TECHNICAL BRIEF

Technical appendix for: "COVID's Impact on Science Achievement: Trends from 2019 through 2024"

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1. Introduction

The purpose of this technical appendix is to share detailed results and more fully describe the sample and methods used to produce the research brief, **COVID's impact on science achievement: Trends from 2019 through 2024**. We investigated three main research questions in this brief:

1) How did science achievement in 2021 and 2024 compare to achievement in 2019, before the pandemic?
2) How much additional schooling was required in spring 2021 and spring 2024 to return to spring 2019 levels?
3) How do these patterns differ by race/ethnicity?

2. Data

Sample

The data for this study are from the NWEA anonymized longitudinal student achievement database. School districts use NWEA® MAP® Growth™ assessments to monitor elementary and secondary students' science achievement and gains. The NWEA data also include demographic information, including student race/ethnicity, gender, and age at assessment. An indicator of student-level socioeconomic status is not available. However, a set of school-level characteristics, including school-level free or reduced priced lunch (FRPL) eligibility was obtained from the 2019-20 school-level Common Core of Data (CCD) files from the National Center for Education Statistics.

Although the number of Science MAP Growth assessments administered each year has been rapidly increasing, schools still administer it less frequently and consistently than its reading and math counterparts. To ensure that our results reflect actual changes due to the pandemic instead of changes due to sampling, we restricted our data to schools that consistently administered the Science assessment in a given grade in each year between 2017 and 2024. For example, if a school tested 3rd grade students in 2017, they needed to consistently test 3rd grade students in 2018 through 2024. Table 1 shows the number of schools included in our analytic sample per grade. In total, there were 621 unique elementary and middle schools in our full sample with 400,451 unique students across grades and years.

Baseline (pre-COVID) data

The differences in the composition of our science sample relative to the national MAP Growth math and reading samples that have been previously published (e.g., Lewis & Kuhfeld, 2024; Kuhfeld & Lewis, 2024) require a different pre-COVID comparison group than prior reports. We examined science achievement trends from 2017 – 2019 to establish the most appropriate pre-COVID baseline for science. As shown in Table 2, we found steadily increasing scores for all grades between spring 2017 and spring 2019.

It is impossible to definitively state why test scores increased between 2017 – 2019. However, one likely explanation is changes in science instruction and assessment content alignment during that period. Specifically, in 2016, NWEA released a new version of the MAP Growth Science assessment aligned with the *Next Generation Science Standards* (NGSS). The NGSS represent a paradigm shift in science instruction and assessment, requiring students to apply the practices of science alongside their understanding of key science concepts to explain everyday natural phenomena. Students engaging in NGSS instruction and assessment likely must adapt over time to the higher expectations of the NGSS.

It is unclear if test score increases between 2017 and 2019 are due to teachers becoming more facile with adapting instruction and students gaining practice explaining phenomena, or if it could be due to increasing familiarity with the updated assessment. Regardless, we opted to use spring 2019 as the pre-COVID baseline in our research to avoid overinflated estimates of test score changes due to the pandemic. However, we did require consistency in the baseline sample between 2017 and 2019 to control for the observed tendency for scores to rise over this period.

Descriptive information for the schools in our main sample along with comparison information on the population of U.S. schools is provided in Table 3. Our sample reflects a diversity of schools from across various locales (urban, suburban, rural, and town), with higher percentages of suburban and rural schools and lower percentages of city schools than in the national sample. Relative to the population of U.S. schools, our sample reflects schools serving a slightly higher average percentage of Black students and a lower average percentage of Hispanic students.

Measure of achievement

Student test scores from the NWEA MAP Growth science assessments, called RIT scores, were used in this study. Test scores are reported on the RIT (Rasch unIT) scale, which is a linear transformation of the logit scale units from the Rasch item response theory model. MAP Growth is a computer adaptive test that precisely measures achievement, even for students above or below grade level and is vertically scaled to allow for the estimation of gains across time. MAP Growth assessments are typically administered three times a year (fall, winter, and spring), but we report only spring scores in this report. Some assessments are aligned to state content standards *and* the NGSS, while others are exclusively aligned to the NGSS. That is, all tests expect students to integrate key concepts with the practices of science (e.g., analyzing data, using models, and citing evidence) to explain phenomena (as required by the NGSS), but individual state assessments may vary on the disciplinary concepts addressed by the test, and how practices of science may be integrated with disciplinary concepts. The composition of test types was fairly consistent between 2019 and 2024 and is shown in Table 4. The brief surge in NGSS-only tests in 2017-18 was likely due to the absence of state-specific versions of the NGSS-style science test at that time. Within 2 years, state-specific versions were available, and the ratio of test types returned to 2016-17 levels.

MAP Growth with Enhanced Item-Selection Algorithm (EISA)

In the 2023-24 school year, NWEA began the phased implementation of an enhanced item-selection algorithm for the MAP Growth assessment. This update more closely aligns the assessment with grade-level content to enhance its content validity. The enhanced item-

[selection algorithm (EISA)](#) prioritizes grade-level content while still adapting to off-grade items where necessary to provide items of appropriate difficulty for students. Nineteen states implemented MAP with EISA in the 2023-24 school year. NWEA conducted a [comparability study](#) of the scores with traditional MAP Growth and MAP with EISA and found that prioritization of grade-level test content appears to have no discernible impact of MAP with EISA on achievement and growth patterns in science.

3. Methods

RQ1: How did science achievement in 2021 and 2024 compare to science achievement in 2019, before the pandemic?

We examined mean student achievement by grade level each spring between 2017 and 2024, excluding spring 2020 for lack of data. We examined data between 2017 and 2019 to establish an appropriate pre-COVID baseline. Having established spring 2019 as the appropriate baseline, we then sought to examine scores early in the pandemic (spring 2021) and from the most recent test administration (spring 2024). We examined data from spring 2022 and 2023 to ensure that trends did not deviate substantially from the 2021 and 2024 results, but we do not report separate findings for 2022 and 2023.

Achievement gaps were calculated by computing the standardized mean difference between average test scores in a grade/term between the pre-COVID (2019) and COVID (2021 or 2024) samples. For example, the achievement gap (as an effect size) in a recent spring term *t* in grade *g* was calculated as:

$$ES_{tg} = \frac{\overline{\text{RIT}}_{tgC} - \overline{\text{RIT}}_{tgPC}}{\sqrt{\dfrac{(\text{N}_{tgC} - 1)\text{SD}^2_{tgC} + (\text{N}_{tgPC} - 1)\text{SD}^2_{tgPC}}{\text{N}_{tgC} + \text{N}_{tgPC} - 2}}},$$

where $\overline{\text{RIT}}_{tgC}$ is the average COVID (*t* = spring 2021 or spring 2024) test score in grade *g*; $\overline{\text{RIT}}_{tgPC}$ is the average pre-COVID (*t* = spring 2019) score in grade *g*; SD_{tgC} and SD_{tgPC} are the corresponding standard deviation (SD) estimates; and N_{tgC} and N_{tgPC} are the observed sample size in grade *g* in the COVID and pre-COVID periods, respectively. Table 2 lists the sample size, means, and standard deviations by grade and year. Baseline pre-COVID (2019) scores are in bold font. The standardized effect sizes by grade, and year are reported in

Table 5, and are displayed below the points in Figure 1 in the main brief.

To contextualize the practical significance of our achievement gaps, we translated the standardized effect sizes into a metric that may be more familiar to educators: months of schooling.[1] This translation is calculated as a ratio of some effect (e.g., achievement gap) to typical growth on the same scale. For example, in spring 2024 we observe a 0.25 RIT score gap in 5th grade science relative to spring 2019. A typical pre-COVID fall-to-spring growth rate for 5th grader students is 7.07 RIT points per school year for 5th graders. Therefore, we estimate that a student would need 0.25/7.07 = .04 additional years of learning to catch up. If we assume 9 months of instruction in a school year, this translates to 0.32 additional months (less than 2 weeks) of schooling that students would require to meet pre-pandemic levels of achievement. For a given term t and cohort g, the translation formula is:

$$\text{Months of additional schooling} = \frac{\overline{RIT}_{tgC} - \overline{RIT}_{gPC}}{\overline{\text{Growth}}_{gPC}} * 9,$$

where $\overline{\text{Growth}}_{gPC}$ is the average fall-to-spring change in RIT score for grade g across the pre-COVID school year of 2018-19 (based on students with scores from both the fall and spring test administrations). The achievement gaps for each grade/year combination, pre-COVID growth rates, and months needed for each cohort to catch up are shown in

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[1] We calculated how many additional months of instruction students would need to offset the widening of these gaps. While months of learning metrics have known limitations (Baird & Pane, 2019; Kuhfeld et al., 2023), we chose to still translate our effect sizes into metrics of time to communicate the urgency of the issue in a metric that resonates more with educators and policymakers.

Table 5. These results are shown in Table 1 in the main brief and Figure A1, which depicts the months of additional schooling required for students to catch up.

RQ3: How do these patterns differ by race/ethnicity?

Months of schooling required to close gaps

To understand (a) subgroup differences (achievement disparities) that existed prior to the pandemic, as well as (b) how the pandemic has exacerbated achievement disparities, we estimated the months ahead or behind each group was relative to the overall mean for a given grade. To compute this estimate in months, we calculated the pre-COVID, spring 2021, and spring 2024 average test scores of each grade/subgroup and subtracted the overall pre-COVID levels of achievement for that grade. We then divided by the typical fall-to-spring growth for that grade (using the same value for all subgroups) and multiplied by 9 (as shown in the following equation). Here, $\overline{\text{RIT}}_{tgsC}$ is a recent sample (t = spring 2021 or spring 2024) test score in grade g, for subgroup s, and the remaining terms are as previously defined.

$$\text{Months of additional schooling for subgroups} = \frac{\overline{\text{RIT}}_{tgsC} - \overline{\text{RIT}}_{gPC}}{\overline{\text{Growth}}_{gPC}} * 9$$

Table 6 describes the demographics and sample sizes for each grade and year. Pre-COVID, 2021, and 2024 mean scores, sample sizes and SDs are presented in Table 7 for each term/grade/subgroup combination, as well as for the overall pre-COVID sample.[2] Pre-COVID growth by grade is shown in

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[2] The overall pre-COVID estimates shown in Table 7 are the grade average of the spring pre-COVID (2019) estimates from Table 2.

Table 5.

These statistics are depicted in Figure 2 in the main brief, which displays each racial/ethnic subgroup's months ahead or behind in the pre-COVID sample (base of each arrow) and the months ahead or behind in spring 2021 (tip of each arrow on left panel) and spring 2024 (tip of each arrow on right panel) relative to pre-COVID overall achievement levels (where zero represents the pre-COVID overall baseline). The differences in months between pre-COVID and either 2021 or 2024 values are reported below each arrow.

Pre-COVID, 2021, and 2024 disparities and Disparity differences by racial/ethnic subgroups for grades 3 through 8 are shown in Table 8.

Table 1. Number of schools consistently administering science test by grade level from 2017 through 2024.

Grade	Number of schools consistently administering test at each grade
3	156
4	254
5	373
6	205
7	224
8	229

Table 2. Descriptive statistics for science achievement data: Spring 2017 - Spring 2024

Grade	Number of students	Mean Achievement	Standard Deviation	School Year
3	9818	193.06	12.61	2016-17
	9842	193.57	12.92	2017-18
	9234	**193.95**	**12.83**	**2018-19**
	7787	193.13	13.49	2020-21
	7706	193.59	13.55	2021-22
	8165	193.67	13.45	2022-23
	7951	193.60	13.54	2023-24
4	17332	201.23	12.61	2016-17
	17024	201.82	12.64	2017-18
	17223	**202.02**	**12.70**	**2018-19**
	13975	200.45	13.23	2020-21
	14799	201.97	13.00	2021-22
	14948	202.36	13.31	2022-23
	15184	202.14	13.44	2023-24
5	25135	208.61	12.87	2016-17
	25843	209.31	12.95	2017-18
	26243	**209.74**	**12.93**	**2018-19**
	22612	208.36	13.37	2020-21
	23773	208.92	13.25	2021-22
	24018	209.47	13.39	2022-23
	23629	209.49	13.80	2023-24
6	19469	208.65	13.19	2016-17
	20230	209.18	13.09	2017-18
	21285	**209.28**	**13.15**	**2018-19**
	17626	208.55	13.47	2020-21
	18785	208.44	13.48	2021-22
	19625	208.48	13.59	2022-23
	19187	208.80	13.67	2023-24
7	20014	211.58	13.83	2016-17
	20350	211.86	13.46	2017-18
	21592	**212.37**	**13.74**	**2018-19**
	17685	212.04	14.20	2020-21
	19693	211.57	14.26	2021-22
	20021	211.06	14.40	2022-23
	19863	211.71	14.53	2023-24
8	17912	215.03	13.94	2016-17
	17406	215.04	14.48	2017-18
	17942	**215.67**	**14.02**	**2018-19**
	15209	214.91	15.08	2020-21
	17230	215.22	14.49	2021-22
	17497	214.19	14.82	2022-23
	17143	214.24	15.34	2023-24

Note. Pre-COVID (baseline) scores used in this study are in bold font.

Table 3. Demographics of sample schools compared to population of U.S. public schools

School Characteristic	Study sample (all grades)	National sample (all grades)
Percent eligible for free or reduced-price lunch	54%	55%
Percent White	49%	49%
Percent Black	18%	15%
Percent Latinx/Hispanic	22%	25%
Percent Asian	4%	4%
City	13%	28%
Suburban	41%	32%
Rural	38%	28%
Town	8%	12%
Charter	10%	12%
N	621	76,960

Note. The study sample is defined as schools that consistently administered MAP Growth Science in a given grade each spring between the 2016-17 to 2023-24 school years. The national sample includes all schools teaching grades 3-8 in the 2018-2019 Common Core of Data (CCD) collected by the National Center for Educational Statistics. The 2018-19 CCD provided all demographics for the national sample and free or reduced-price lunch and urbanicity data for the study sample.

Table 4. Composition of NGSS and state test types in sample by year

Year	NGSS *and* State alignment (percent)	NGSS alignment only (percent)
2016-17	92.0%	8.0%
2017-18	56.7%	43.3%
2018-19	87.5%	12.5%
2020-21	91.4%	8.6%
2021-22	91.9%	8.1%
2022-23	92.0%	8.0%
2023-24	91.3%	8.7%

Table 5. Mean student achievement gaps and months of additional instruction by year and grade

School Year	Grade	Term	Pre-COVID Mean	COVID Mean	Standardized Effect Size	Difference	Pre-COVID Growth	Months
2020-21	3	S21	193.9	193.1	-0.06	0.82	7.64	1.0
2020-21	4	S21	202.0	200.4	-0.12	1.57	6.20	2.3
2020-21	5	S21	209.7	208.4	-0.11	1.38	7.07	1.8
2020-21	6	S21	209.3	208.6	-0.06	0.73	3.54	1.9
2020-21	7	S21	212.4	212.0	-0.02	0.33	3.46	0.9
2020-21	8	S21	215.7	214.9	-0.05	0.76	4.02	1.7
2023-24	3	S24	193.9	193.6	-0.03	0.35	7.64	0.4
2023-24	4	S24	202.0	202.1	0.01	-0.12	6.20	-0.2
2023-24	5	S24	209.7	209.6	-0.02	0.25	7.07	0.3
2023-24	6	S24	209.3	208.8	-0.04	0.49	3.54	1.2
2023-24	7	S24	212.4	211.7	-0.05	0.66	3.46	1.7
2023-24	8	S24	215.7	214.2	-0.10	1.43	4.02	3.2

Note. Standardized Effect Size=standardized difference between COVID and pre-COVID means. Difference= difference between COVID and pre-COVID means. Pre-COVID growth=average fall-to-spring change in RIT score for each grade in science in 2019 in this sample. Months=additional months of schooling that 2023-24 students would require to catch up to pre-COVID means. Months of additional schooling needed are calculated by dividing the difference by the pre-COVID average growth rate and multiplying by 9, which is the number of months in a typical school year. Data from this table are referenced in Figure 1 in the main brief.

Table 6. Sample sizes and demographics by grade and year

Grade	Spring year	N (all groups)	American Indian / Alaska Native	Asian	Black	Hispanic	White	Multi-Racial	Not Specified	Male
3	2017	9818	2.3	5.9	44.3	16.6	27.1	1.7	2.1	0.51
3	2018	9842	2.1	6.6	43.0	17.6	26.6	2.0	2.1	0.51
3	2019	9234	1.9	7.1	41.0	17.5	28.0	2.6	1.8	0.51
3	2021	7787	2.1	8.2	38.4	16.6	30.6	2.3	1.8	0.51
3	2022	7706	2.4	6.9	39.1	17.0	29.6	3.1	1.9	0.51
3	2023	8165	2.2	6.8	39.6	17.1	29.2	2.9	2.3	0.51
3	2024	7951	2.0	6.6	37.6	18.1	31.1	3.3	1.3	0.5
4	2017	17332	1.5	6.1	30.0	24.8	30.5	2.4	4.7	0.51
4	2018	17024	1.4	6.4	30.3	24.8	29.8	2.4	4.9	0.51
4	2019	17223	1.5	6.6	29.3	24.3	29.1	2.7	6.5	0.51
4	2021	13975	1.1	7.4	28.1	25.6	30.8	3.0	3.9	0.51
4	2022	14799	1.4	6.8	27.7	25.1	31.2	3.2	4.4	0.51
4	2023	14948	1.3	6.3	28.3	26.5	30.1	3.1	4.4	0.51
4	2024	15184	1.4	6.1	27.1	27.4	30.3	3.6	4.2	0.50
5	2017	25135	1.1	5.2	25.9	25.8	34.9	2.7	4.3	0.51
5	2018	25843	1.2	5.6	26.0	26.5	33.6	2.8	4.3	0.51
5	2019	26243	1.1	5.3	24.1	21.5	35.0	2.4	10.6	0.51
5	2021	22612	0.9	6.4	24.2	22.1	39.7	3.2	3.5	0.51
5	2022	23773	0.9	5.6	24.9	22.1	39.6	3.0	3.9	0.51
5	2023	24018	1.1	6.1	25.1	26.4	34.9	3.3	3.1	0.51
5	2024	23629	1.1	6.1	24.5	27.8	34.0	3.4	3.1	0.51
6	2017	19469	1.7	5.3	23.8	24.4	37.3	2.2	5.3	0.51
6	2018	20230	1.9	5.4	23.5	23.9	36.9	2.7	5.7	0.51
6	2019	21285	1.4	5.0	24.1	23.5	36.2	2.6	7.2	0.51
6	2021	17626	1.2	5.4	21.8	26.2	37.8	2.8	4.7	0.51
6	2022	18785	1.6	5.4	20.5	27.4	36.8	3.2	5.2	0.51
6	2023	19625	1.5	4.7	23.9	27.5	34.8	3.1	4.5	0.51
6	2024	19187	1.6	5.1	23.1	26.7	35.6	3.3	4.7	0.51
7	2017	20014	2.2	4.7	23.4	23.1	38.5	2.3	5.8	0.52
7	2018	20350	2.4	4.5	22.6	23.2	39.7	2.7	5.1	0.51
7	2019	21592	1.9	4.4	22.9	22.2	39	2.6	7.0	0.51
7	2021	17685	1.6	4.3	20.6	25.3	39.6	2.9	5.7	0.50
7	2022	19693	1.8	4.2	19.7	26.5	39.6	3.4	4.9	0.51
7	2023	20021	2.0	4.2	21.4	27.1	37.4	3.3	4.6	0.51
7	2024	19863	2.0	4.3	22.4	26.1	37.3	3.4	4.7	0.52
8	2017	17912	1.7	3.6	25.5	23.6	36.2	2.5	7.1	0.51
8	2018	17406	2.3	4.6	26.8	22.0	35.6	2.4	6.3	0.51
8	2019	17942	2.1	3.7	24.5	20.4	35.8	2.1	11.4	0.51
8	2021	15209	1.4	3.9	24.4	21.7	40.3	2.8	5.5	0.50
8	2022	17230	2.1	3.7	23.0	22.5	39.6	3.2	5.8	0.52

Grade	Spring year	N (all groups)	American Indian / Alaska Native	Asian	Black	Hispanic	White	Multi-Racial	Not Specified	Male
8	2023	17497	2.1	3.8	24.4	26.7	35.1	3.0	4.9	0.51
8	2024	17143	2.0	4.1	23.4	26.7	35.0	3.4	5.4	0.51
All Grades	2017	109680	1.7	5.1	27.3	23.7	34.8	2.4	5.1	0.51
All Grades	2018	110695	1.8	5.4	27.2	23.6	34.4	2.6	4.9	0.51
All Grades	2019	113519	1.6	5.1	26.1	21.9	34.7	2.5	8.1	0.51
All Grades	2021	94894	1.3	5.7	24.8	23.5	37.4	2.9	4.4	0.51
All Grades	2022	101986	1.6	5.3	24.2	24.0	37.1	3.2	4.6	0.51
All Grades	2023	104274	1.6	5.2	25.7	26.1	34.2	3.1	4.1	0.51

Table 7. Sample sizes, mean science RIT scores, and SDs by grade level and subgroup

Grade	Subgroup	2019 Pre-COVID (Overall Sample)			2019 Pre-COVID (Subgroup)			2021 COVID (Subgroup)			2024 COVID (Subgroup)		
		N	M	SD	N	M	SD	N	M	SD	N	M	SD
3	Black	9234	193.9	12.8	3785	189.8	12.1	2990	188.6	12.3	2990	189.4	12.6
3	Hispanic	9234	193.9	12.8	1618	190.4	11.4	1294	188.4	12.5	1439	190.0	12.8
3	White	9234	193.9	12.8	2589	200.6	11.3	2386	200.4	11.8	2469	199.9	12.2
4	Black	17223	202.0	12.7	5048	196.2	12.8	3925	194.1	13.1	4112	197.0	13.4
4	Hispanic	17223	202.0	12.7	4193	200.8	11.8	3584	198.4	12.3	4163	200.1	13.2
4	White	17223	202.0	12.7	5014	207.1	11.0	4308	206.3	11.1	4596	207.3	11.8
5	Black	26243	209.7	12.9	6324	203.2	13.1	5466	201.9	13.6	5783	204.1	13.7
5	Hispanic	26243	209.7	12.9	5652	207.7	12.6	5001	205.5	12.9	6568	207.4	13.8
5	White	26243	209.7	12.9	9181	213.9	11.4	8984	213.1	11.3	8040	213.9	12.1
6	Black	21285	209.3	13.2	5133	202.7	13.2	3840	202.0	13.7	5133	202.7	13.2
6	Hispanic	21285	209.3	13.2	4993	207.2	12.4	4621	206.0	13.0	4993	207.2	12.4
6	White	21285	209.3	13.2	7703	214.0	11.7	6665	213.3	11.8	7703	214.0	11.7
7	Black	21592	212.4	13.7	4953	205.4	13.8	3639	205.4	14.1	4953	205.4	13.8
7	Hispanic	21592	212.4	13.7	4787	210.1	13.6	4473	209.3	14.1	4787	210.1	13.6
7	White	21592	212.4	13.7	8420	216.9	11.8	7006	216.4	12.6	8420	216.9	11.8
8	Black	17942	215.7	14.0	4401	209.9	13.6	3708	208.7	15.2	4401	209.9	13.6
8	Hispanic	17942	215.7	14.0	3668	213.4	14.2	3300	211.9	15.3	3668	213.4	14.2
8	White	17942	215.7	14.0	6430	219.8	12.9	6126	219.6	13.2	6430	219.8	12.9

Note: Overall sample size is based on students from all racial/ethnic groups. We list subgroup sample sizes, means, and standard deviations only for those groups sufficiently large for meaningful comparisons (Black, Hispanic, and White students).

Table 8. Achievement disparities (months to catch up) by grade level and subgroup.

Grade	Subgroup	Pre-COVID Disparity (months)	2021 Disparity (months)	2024 Disparity (months)	2019-2021 Disparity Difference	2019-2024 Disparity Difference
3	Black	-4.9	-6.4	-5.4	1.5	0.5
3	Hispanic	-4.2	-6.6	-4.7	2.4	0.5
3	White	7.8	7.5	7.0	0.3	0.8
4	Black	-8.5	-11.5	-7.2	3.0	-1.3
4	Hispanic	-1.7	-5.3	-2.7	3.6	1.0
4	White	7.4	6.2	7.7	1.2	-0.3
5	Black	-8.3	-9.9	-7.2	1.6	-1.1
5	Hispanic	-2.5	-5.4	-3.0	2.9	0.5
5	White	5.3	4.3	5.3	1.0	0.0
6	Black	-16.7	-18.6	-14.2	1.9	-2.5
6	Hispanic	-5.2	-8.3	-8.6	3.1	3.4
6	White	12.0	10.2	10.0	1.8	2.0
7	Black	-18.2	-18.3	-15.4	0.1	-2.8
7	Hispanic	-5.9	-8.0	-11.2	2.1	5.3
7	White	11.8	10.4	10.8	1.4	1.0
8	Black	-12.8	-15.6	-13.2	2.8	0.4
8	Hispanic	-5.0	-8.4	-11.3	3.4	6.3
8	White	9.3	8.8	7.7	0.5	1.6

Note. Disparity Difference=difference between COVID and pre-COVID achievement disparities (months). Data from this Table for grades 6-8 are referenced in Figure 2 in the main brief.
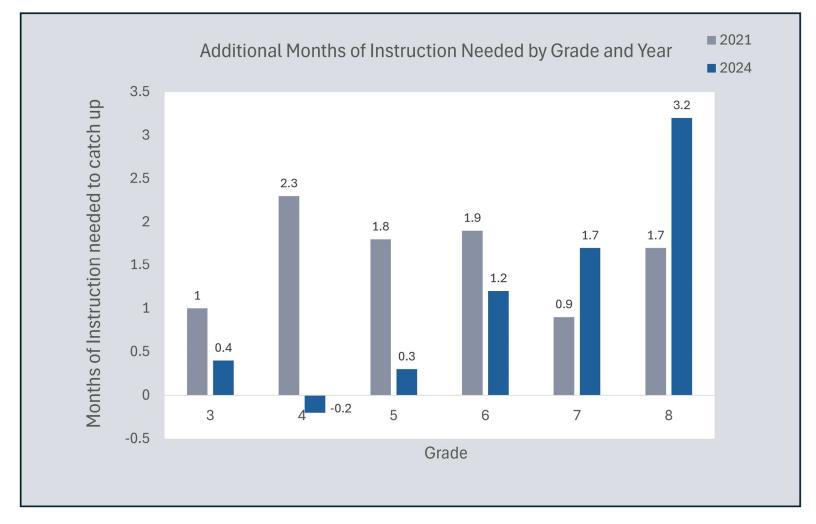
Figure A1. Months of instruction required to catch up to pre-pandemic achievement levels