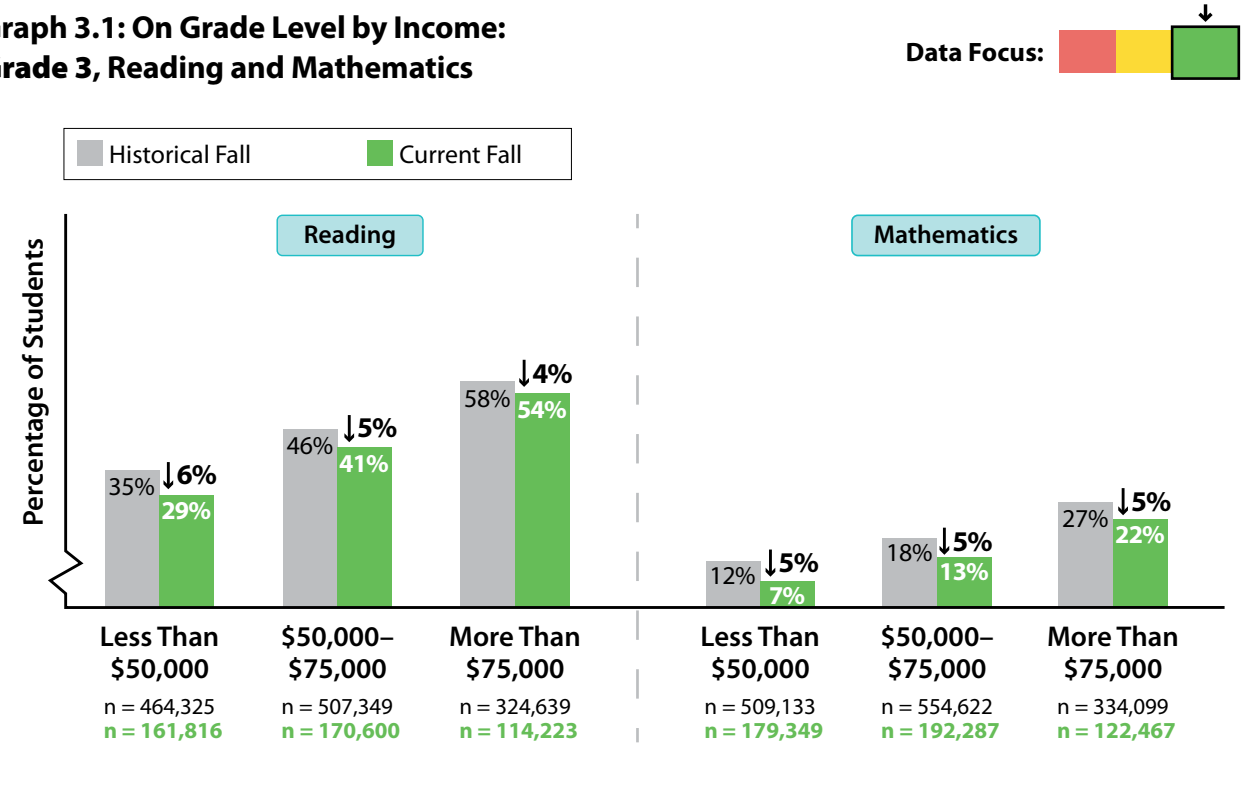
Finding 3

Fewer Students Attending Schools in Lower-Income Zip Codes Are On Grade Level Compared to Schools in Higher-Income Zip Codes

In this section, we examine the data disaggregated by the median annual household income associated with a school's zip code. Across all grades, the percentage of students who are ready for grade-level work has decreased this fall relative to the historical average, regardless of income bracket, in reading and mathematics. As in the previous section, to illustrate this finding, we are highlighting the results for Grade 3. In reading, the Grade 3 decline relative to the historical average is marginally larger for students in schools where the median income is less than $50,000 (6 percentage points) than in schools where the median income is between $50,000 to $75,000 (5 percentage points) or more than $75,000 (4 percentage points). In mathematics, the Grade 3 decline relative to the historical average is the same across all three income brackets (5 percentage points).

While the declines in each school-level income group in both subjects are similar, the actual percentages of students who are on grade level are not, and historical averages reveal inequities that pre-date the pandemic. In fall 2021, 54% of Grade 3 students are on grade level in reading in higher-income schools compared with 29% in lower-income schools. In mathematics, 22% of Grade 3 students are on grade level in higher-income schools, whereas just 7% of students in lower-income schools are on grade level.

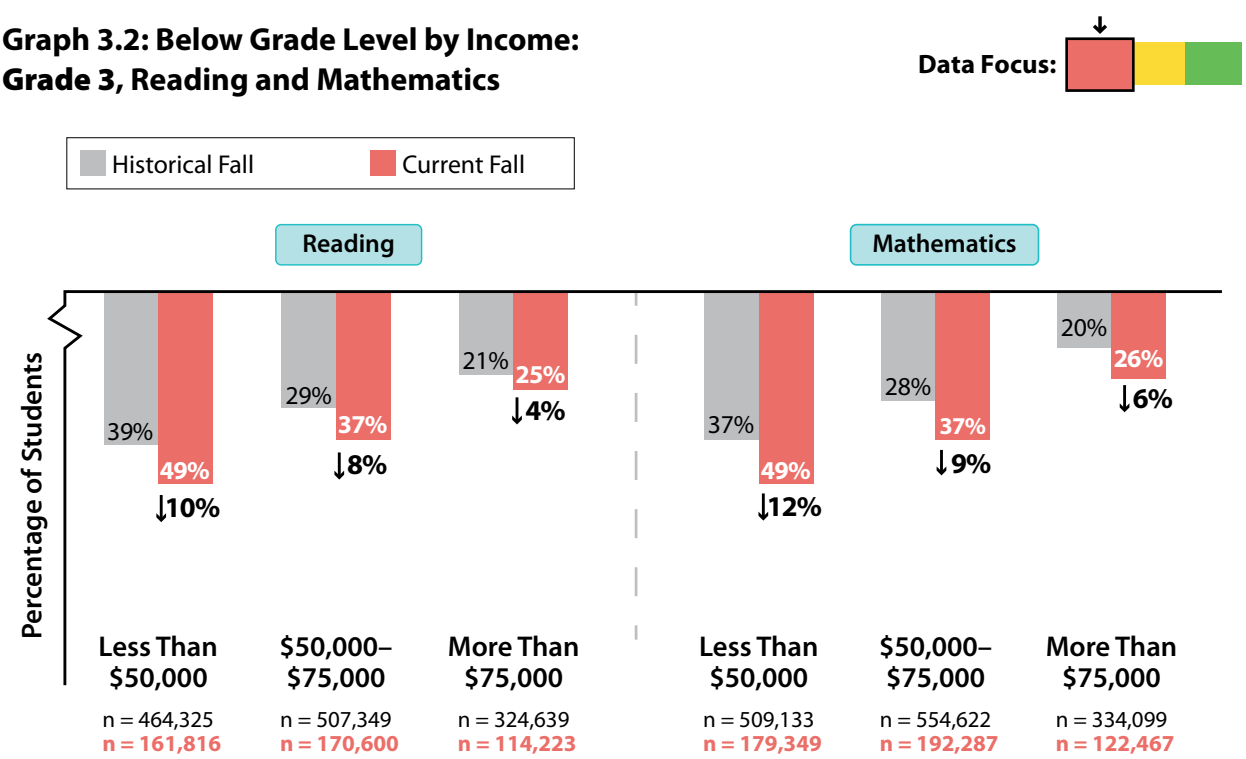
Graph 3.1: On Grade Level by Income: Grade 3, Reading and Mathematics



As shown below, the percentage of Grade 3 students who are underprepared for grade-level work increased for students across schools regardless of income bracket. In reading, the Grade 3 increases in unfinished learning relative to the historical average are steeper in schools where the median household income is below $50,000 annually (10 percentage points) compared with between $50,000 to $75,000 (8 percentage points) or more than $75,000 (4 percentage points). For Grade 3 mathematics, the increases in unfinished learning are larger across all three income groups (12, 9, and 6 percentage points, respectively), and the overall percentages of students who are below grade level are higher than in reading.

The median household income results show that there are not only historical inequities that pre-date the pandemic, but also growing disparities between income groups due to the pandemic's disruptions to teaching and learning.

Graph 3.2: Below Grade Level by Income: Grade 3, Reading and Mathematics



Across all grades, the percentage of students who are ready for grade-level work has decreased across schools located in zip codes where the median household income is less than $50,000, between $50,000 and $75,000 and more than $75,000 in reading and mathematics. The following tables present the percentage of students by placement level, subject, and grade for each of the three income groups represented in the figures on the previous pages.

Table 3: Percentage of Students On Grade Level by Income Group—Fall Testing Window: Reading and Mathematics, Grades 1–8

	Percentage On Grade Level					
	Grade	<$50,000		$50,000–$75,000		>$75,000	
		Historical Fall	Current Fall	Historical Fall	Current Fall	Historical Fall	Current Fall
Reading	1	13%	10%	19%	16%	26%	25%
	2	21%	16%	30%	24%	40%	35%
	3	35%	29%	46%	41%	58%	54%
	4	22%	20%	31%	30%	43%	42%
	5	21%	20%	31%	30%	42%	41%
	6	22%	21%	32%	30%	43%	41%
	7	25%	24%	35%	33%	47%	46%
	8	27%	26%	37%	35%	48%	47%
Mathematics	1	7%	6%	11%	10%	19%	17%
	2	10%	7%	15%	12%	24%	21%
	3	12%	7%	18%	13%	27%	22%
	4	22%	12%	29%	20%	40%	30%
	5	25%	15%	34%	23%	46%	35%
	6	24%	17%	33%	25%	45%	37%
	7	19%	15%	27%	21%	39%	31%
	8	18%	14%	25%	19%	36%	30%

Table 4: Percentage of Students Below Grade Level by Income Group—Fall Testing Window: Reading and Mathematics, Grades 1–8

	Grade	Percentage Below Grade Level					
		<$50,000		$50,000–$75,000		>$75,000	
		Historical Fall	Current Fall	Historical Fall	Current Fall	Historical Fall	Current Fall
Reading	1	11%	14%	8%	10%	6%	7%
	2	32%	44%	23%	32%	16%	21%
	3	39%	49%	29%	37%	21%	25%
	4	32%	39%	24%	29%	16%	20%
	5	49%	54%	38%	41%	27%	30%
	6	55%	57%	44%	46%	33%	35%
	7	58%	59%	46%	48%	35%	35%
	8	56%	56%	45%	46%	34%	34%
Mathematics	1	16%	22%	12%	17%	9%	12%
	2	32%	44%	24%	34%	17%	24%
	3	37%	49%	28%	37%	20%	26%
	4	34%	47%	26%	35%	18%	25%
	5	34%	47%	26%	35%	18%	25%
	6	40%	52%	31%	42%	22%	30%
	7	46%	55%	36%	45%	26%	34%
	8	54%	59%	45%	50%	33%	38%

Finding 4

Fewer Students Are On Grade Level for the Second Fall in a Row Compared to Historical Benchmarks

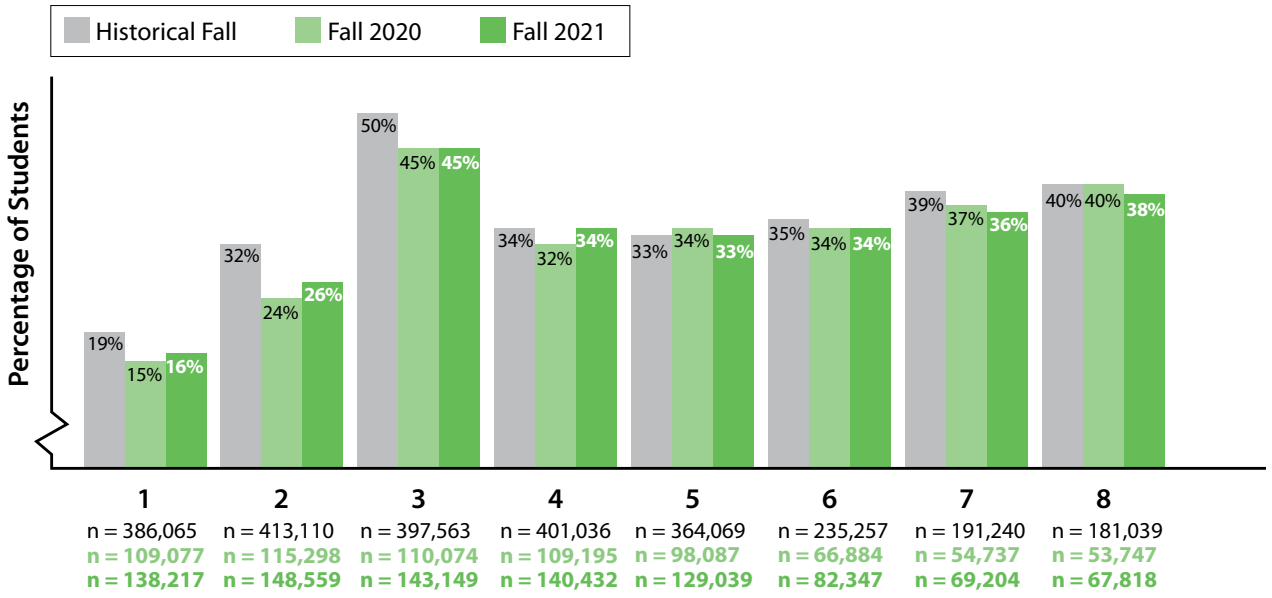
In this section, we examine the change in percentage of students who are on grade level and below grade level for a subset of schools whose students indicated they took the Diagnostic in school during both fall 2020 and fall 2021. Within this sample, we compared student performance from the two most recent falls as well as the historical fall average within these schools from before the pandemic. We recommend interpreting these results with caution, as the results are limited in generalizability due to the sample constraints. Specifically, the number of students included in fall 2021 and historical samples in this analysis includes less than 40% of the number included in the analyses in the rest of this report.

For the on-grade level analysis, our visual analysis shows there is variability across subjects and grade levels. In reading, the percentage of students who are on grade level as of the current fall compared to the prior fall has increased for some of the elementary grades (i.e., Grades 1, 2, and 4), decreased for some of the upper-elementary and middle school grades (i.e., Grades 5, 7, and 8), or remained the same (i.e., Grades 3 and 6). In early elementary school, the percentage of students who are on grade level this fall is lower than the historical average but close to that of last fall. For example, 26% of students in Grade 2 are on grade level this fall compared with 24% last fall and 32% historically. In upper elementary and middle school, the percentage of students who are on grade level is similar to both that of last fall as well as the historical average. For example, 34% of students in Grade 6 are on grade level this fall compared with 34% last fall and 35% historically.

In mathematics, the percentage of students who are on grade level as of the current fall compared to the prior fall has increased for nearly all grades (i.e., Grades 1–7) though we do see a small decrease in Grade 8. While the percentage of students who are on grade level this fall is still lower than the historical average for all grades in mathematics, more students are on grade level this fall compared with last fall. For example, 24% of students in Grade 4 are on grade level this fall compared with 18% last fall and 31% historically.

Graph 4.1: On Grade Level in Fall 2020 and Fall 2021, Reading

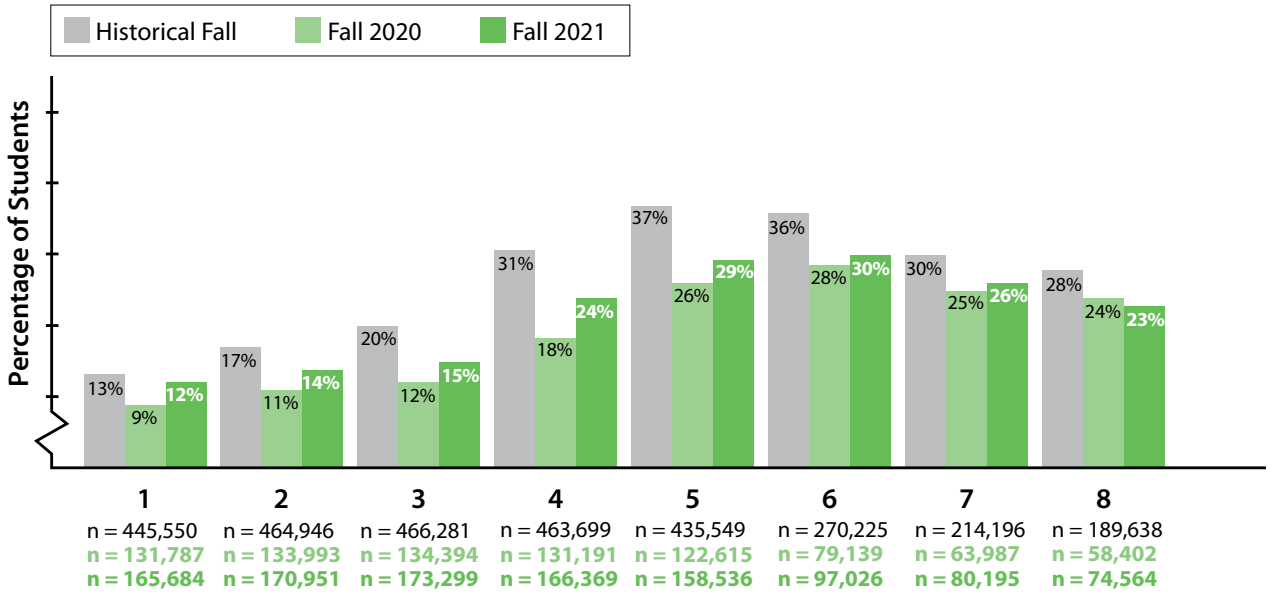
Data Focus:



1	2	3	4	5	6	7	8
n = 386,065	n = 413,110	n = 397,563	n = 401,036	n = 364,069	n = 235,257	n = 191,240	n = 181,039
n = 109,077	n = 115,298	n = 110,074	n = 109,195	n = 98,087	n = 66,884	n = 54,737	n = 53,747
n = 138,217	n = 148,559	n = 143,149	n = 140,432	n = 129,039	n = 82,347	n = 69,204	n = 67,818

Graph 4.2: On Grade Level in Fall 2020 and Fall 2021, Mathematics

Data Focus:



1	2	3	4	5	6	7	8
n = 445,550	n = 464,946	n = 466,281	n = 463,699	n = 435,549	n = 270,225	n = 214,196	n = 189,638
n = 131,787	n = 133,993	n = 134,394	n = 131,191	n = 122,615	n = 79,139	n = 63,987	n = 58,402
n = 165,684	n = 170,951	n = 173,299	n = 166,369	n = 158,536	n = 97,026	n = 80,195	n = 74,564

Finding 4

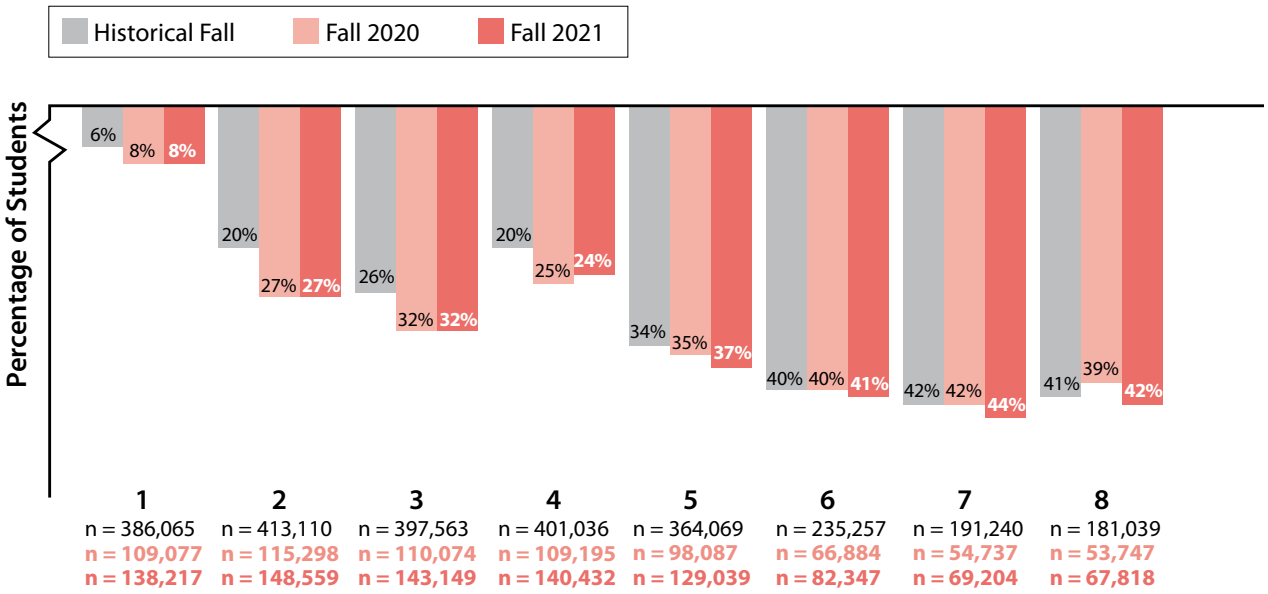
More Students Are Below Grade Level for the Second Fall in a Row Compared to Historical Benchmarks

Our visual analysis of the below grade level data shows that the gap between the current fall and the prior fall has increased, decreased, or remained the same, depending on the subject and grade level. In reading, the percentage of students who are below grade level as of the current fall compared to the prior fall has increased in the upper grades (i.e., Grades 5–8) and decreased (i.e., Grade 4) or remained the same (i.e., Grades 1–3) in the elementary grades. In early elementary school, the percentage of students who are below level this fall is higher than the historical average but did not change from where it was at the beginning of last fall. In upper elementary school, there are mixed results: the percentage of students who are below grade level is higher than the historical average for both Grade 4 and Grade 5. However, in Grade 4, there is a small decrease this fall relative to last fall, whereas in Grade 5, there is a small increase. For example, 27% of students in Grade 2 are below grade level this fall compared with 27% last fall and 20% historically. In middle school, a similar percentage of students are below grade level this fall compared to both last fall as well as the historical average. For example, 41% of students in Grade 6 are below grade level this fall compared with 40% last fall and 40% historically.

In mathematics, the percentage of students who are below grade level as of the current fall compared to the prior fall has increased in middle school (i.e., Grades 7–8), decreased in early elementary school (i.e., Grades 1–4), or remained the same (i.e., Grades 5 and 6). While the percentage of students who are below grade level this fall is greater than the historical average across all grades, fewer students in elementary Grades 1–4 are below grade level this fall compared with last fall. For example, 28% of students in Grade 4 are below grade level this fall compared with 31% last fall and 22% historically.

Graph 4.3: Below Grade Level in Fall 2020 and Fall 2021, Reading

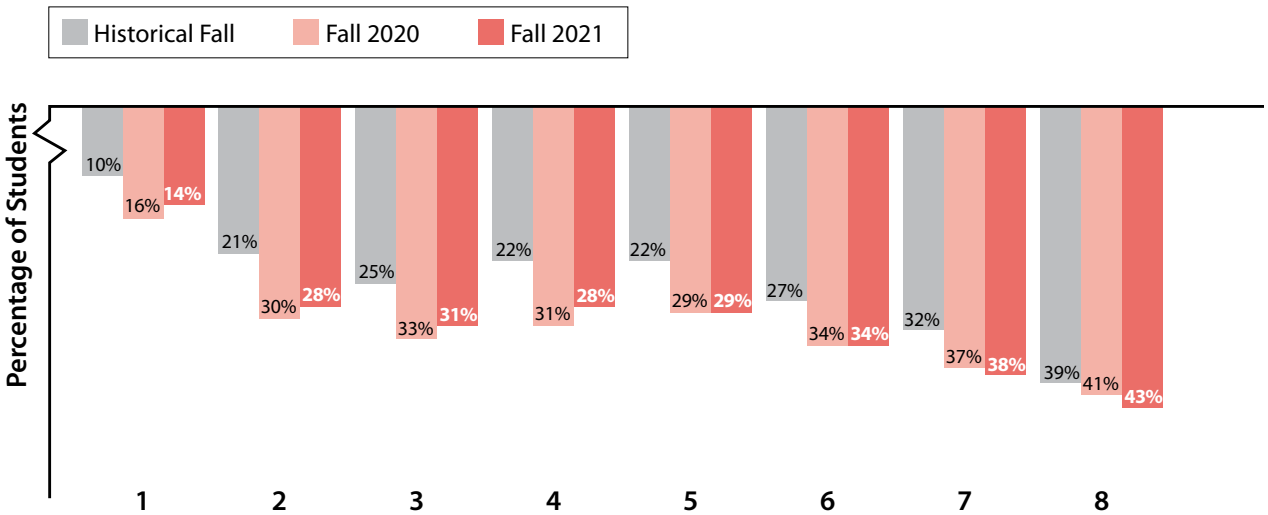
Data Focus:



1	2	3	4	5	6	7	8
n = 386,065	n = 413,110	n = 397,563	n = 401,036	n = 364,069	n = 235,257	n = 191,240	n = 181,039
n = 109,077	n = 115,298	n = 110,074	n = 109,195	n = 98,087	n = 66,884	n = 54,737	n = 53,747
n = 138,217	n = 148,559	n = 143,149	n = 140,432	n = 129,039	n = 82,347	n = 69,204	n = 67,818

4.4: Below Grade Level in Fall 2020 and Fall 2021, Mathematics

Data Focus:



1	2	3	4	5	6	7	8
n = 445,550	n = 464,946	n = 466,281	n = 463,699	n = 435,549	n = 270,225	n = 214,196	n = 189,638
n = 131,787	n = 133,993	n = 134,394	n = 131,191	n = 122,615	n = 79,139	n = 63,987	n = 58,402
n = 165,684	n = 170,951	n = 173,299	n = 166,369	n = 158,536	n = 97,026	n = 80,195	n = 74,564

Limitations

The findings in this paper rely on student self-reported data on the location of where they took the *i-Ready Diagnostic* test. We acknowledge this is an imperfect measure. Ultimately, we chose to focus our findings on the in-school testing results due to higher data consistency with in-school testing data as compared to out-of-school testing data. The high in-school testing volume this fall gives us our clearest picture of student performance since the pandemic began. Just under 10% of the students who took the *i-Ready Diagnostic* this fall tested remotely and are not reflected in this report.

Even though we know the location of where students took the *i-Ready Diagnostic* based on self-report data, we do not any have visibility into where students spent most of their time learning during the pandemic. Where a student took an assessment should not be conflated with where a student is learning (e.g., entirely in a traditional school building, entirely remote in their home or another location outside of their school building, or in multiple locations as part of a hybrid model). In this analysis, student use of *i-Ready Personalized Instruction*, a supplemental online learning program, was not considered.

The findings in this paper also rely on school-level demographics, which is not the same as using student-level demographics. Schools consisting of more than 50% of one racial or ethnic group may still be fairly diverse, and we recognize that using school-level demographics does not capture that diversity nor the variability in unfinished learning within each school-level demographic group nor at the student-level demographic group either.

To describe grade-level performance over three time periods (i.e., historical fall, fall 2020, and fall 2021), we limited the analysis to only those schools and students who met our business rules (i.e., tested in school) in fall 2020 and fall 2021. Based on a separate analysis of which factors contributed to students' testing location during the 2020–2021 school year, we know that students who tested in school in the fall of last year were more likely to be White, attend schools in suburban and rural areas, and attend schools in states in the Midwest and South (Curriculum Associates, 2021c). This group represents less than 40% of the general analysis population described in this paper. Given the further-constrained sample in combination with the variation in grade- and subject-level results, we see more variability in the percentage of students who are on grade level than we saw in the main analysis.

Despite these limitations, we want to share what we know with educators in a timely manner, and we plan to continue with further analysis of student assessment data—including growth, testing location, and *i-Ready Personalized Instruction* usage—from this past school year that we will be releasing as it becomes available.

Discussion

The results of this analysis describe what many educators are already painfully aware of: the pandemic has hindered the academic achievement of most students and has had an outsized impact on underserved students. Many of the academic challenges that educators face in the classroom this school year will be familiar ones: Some students are ready to tackle grade-level work, and some students will need additional support to access and master grade-level content to "catch up" to their grade-level peers.

What is decidedly different since the pandemic began is the magnitude of the challenge. In schools across the country, there are fewer students ready for grade-level work and more students in need of additional and likely intensive academic support, particularly within student populations who are living in historically marginalized communities of color and within student populations who are living in poverty. In some cases, students are both living in poverty as well as attending schools serving mostly Black or Latino students which could be further compounding the impact of the pandemic on academic achievement.

Overall, our data points to how the pandemic interrupted all teaching and learning but not equally so. While educators did a heroic job last year in the face of unprecedented challenges, many students were unable to make up the ground they lost since the onset of the pandemic, and for some students, the unfinished learning was exacerbated by having experienced more than one disrupted year of learning. We are hopeful that more ground will be made up, over the course of the current school year, particularly for the students who need the most support. Across the country, educators must once again reach deep into their breadth of understanding about what students know and need through experience, evidence-based strategies, curriculum, assessment, and other available supports.

The scope of the issue is large in scale and deserves districtwide, statewide, and national attention to support classroom teachers in addressing unfinished learning. In both reading and mathematics, we must remain laser focused on maintaining high expectations for all students, providing a path to accelerated learning, and offering ample opportunities for all students to engage with grade-level content. At the same time, we would be remiss not to focus on effective strategies for differentiating and accelerating learning, as well as understanding and addressing the foundational and prerequisite skills that students may not have had the privilege of experiencing due to the pandemic's school closures.

We encourage educators and policymakers to review the data available for their classroom, school, district, or state in order to allocate resources and design the necessary curricular and extra-curricular supports needed to serve the students and teachers who need to not only catch up to pre-pandemic levels, but also, more importantly, exceed them.

Conclusion

Our analysis of fall assessment data shows fewer students are on grade level and more students are below grade level this fall than in prior school years in both reading and mathematics. The students who are most affected are students who are still learning to read, students who are moving from procedural to conceptual mathematics problem solving, students attending schools that serve a higher proportion of Black and Latino students, and students attending schools in lower-income zip codes. Since the vast majority of students who took the *i-Ready Diagnostic* are back in school, we believe that this paints a clear picture of where students are as we began the 2021–2022 school year. Our analysis of a subset of students who took their assessments in school during both fall 2020 and fall 2021 shows that, on average, fewer students are on grade level and more students are underprepared for grade-level work this year compared to last year. We will continue to investigate the impact of the pandemic on student learning and release subsequent research publications and issue briefs as the data becomes available.

Appendix

The Language We Use to Describe Learning

At Curriculum Associates, we are committed to becoming a fully inclusive, anti-racist, multicultural organization. We recognize that systemic bias and racism negatively impact students and educators of color, and common terms and characterizations of student achievement data have been and continue to be problematic. In particular, we are cognizant of how bias is embedded in the language we use to describe what students know and are able to do. For example, deficit-based labels such as "underperforming" unfairly place blame on students who, in truth, have been underprepared by our society. We know that while teachers and school and district leaders deeply invest in these learners, the cumulative and compounding effects of an array of societal factors have systematically disadvantaged people of color.

One of our goals as a curriculum and assessment provider is to objectively measure learning to inform instruction, reveal inequities, and contribute to the field of education research. We believe that the deficit-based labels that have long been used to describe student learning have nothing to do with their intellectual capacity, effort, or aptitude. Instead, we choose to honor the potential of students and decouple the words we use to describe student achievement from unfair assumptions and habits. This will take some time, but we take our role in changing the system very seriously, and our work is ongoing.

For the purposes of this research paper, we recognize that the disruptions in schooling due to COVID-19 happened due to circumstances outside of schools and classrooms, and teaching and learning remains unfinished rather than lost. As such, when we describe where students are not yet prepared for grade-level work, we use the terms "unfinished teaching and learning" or "unfinished learning" instead of "learning loss." When we describe where students are on grade level, we use the terms "on grade level" or "not on grade level" instead of "performing on grade level" or "not performing on grade level."

As our learning journey continues, we will keep reflecting on the impact of our words and strive to use asset-based language that is empowering for all students, teachers, and educators.

Methodology and Sample Description

Students who took an *i-Ready Diagnostic* in school during fall of the 2021–2022 school year were eligible for inclusion in this study. Out-of-school testing data had more variability in terms of both scores and test administration data, such as test duration, number of testing sessions, and number of devices used. For this reason, we focus our findings on the in-school testing population as it is the fairest basis of comparison to a typical school year. To be considered "in school," the student had to both self-report that their test was taken in school and belong to a school where the number of students testing in school this year was comparable to the number of students who tested during fall of the 2019–2020 school year—the last fall testing window before the pandemic. In the historical sample, we kept all students from the selected schools under the assumption that all students tested in school prior to school closures. All analyses were conducted at the student level. For analyses with school-level demographic variables, the school-level demographic group is treated as a student-level variable. Therefore, the interpretation is, for example, "students in schools located in lower-income zip codes tend to perform lower than students in schools located in higher-income zip codes."

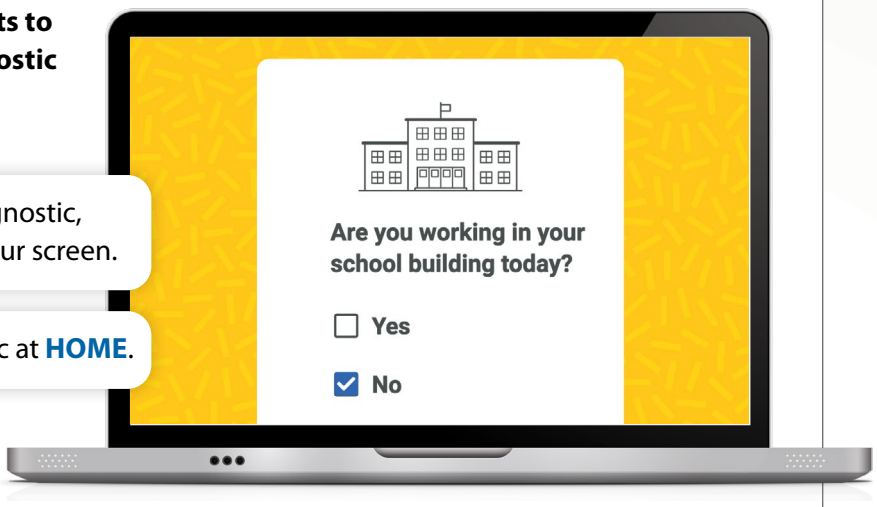
Determining Student Testing Location

Appendix Figure 1: How Was Location Determined?

Platform Popup Question for Students to Select If They Were Taking the Diagnostic in School or in an Out-of-School Test Environment

Once you **START** or **RESUME** your Diagnostic, you will see this question pop up on your screen.

Click **NO** if you are taking the Diagnostic at **HOME**.

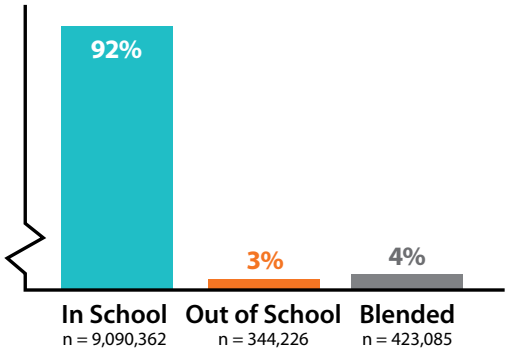


Focusing on In-School Testing Data

The *i-Ready Diagnostic* asks students to indicate whether they are taking the test in school or out of school, which allows us to look at data trends by testing location. We have been examining the data after each testing window (i.e., fall, winter, and spring) since schools first closed in spring 2020, and we found that while out-of-school testing data consistency has improved over time, in-school testing data is the closest to a "true" comparison to prior-year achievement. To have an apples-to-apples comparison throughout our series on unfinished learning research, we will again focus on the in-school testing data for the current report. This analysis focused on assessment data from in-school testing locations because it is:

- More consistent with historical testing conditions
- Less variable from student to student
- A more valid comparison to historical performance

Appendix Figure 2: Percentage of Completed Diagnostics by Testing Location in Fall 2021



As shown in Figure 2 above, the in-school testing data in fall 2021 represents the vast majority of students who took the *i-Ready Diagnostic* (92%).

Sample Inclusion Criteria

First, we selected schools:

- In districts where at least one student was enrolled in the current year (i.e., 2021–2022) and the two most recent years in the historical sample (i.e., 2018–2019 and 2019–2020) for their test subject
- Where at least five students tested in their subject and grade during the fall of the 2019–2020 and 2021–2022 school years
- Where the percentage of students tested in school in fall 2021–2022 was between 50% and 200% of the same testing window in 2019–2020

Next, we included students from the selected schools for both 2021–2022 and historical samples:

- Who were enrolled in Grades 1–8
- Who did not rush on their fall test
- Who self-reported that their fall test was taken in school
  - For the historical sample, we assumed this was all students.

To be included in the demographic analyses, students had to belong to a school that was included in the NCES Common Core of Data in 2019–2020. In order to be included in the three-time point analysis, schools and students also had to meet the above business rules (including testing in school) during fall 2020.

School-Level Demographic Groups

To answer the research questions pertaining to race and ethnicity and median household income, we developed the following reporting groups based on available school-level demographics for the population of students who tested in school. Students were grouped based on whether their school:

- Served less than 25% Black students, 25% to 50% Black students, or more than 50% Black students
- Served less than 25% Latino students, 25% to 50% Latino students, or more than 50% Latino students
- Served less than 25% White students, 25% to 50% White students, or more than 50% White students
- Was located in zip codes where the median household income is less than $50,000, ranges from $50,000 to $75,000, or is more than $75,000

While the more than 50% Black, Latino, and White schools may contain varying levels of diversity, we chose to group schools this way to ensure we had a sufficient sample size for each school-level demographic group. The school-level data on race and ethnicity used in this analysis was sourced from the NCES, which asks students to identify as American Indian or Alaska Native, Asian, Black or African American, Hispanic, Native Hawaiian or Other Pacific Islander, White, or Two or More Races. Throughout this paper, we use the term "Black" to refer to the NCES category of Black or African American and the term "Latino" to refer to the NCES category of Hispanic. We recognize language changes with time, and each demographic group described is not monolithic, nor are all individuals within any designated demographic group in agreement on preferred language. As a company, we will continue to review, reflect on, and evolve the terminology with the goal of using bias-free, inclusive, and sensitive-language labels.

Additional Sample Description Data

Student counts and school-level demographic data are provided for both the in-school testing population (i.e., reported) and the out-of-school testing population (i.e., not reported).

Appendix Table 1.1: Number of Students by Subject and Grade In-School Testing Population—Fall

In School				
Grade	Reading		Mathematics	
	Historical	Current	Historical	Current
1	1,086,770	373,745	1,200,247	427,751
2	1,223,470	427,585	1,339,780	476,793
3	1,316,524	455,454	1,419,754	504,250
4	1,306,719	442,793	1,420,664	491,931
5	1,316,398	450,336	1,435,831	500,045
6	958,309	324,514	1,080,895	370,632
7	825,596	284,708	928,469	326,172
8	794,519	284,079	824,682	304,577

Appendix Table 1.2: Number of Students by Subject and Grade Out-of-School Testing Population—Fall

Out of School				
Grade	Reading		Mathematics	
	Historical	Current	Historical	Current
1	10,749	3,540	10,882	4,498
2	8,286	3,431	7,215	2,900
3	10,286	4,506	8,567	3,697
4	10,763	4,511	12,031	3,612
5	7,001	2,574	6,566	2,716
6	7,824	3,073	9,793	4,201
7	8,085	3,284	7,848	3,313
8	7,296	2,712	9,054	3,805

Note: Diagnostic test results for students who tested out of school are not included in the report findings.

Appendix Table 2.1: School-Level Demographic Characteristics, In-School Testing Population—Fall

In School				
	Reading		Mathematics	
	Average	Range	Average	Range
% American Indian	.5%	0%–100%	.5%	0%–100%
% Asian	5.4%	0%–92%	4.9%	0%–92%
% Black	18.5%	0%–100%	17.5%	0%–100%
% Hawaiian or Pacific Islander	.7%	0%–82%	.7%	0%–82%
% Latino	30.1%	0%–100%	28.9%	0%–100%
% White	40.2%	0%–100%	42.8%	0%–100%
Median Annual Household Income	$57,219	$10,554–$250,001	$57,219	$10,554–$250,001
Student Enrollment	552	3–9,294	543	3–4,456

Appendix Table 2.2: School-Level Demographic Characteristics, Out-of-School Testing Population—Fall

Out of School				
	Reading		Mathematics	
	Average	Range	Average	Range
% American Indian	.4%	0%–7%	.4%	0%–7%
% Asian	3.8%	0%–40%	3.6%	0%–31%
% Black	14.8%	0%–97%	12.1%	0%–98%
% Hawaiian or Pacific Islander	.3%	0%–30%	.3%	0%–30%
% Latino	26.0%	0%–99%	27.2%	0%–99%
% White	45.8%	.1%–95%	46.8%	0%–95%
Median Annual Household Income	$64,375	$16,442–$130,337	$64,375	$16,442–$124,996
Student Enrollment	841	31–9,294	906	31–9,294

Note: Diagnostic test results for students who tested out of school are not included in the report findings.

Additional Results

Appendix Table 3.1: Percentage of Students On Grade Level in Reading by Demographic Group, In-School Testing Population—Fall

Percentage On Grade Level												
Grade	<25% Black		25%–50% Black		<25% Latino		25%–50% Latino		<25% White		25%–50% White	
	Historical	Current	Historical	Current	Historical	Current	Historical	Current	Historical	Current	Historical	Current
1	20%	18%	15%	13%	20%	17%	19%	17%	14%	13%	22%	19%
2	32%	27%	24%	18%	32%	26%	29%	24%	22%	17%	33%	27%
3	49%	44%	37%	32%	49%	44%	44%	39%	34%	29%	49%	44%
4	34%	33%	24%	22%	34%	33%	31%	29%	22%	20%	35%	33%
5	33%	33%	24%	22%	34%	33%	30%	28%	21%	20%	34%	32%
6	34%	33%	25%	24%	35%	33%	29%	28%	23%	22%	33%	32%
7	38%	36%	28%	27%	38%	36%	34%	32%	27%	26%	35%	34%
8	40%	38%	30%	29%	39%	37%	36%	34%	28%	28%	37%	36%

Appendix Table 3.2: Percentage of Students Below Grade Level in Reading by Demographic Group, In-School Testing Population—Fall

Percentage Below Grade Level												
Grade	<25% Black		25%–50% Black		<25% Latino		25%–50% Latino		<25% White		25%–50% White	
	Historical	Current	Historical	Current	Historical	Current	Historical	Current	Historical	Current	Historical	Current
1	8%	10%	10%	13%	7%	9%	9%	11%	13%	16%	8%	9%
2	22%	30%	29%	40%	21%	29%	25%	34%	32%	45%	21%	30%
3	28%	34%	36%	46%	28%	34%	31%	38%	40%	49%	27%	34%
4	22%	27%	30%	37%	22%	27%	24%	30%	33%	41%	21%	27%
5	35%	39%	46%	51%	35%	39%	39%	44%	50%	55%	36%	40%
6	41%	43%	52%	54%	41%	43%	47%	49%	55%	57%	43%	45%
7	43%	45%	55%	56%	44%	46%	48%	50%	57%	58%	47%	48%
8	42%	43%	53%	53%	42%	44%	46%	47%	55%	55%	45%	46%

Appendix Table 4.1: Percentage of Students On Grade Level in Mathematics by Demographic Group, In-School Testing Population—Fall

Percentage On Grade Level												
Grade	<25% Black		25%–50% Black		<25% Latino		25%–50% Latino		<25% White		25%–50% White	
	Historical	Current	Historical	Current	Historical	Current	Historical	Current	Historical	Current	Historical	Current
1	13%	12%	8%	7%	13%	12%	11%	9%	7%	6%	13%	12%
2	17%	14%	10%	8%	18%	15%	14%	11%	10%	7%	17%	14%
3	20%	15%	13%	8%	20%	15%	17%	12%	12%	7%	20%	15%
4	32%	22%	23%	13%	32%	23%	28%	18%	21%	11%	32%	22%
5	37%	27%	27%	16%	37%	28%	32%	21%	24%	14%	36%	25%
6	36%	28%	27%	19%	36%	29%	31%	23%	24%	16%	36%	28%
7	30%	24%	21%	15%	31%	25%	25%	19%	18%	14%	28%	23%
8	28%	22%	19%	14%	29%	23%	23%	17%	16%	13%	25%	21%

Appendix Table 4.2: Percentage of Students Below Grade Level in Mathematics by Demographic Group, In-School Testing Population—Fall

Percentage Below Grade Level												
Grade	<25% Black		25%–50% Black		<25% Latino		25%–50% Latino		<25% White		25%–50% White	
	Historical	Current	Historical	Current	Historical	Current	Historical	Current	Historical	Current	Historical	Current
1	12%	16%	15%	21%	11%	15%	14%	19%	17%	25%	12%	16%
2	23%	31%	30%	43%	22%	30%	26%	37%	33%	48%	24%	33%
3	27%	35%	35%	48%	26%	34%	30%	41%	38%	53%	28%	37%
4	24%	33%	32%	45%	24%	32%	27%	39%	35%	51%	25%	34%
5	24%	33%	32%	45%	24%	32%	27%	39%	36%	50%	25%	35%
6	29%	39%	37%	50%	28%	37%	33%	44%	41%	54%	30%	40%
7	34%	42%	44%	55%	33%	42%	39%	49%	48%	57%	37%	45%
8	41%	46%	53%	59%	40%	45%	48%	54%	57%	61%	45%	50%

Additional Results for Students with Fall 2020 Data*

Appendix Table 5: Number of Students by Subject and Grade Level—In-School Testing Population at Three Time Points

Grade	Reading			Mathematics		
	Historical Fall	Fall 2020	Fall 2021	Historical Fall	Fall 2020	Fall 2021
1	386,065	109,077	138,217	445,550	131,787	165,684
2	413,110	115,298	148,559	464,946	133,993	170,951
3	397,563	110,074	143,149	466,281	134,394	173,299
4	401,036	109,195	140,432	463,699	131,191	166,369
5	364,069	98,087	129,039	435,549	122,615	158,536
6	235,257	66,884	82,347	270,225	79,139	97,026
7	191,240	54,737	69,204	214,196	63,987	80,195
8	181,039	53,747	67,818	189,638	58,402	74,564

Appendix Table 6: Percentage of Students Placing On Grade Level—In-School Testing Population at Three Time Points

Grade	Reading			Mathematics		
	Historical Fall	Fall 2020	Fall 2021	Historical Fall	Fall 2020	Fall 2021
1	19%	15%	16%	13%	9%	12%
2	32%	24%	26%	17%	11%	14%
3	50%	45%	45%	20%	12%	15%
4	34%	32%	34%	31%	18%	24%
5	33%	34%	33%	37%	26%	29%
6	35%	34%	34%	36%	28%	30%
7	39%	37%	36%	30%	25%	26%
8	40%	40%	38%	28%	24%	23%

Appendix Table 7: Percentage of Students Placing Below Grade Level—In-School Testing Population at Three Time Points

Grade	Reading			Mathematics		
	Historical Fall	Fall 2020	Fall 2021	Historical Fall	Fall 2020	Fall 2021
1	6%	8%	8%	10%	16%	14%
2	20%	27%	27%	21%	30%	28%
3	26%	32%	32%	25%	33%	31%
4	20%	25%	24%	22%	31%	28%
5	34%	35%	37%	22%	29%	29%
6	40%	40%	41%	27%	34%	34%
7	42%	42%	44%	32%	37%	38%
8	41%	39%	42%	39%	41%	43%

*The number and percentage of students in Appendix Tables 5, 6, and 7 are based on the current school year.

Appendix Figure 3: *i-Ready Diagnostic* Placement-Level Descriptors

	Three or More Grade Levels Below	Two Grade Levels Below	One Grade Level Below	Early On Grade Level	Mid or Above Grade Level	
Placement relative to grade-level college- and career-readiness standards	Are not close to meeting			Only partially met	Met	
Intructional recommendations	**Likely need intensive intervention of foundational concepts.** Students who perform below grade level are not likely to be proficient on their state summative test, though it is possible.	**May need intensive intervention** of material that is **two grade levels below** to help fill in gaps in students' foundational knowledge.	**May benefit from review or remediation of material** that is **one grade level below**.	**Will benefit from on-grade level instruction** to help them meet the expectations of college- and career-readiness standards for their grade level.	**Mid On Grade Level:**	Will benefit from instruction in late on-grade level topics.
					Late On Grade Level:	Will benefit from late on-grade level enrichment and will be ready for instruction focused on topics typically covered in the beginning of the subsequent grade level.
					Above Grade Level:	Will benefit from above-grade level instruction.

About the *i-Ready Diagnostic*

The Diagnostic is a computer-adaptive assessment for students in Grades K–12 for Reading and Mathematics that provides valid and reliable criterion-referenced and normative scores. The Diagnostic can be administered, typically, at three time points during the school year: fall, winter, and spring.

In addition to a scale score and a norm-referenced percentile-rank score, the Diagnostic provides five criterion-referenced Grade-Level Placements: Mid or Above Grade Level, Early On Grade Level, One Grade Level Below, Two Grade Levels Below, and Three or More Grade Levels Below. Unlike normative scores, these placement levels articulate the high expectations students must achieve to be considered as having attained grade-level knowledge and skills. These placement levels are designed to help educators understand what level of instruction students are prepared for across the school year.

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i-Ready

Built to address the rigor of the new standards, *i-Ready* helps students make real gains. *i-Ready* collects a broad spectrum of rich data on student abilities that identifies areas where a student needs support, measures growth across a student's career, supports teacher-led differentiated instruction, and provides a personalized instructional path within a single online solution.

To learn more about evidence on the impact of *i-Ready*, please visit CurriculumAssociates.com/Research.

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 Understanding Student Learning: Fall 2021 (Curriculum Associates Research Report No. 2021-17). North Billerica, MA: Author. | 10/21 0K

Curriculum Associates

CENTER FOR SCHOOL AND STUDENT PROGRESS

BRIEF

Learning during COVID-19: Reading and math achievement in the 2020-21 school year

JULY 2021

Karyn Lewis, Megan Kuhfeld, Erik Ruzek, and Andrew McEachin

nwea RESEARCH

KEY FINDINGS

- **On average, students across most grades (3-8) made reading and math gains in 2020-21.**
- **However, students' outcomes during the pandemic-affected school year were lower on multiple dimensions:**
    - **Students made gains during the 2020-21 school year at a lower rate compared to pre-pandemic trends, especially between winter and spring.**
    - **Students ended the year with lower achievement compared to a typical year, with larger declines relative to historical trends in math (8 to 12 percentile points) than in reading (3 to 6 percentile points).**
- **Achievement was lower for all student groups in 2020-21; however American Indian and Alaska Native (AIAN), Black, and Latinx students, as well as students in high-poverty schools were disproportionately impacted, particularly in the elementary grades we studied.**

At the start of the 2020-21 school year, the COVID-19 pandemic continued to inflict massive disruptions on all aspects of daily life, presenting educators, students, and their families with enormous challenges, even as many schools began to reopen. Although the severity of these challenges varied across schools, districts, and states, the 2020-21 academic year was far from normal for everyone. Thus, a critical question is: to what extent did these disruptions affect students' achievement?

In December of 2020, the NWEA research team released a report[i] summarizing how students fared academically during the early phase of the COVID-19 pandemic, as measured by the NWEA MAP® Growth™ assessment. Our initial findings showed that impacts of the pandemic were concentrated in math: reading achievement in fall of 2020 was consistent with the prior year, but average math achievement was 5 to 10 percentile points lower than the previous fall.[1] We also found that, on average, students made gains during the early phase of the pandemic (between winter of 2020 right before initial school shutdowns and fall of 2020); however, math gains were smaller than pre-pandemic trends.

This brief continues our ongoing research agenda examining the impacts of COVID-19 on education outcomes. Here, we build upon our initial findings to examine students' academic progress one year into the pandemic. The shared goal of this brief and of our broader research agenda is to provide insight to education leaders and policymakers so, as we work together toward recovery, we can use this critical moment in education to radically rethink how programs, policies, and opportunities are allocated and fiercely commit to distributing resources to communities most impacted by the pandemic.

Framing

We acknowledge that focusing on differences between race and ethnicity groups, as done in this report, may be seen as adopting a deficit-based perspective. This orientation can be problematic because it can perpetuate victim-blaming and fails to acknowledge academic strengths that are not reflected in standardized metrics. However, disaggregating outcomes by race and ethnicity can help highlight the extent of inequity. As we collectively begin the process of recovery, we must confront the highly inequitable pre-pandemic state of education in this country. This is the time, more than ever, to fundamentally reshape how opportunities and resources are allocated and deploy supports where they are most needed, now and into the future.[2]

1 We use words such as "impact" and "effect" for simplicity, not to suggest causality. Our goal is not to identify the myriad factors that explain how the pandemic impacted achievement, but rather to document current achievement patterns relative to pre-pandemic trends.

2 For policy considerations and recommendations based on the findings, please see the accompanying brief[ii] prepared by the NWEA Policy and Advocacy team.

For this paper, we address two questions aimed at providing education leaders and policymakers with the evidence needed to best support students and schools. As school districts plan for post-pandemic recovery, they must identify which students have been most affected. Thus, we summarize overall trends in achievement in 2020-21 and examine to what extent these trends differ across groups (specifically, race/ethnicity at the student level and percentage of economic disadvantage amongst students at the school level).

Using data from 5.5 million students in grades 3-8 who took MAP Growth assessments in reading and math, we examined two primary research questions:

1. How do gains across the 2020-21 school year compare to pre-pandemic trends?
2. How does student achievement in spring of 2021 compare to pre-pandemic levels?

To contextualize 2020-21 relative to pre-pandemic trends, we use 2018-19 MAP Growth data as a benchmark.[3] The 2018-19 school year is the most appropriate pre-pandemic point of comparison given it is the most recent academic year that was unaffected by COVID-19.

Students made gains in 2020-21, but at a lower rate

To assess students' gains in 2020-21, we calculated mean RIT scores for the fall, winter, and spring of the 2020-21 school year and present them alongside mean test scores for the same test seasons in 2018-19. Figure 1 plots the means of third-, fifth-, and seventh-grade students for each test period (fall, winter, and spring), connecting them with a straight line to show average gains for each school year (2018-19 has a dotted line and 2020-21 has a solid line). We use these three grades to streamline the figure, but note that patterns are similar across all grades 3 to 8 (see technical appendix[iii] figures A1 and A2 for reading and math plots for grades 3-8). Comparing mean trajectories for 2020-21 to 2018-19, we see that, in aggregate, students made some gains (the solid lines show a general upward trajectory across the majority of grades and subject areas), but trajectories were diminished relative to a typical year (the solid and dotted lines are not parallel).

Figure 1 also shows that mean trajectories between fall and winter of the 2020-21 school year were more consistent with trajectories in the comparison year than were the winter-to-spring trajectories; in other words, the trajectories become more divergent over time, suggesting that gains stalled later in the year.

Using MAP Growth data to understand COVID-19 education impacts

MAP Growth is a computer adaptive test that is vertically scaled across grades K-12 and measures student achievement in reading and math on the RIT (Rasch unit) scale. Because the RIT scale is an equal-interval, cross-grade scale and the assessment adapts above and below grade level, RIT scores can be used to compare achievement across students and time—within an academic year and over multiple years. In addition, NWEA's nationally representative norms[iv] (which were calculated with a pre-pandemic sample of students) can be used to convert RIT scores to percentile rankings, which helps situate student performance relative to academic peers (for example, a third-grade student at the 40th percentile scored equal to or above 40% of other third-graders).

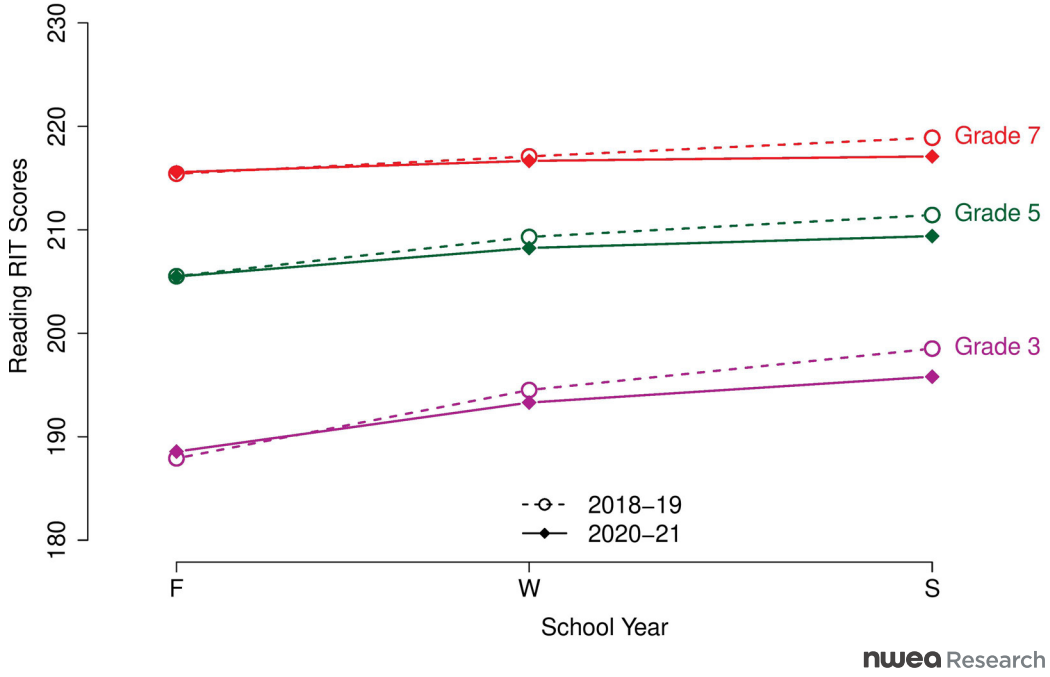
In this study, we used both students' RIT scores and their achievement percentile ranks in reading and math. We examined RIT scores across the 2020-21 school year to address our first research question about gains over the course of the year. For this analysis, we averaged RIT scores for a given term. By looking at differences in average RIT scores over the fall, winter, and spring testing seasons of 2020-21, we infer patterns of **"gains"** and can compare these to the 2018-19 baseline year.[4]

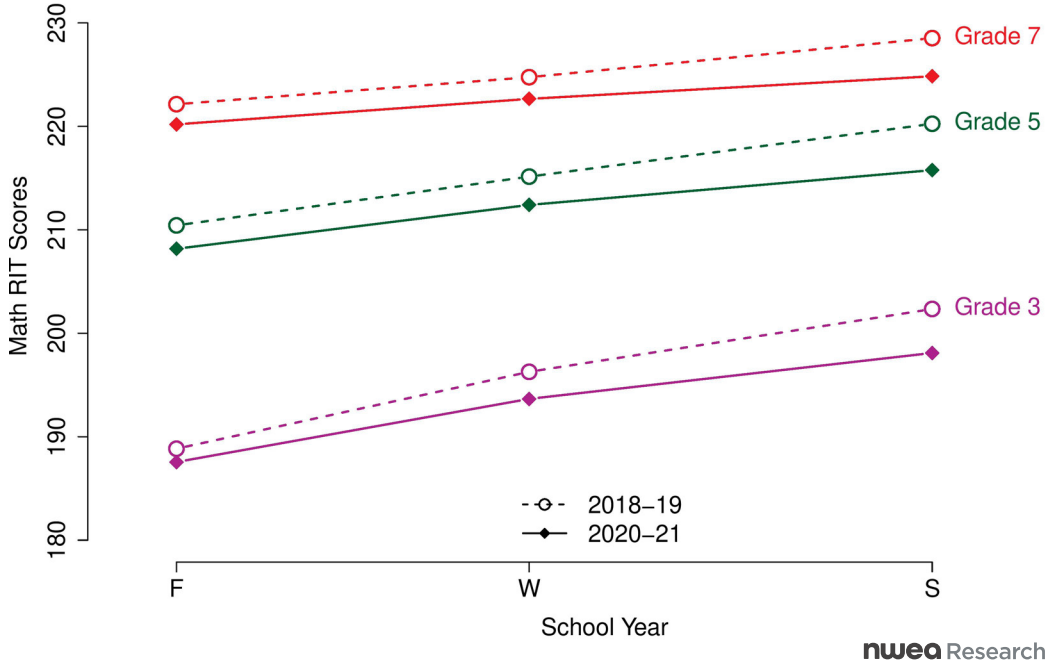
We examined percentile ranks to address our second research question about end-of-year achievement in reading and math. For this analysis, we compared spring percentiles for students in 2021 to the cohort of students who tested in spring of 2019. For simplicity, given in all grades and subjects we find that spring 2021 percentiles are lower than spring 2019 percentiles, we use **"decline"** to denote percentile rank differences between the two cohorts of students. Accordingly, these analyses describe cohort differences and not within-student change over time.

3 We limited our sample of schools to a consistent set of US public schools that tested at least 10 students in a given grade in both 2018-19 and 2020-21. This restriction reduces the degree to which changes in the NWEA partner base may affect the results we observed. See the technical appendix[iii] for more details about the analytic samples.

4 More detailed analyses, currently underway, are necessary to examine within-student patterns of growth. We provide a simple estimate of student "gains" by measuring the average within-student RIT score change (gain = spring RIT – fall RIT) and report these numbers in the accompanying technical appendix[iii] in the final two columns of Table 4.

Figure 1. Mean MAP Growth RIT scores for selected grades in reading (top panel) and math (bottom panel)





Note. For simplicity, these figures depict results for fall, winter, and spring in grades 3, 5, and 7 (non-depicted grades show similar trends). See technical appendix[iii] figures A1 and A2 for all grades.

Students' achievement at the end of the 2020-21 school year was lower compared to pre-pandemic levels, with larger declines in math

In addition to asking how students' gains over the 2020-21 school year compared to 2018-19, it is important to understand where students ended the school year in order to plan for what to expect when students return to the classroom in the fall of 2021. Accordingly, we examined spring 2021 achievement levels (based on NWEA 2020 MAP Growth norms[iv]) compared to spring 2019.

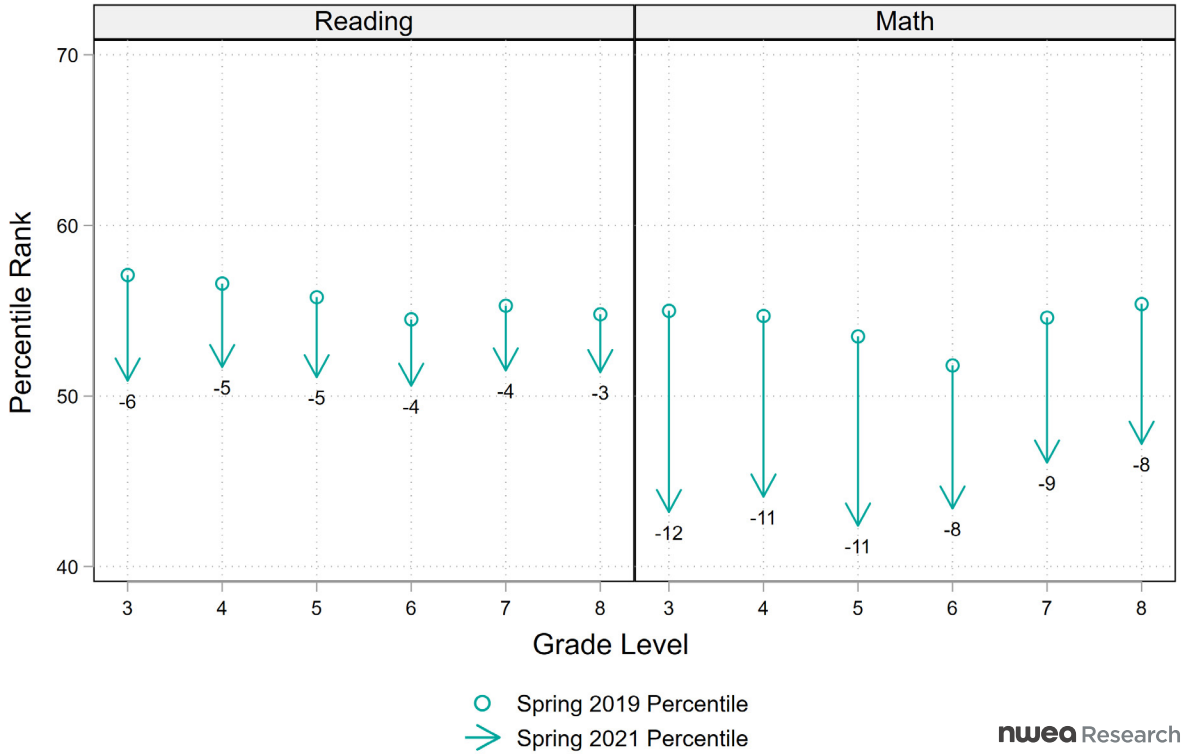
To summarize end-of-year achievement this year relative to a typical year, we calculated the median achievement percentiles for students in spring 2021 and spring 2019 as well as the difference in percentile rank between these years. Figure 2 displays the achievement levels of the pre-pandemic and pandemic cohorts, as well as the difference between the two, separately by grade level for reading (left panel) and math (right panel). To illustrate, in the spring of 2019, median math achievement for third-graders was at the 55th percentile, but in the spring of 2021, median math achievement was at the 43rd percentile, a difference of 12 percentile points.

In contrast to our previous findings, where students began fall 2020 with reading achievement roughly comparable to historical averages, we observe declines of between 3 to 6 percentile points in reading achievement in the spring of 2021 relative to pre-pandemic spring achievement levels. In math, students entered the 2020-21 school year achieving 5 to 10 percentile points lower than same-grade students in a pre-pandemic year. We find that the differences in math achievement relative to pre-pandemic trends have increased over the 2020-21 school year and students' average spring 2021 math achievement is now between 8 to 12 percentile points lower than a typical year.

Spring achievement declines were particularly evident for students in grades 3-5

Achievement was lower in math and reading for all grade levels, but slightly larger differences were observed in the earliest grade levels we examined, corresponding to the late elementary school period. The declines for third- to fifth-graders were larger in magnitude than those for older students by 1 to 3 percentile points in reading and 3 to 4 percentile points in math (see Figure 2).

Figure 2. MAP Growth percentile rank difference between same-grade students in spring 2019 (circles) and students in spring 2021 (arrows) in reading (left panel) and math (right panel)



Note. The circles represent the median percentile rank for the pre-pandemic (spring 2019) cohort and the arrows represent the change in median student percentile rank for the spring 2021 cohort.

Remote testing

The majority of fall 2020 MAP Growth tests were administered remotely, but remote testing decreased over the course of the year (down to 54% of tests in the winter and 46% in the spring) as more schools returned to in-person instruction. We previously released evidence for comparability across testing modalities for students in grades 3-8 (see our comparability study[v]). For the purposes of this brief, we examined basic metrics of test quality across the 2020-21 school year and found a consistent pattern across test seasons (see technical appendix[iii] for more details) which further bolsters our confidence in the quality of remote test scores for the grades included in this analysis.

Historically marginalized and economically disadvantaged students had larger declines in math and reading relative to advantaged peers

In Figure 3 we show percentile rank changes disaggregated by student race/ethnicity. This allows us, for example, to situate the achievement of Asian American students in spring of 2021 relative to the achievement of a cohort of Asian American same-grade students in the spring of 2019.

Figure 3 shows that all student groups were impacted in reading and math. However, the magnitude of these differences was uneven across student groups. Asian American and white students showed declines of a smaller magnitude relative to overall averages and relative to other student groups; AIAN, Black, and Latinx students showed declines of a greater magnitude. The disproportionate size of these declines is particularly concerning given the differential spring 2019 achievement among these student groups. Put simply, the students who could least afford to lose ground relative to other students are those who were the most impacted, and especially so in math.

Similar to the overall trends noted above suggesting differences between older and younger students, the largest percentile differences were generally more concentrated in the late elementary school period.

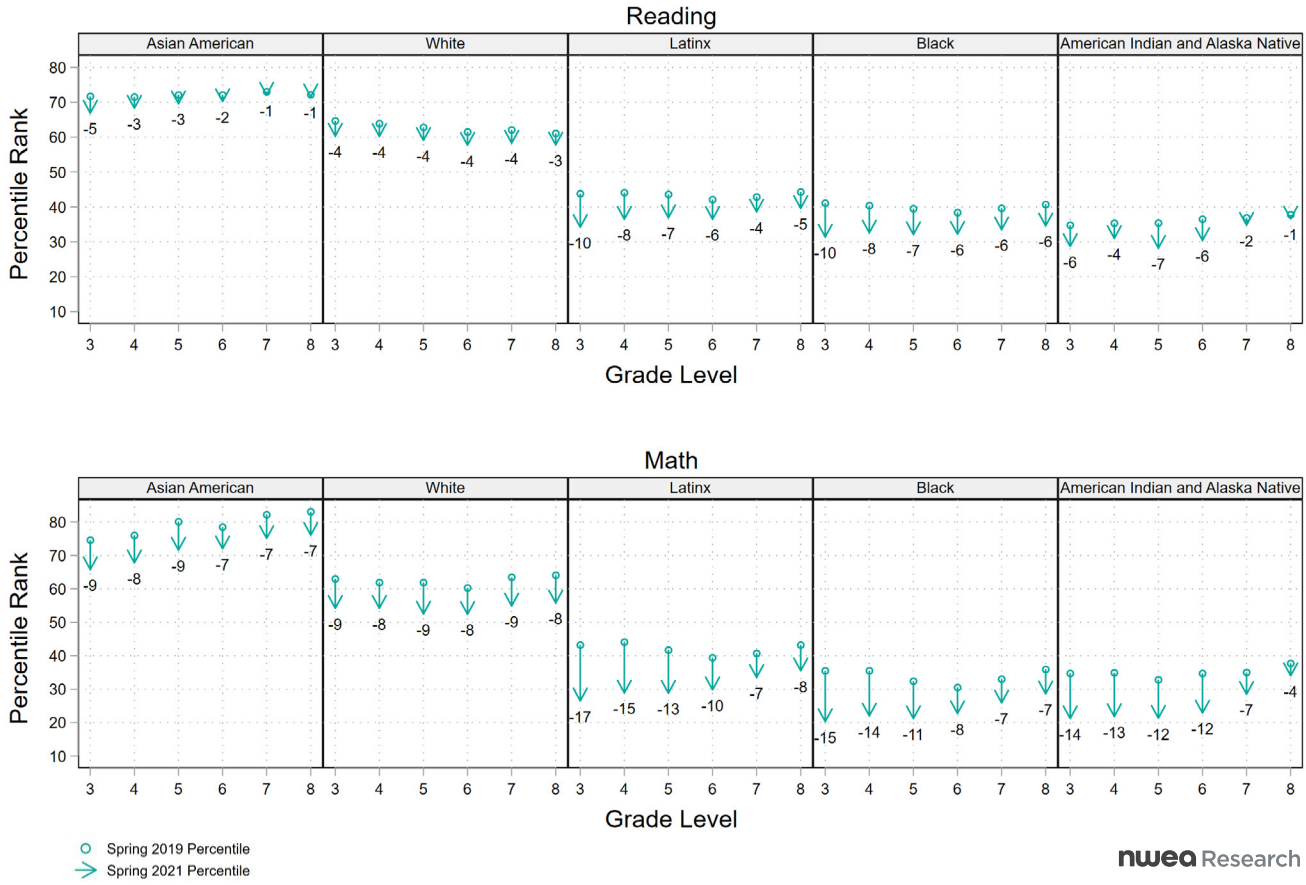
Who is missing from our data?

One worry with our 2020-21 test data is whether it is reflective of all the students we serve. In the fall of 2020, we reported systematic patterns of missingness in our data showing that the demographic makeup of the current year's data is different from that of prior years because of higher rates of attrition for some student groups (see our attrition analysis brief[vi]). Unfortunately, we know that particular student populations were more likely to encounter learning barriers throughout the year and this may have prevented them from participating in testing.

To examine this in our data, we calculated attrition rates to measure the percentage of students who were tested in the prior year but were *not* tested in the current year. We found that the overall attrition rate in 2020-21 was about 20% (that is, about 1 in 5 students who tested in the prior year were missing from this year's assessment data). This rate is higher than normal (for instance, the overall attrition rate in 2018-19 was 13%), which is to be expected given the challenges of this past year. However, we see even higher attrition rates during 2020-21 for AIAN, Black, and Latinx students (ranging from roughly 22% to 25%) and for students who scored in the lowest achievement quintile in the 2019-20 fall test administration (roughly 22%).

There is more work to do to understand the implications of these patterns. However, for the results we present in this brief, the patterns of missing data may mean that we have overestimated academic achievement and gains in 2020-21 compared to prior school years. In other words, the true impacts of the pandemic on academic achievement this year may be even more pronounced than what we report. We present a more detailed look at the missing data patterns in our technical appendix.[iii]

Figure 3. MAP Growth percentile rank difference by cohort and race/ethnicity in reading (top panel) and math (bottom panel)



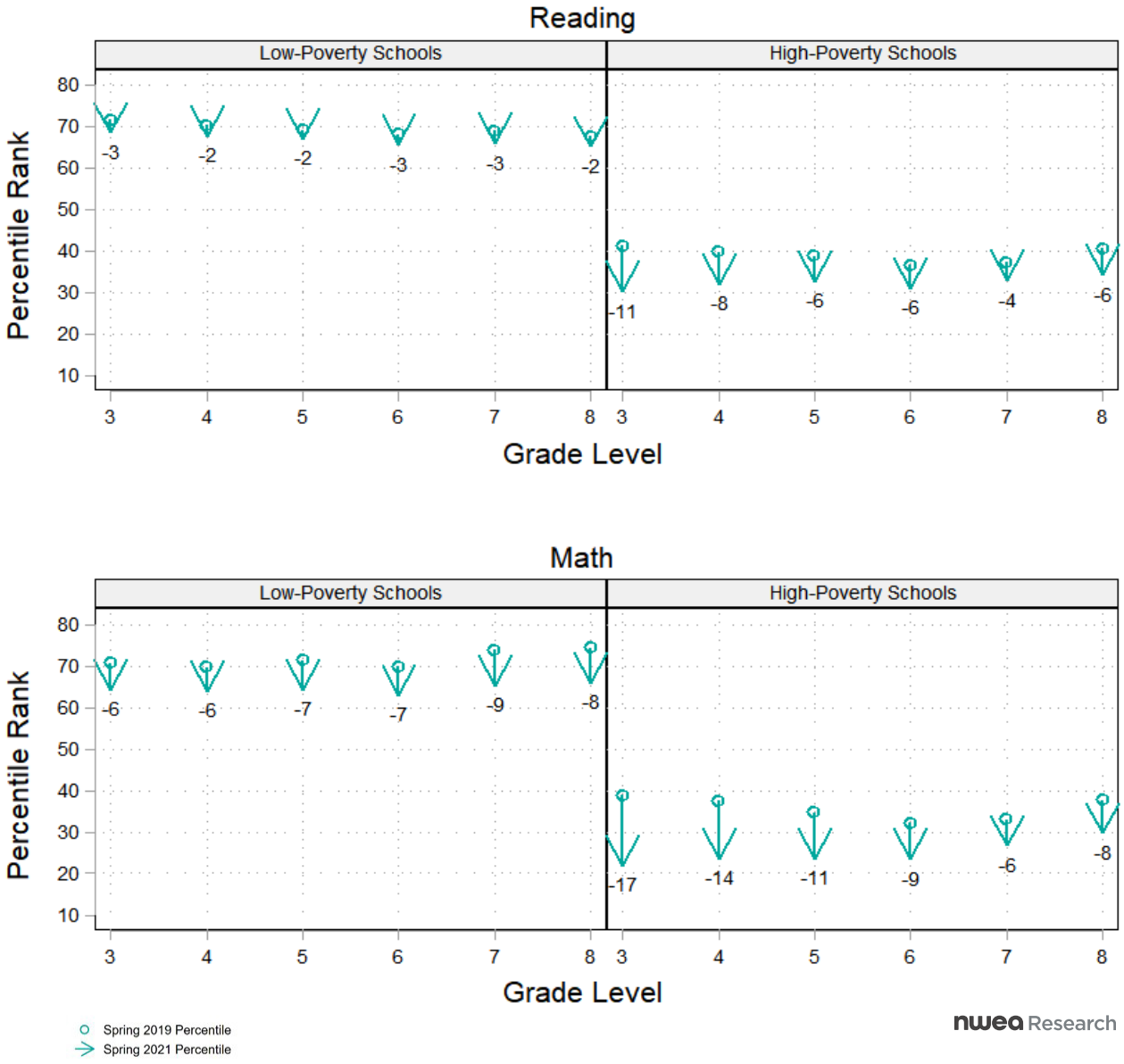
Note. The circles represent the median percentile rank for the pre-pandemic (spring 2019) cohort and the arrows represent the decline in median student percentile rank for the spring 2021 cohort.

In Figure 4 we show percentile rank changes by school poverty level.[5] Here we see that students in more economically disadvantaged schools were the most impacted by the pandemic. In many grades, students attending high-poverty schools showed more than double the declines of students attending low-poverty schools. This uneven pattern of declines occurred amidst already unequal starting status differences between students in high- versus low-poverty schools. Students in low-poverty schools in 2020-21 still achieve well above the national average, even with percentile point declines ranging from 6 to 9 percentile points. In contrast, the pre-pandemic cohort of students in high-poverty schools achieves well below national averages and the declines we see in the 2020-21 cohort have served to widen already significant achievement disparities between these two groups.

These results also show evidence of the trend highlighted above suggesting younger students were more impacted than older students. For instance, third-graders in high-poverty schools showed an 11 percentile point decline in reading and a 17 percentile point decline in math, whereas seventh-graders in high-poverty schools showed a 3 percentile point decline in reading and a 6 percentile point decline in math.

5 Data on school poverty comes from the Stanford Education Data Archive (SEDA).[vii] For simplicity, we present data for schools defined as low poverty (less than 25% of students receiving free- and reduced-price lunch) and high poverty (more than 75% of students receiving free- and reduced-price lunch).

Figure 4. MAP Growth percentile rank change by school poverty level in reading (upper panel) and math (lower panel).



Note. The circles represent the median percentile rank for the pre-pandemic (spring 2019) cohort and the arrows represent the decline in median student percentile rank for the spring 2021 cohort.

Summary

Together, these findings suggest that students fared worse academically by the end of the 2020-21 school year compared to what we first reported in the fall. Reading achievement was a bright spot in the fall of 2020. However, we now see that reading achievement is no longer holding steady, but rather showing evidence of impacts, although these declines were not as dramatic as those in math. Math achievement was doubly impacted this year: students started the school year with lower achievement than prior years and made less than typical gains over the course of the year. As a result, spring 2021 math achievement fell even further behind historical trends—the difference of 5 to 10 percentile points in fall of 2020 widened to a difference of 8 to 12 percentile points in spring of 2021.

Early learning experts worried that younger students would be more severely impacted by disruptions to traditional instruction and the transition to online learning.[viii] Our data show some evidence in support of these concerns in that we see larger achievement impacts for the lower grades in our sample. These differences are small, but the trend is consistent across reading and math.

Overall, students made some gains in reading and math during the 2020-21 school year; however, these gains were lower relative to a typical year and the rate of average gains stalled more between winter and spring. Our data cannot explain the causes, but one possible explanation is increasing pandemic fatigue. A recent study from California's CORE districts[ix] found that students reported improvements to their online learning environment over the past academic year (which underscores the heroic efforts of educators to improve virtual instruction); but the continued strain of the pandemic took its toll on students and their families throughout the school year. One indicator of this is that students reported liking school less in the winter compared to the beginning of the year. This point is especially relevant given that schools began remote instruction in spring 2020, and by the end of winter 2021, many students had nearly a full academic year of remote schooling.

Finally, and most importantly, our findings help us understand where the education impacts of the pandemic have been most acute. As we summarized in a recent paper,[x] the pandemic has exacerbated longstanding educational inequalities for marginalized students: over the last year, students of color were less likely to be learning in person and more likely to encounter obstacles in accessing instruction compared to white students. The unequal impacts of the pandemic extend beyond education: communities of color were more likely to bear the economic and health consequences of the pandemic. The compounding toll of these burdens appears to be borne out in our findings. We report the largest achievement declines for AIAN, Black, and Latinx students, and for students attending high-poverty schools. These declines are of greater magnitude in math than reading and for younger students. Altogether, these results highlight that the COVID-19 pandemic impacted marginalized students more, and as a result, exacerbated pre-existing inequities in educational opportunities and outcomes.

Call to action

Academic achievement is only one dimension of students' education, and these data alone cannot paint a complete picture of how young people fared this past year. For instance, our results cannot speak to the many ways students, families, and teachers have shown incredible resiliency and adaptability in the face of immense challenges that completely upended normal life. We look forward to learning from these bright spots in the coming months.

In the meantime, our latest findings underscore that there is much work to be done on the path to recovery. As daily life increasingly returns to "normal," we must confront what this means in the context of education. As our findings show, even if recovery is swift and students return to pre-pandemic levels of achievement, significant inequities will persist. Thus, our collective call to action is clear: **next year cannot be a "normal" year.** We cannot return to the classroom and do things the same as they have always been done and expect to see a different outcome. Instead, we must use this critical moment in education to radically rethink how programs, policies, and opportunities are designed and fiercely commit to prioritizing the communities most impacted by the pandemic and distributing resources accordingly. We hope that our findings equip education leaders and policymakers with the evidence needed to do this and we look forward to being a partner in the hard work ahead.

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Details on the methodology behind these analyses can be found in:

Kuhfeld, M., Ruzek, E., Lewis, K., McEachin, A. (2021). Technical appendix for: Learning during COVID-19: Reading and math achievement in the 2020-21 school year. NWEA.

Suggested citation:

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ABOUT NWEA

For more than 40 years, NWEA® has been a pioneer in educational research and assessment methodology with a focus on improving learning outcomes for every student. NWEA continues this discovery through dedicated research that explores foundational issues in education, practical challenges in today's schools, and the evolving role of technology in the lives of students. As a mission-based not-for-profit educational research organization, NWEA's research agenda reflects our commitment to attacking big challenges in education and measurement and empowering education stakeholders with actionable insights.

ABOUT THE
CENTER FOR SCHOOL AND STUDENT PROGRESS

The Center for School and Student Progress (CSSP) engages directly with NWEA partner schools to influence education practices and policies that promote student success. The CSSP focuses on issues that impact the daily work of educators and the students they serve, such as achievement and growth patterns for traditionally underserved students, the integrity of testing systems, supporting college and career readiness, and school accountability. CSSP researchers also serve as consultative partners, offering advanced technical support, custom research projects, and analysis to school leadership, educators, and policymakers.

ABOUT THE
COLLABORATIVE FOR STUDENT GROWTH

The Collaborative for Student Growth at NWEA is devoted to transforming education research through advancements in assessment, growth measurement, and the availability of longitudinal data. The work of our researchers spans a range of educational measurement and policy issues including achievement gaps, assessment engagement, social-emotional learning, and innovations in how we measure student learning. Core to our mission is partnering with researchers from universities, think tanks, grant-funding agencies, and other stakeholders to expand the insights drawn from our student growth database—one of the most extensive in the world.

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