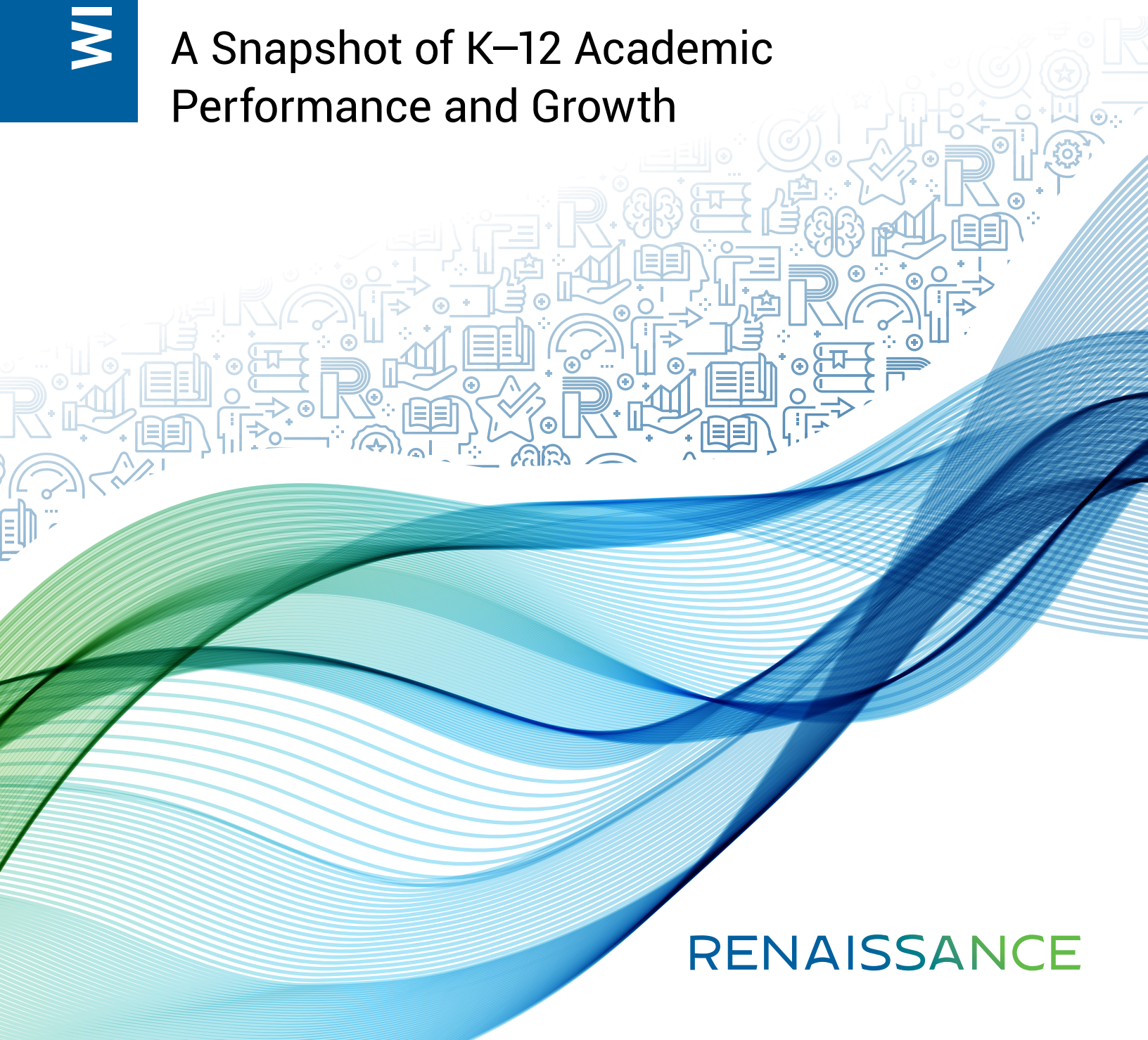


WINTER

# How Kids Are Performing

A Snapshot of K–12 Academic  
Performance and Growth



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# Introduction

Throughout 2021, Renaissance released a series of reports titled *How Kids Are Performing*, which estimated the impact of the COVID-19 pandemic on US student achievement in reading and mathematics during the 2020–2021 school year. Although the incidence of school shutdowns and remote learning is now much lower during the 2021–2022 school year than last year, the COVID-19 pandemic continues to affect K–12 education in myriad ways.<sup>1</sup> This continuation of the *How Kids Are Performing* report series will serve as a status check, summarizing US K–12 student performance and growth as of the middle of the 2021–2022 school year and contrasting those results to the same period in 2020–2021.

This new “snapshot” report uses a cross-sectional approach to examine whether student academic performance has continued to slide in 2021–2022 relative to the prior year.

Our earlier analyses were longitudinal, applying pre-pandemic growth norms to students' prior performance to estimate how each student would have performed had the pandemic not occurred. Those expectations were compared with actual 2020–2021 results, and the difference between the two was interpreted as an indication of the pandemic's impact. There were differential impacts by subject, with math more negatively impacted than reading, and also by subgroup.<sup>2</sup> The largest negative impacts observed were among students attending Title I schools in urban areas, and students who were Black, Hispanic, American Indian or Alaska Native, as well as students with disabilities and English Language Learners. These findings were generally consistent with reports released by other US assessment providers<sup>3</sup> and pandemic impacts for students attending school in England.<sup>4</sup>

In contrast to last year's longitudinal studies, this new “snapshot” report uses a cross-sectional approach to examine whether student academic performance has continued to slide in 2021–2022 relative to the prior year, or if there is evidence of a recovery.

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1 The start of the 2021–2022 school year was not quite normal for many schools, teachers, students, and parents:

<https://www.nytimes.com/2022/01/30/us/students-pandemic-virtual-learning.html>  
<https://www.vox.com/the-goods/22868641/chicago-school-closings-omicron-covid-remote-learning>  
<https://www.nea.org/about-nea/media-center/press-releases/nea-survey-massive-staff-shortages-schools-leading-educator>  
<https://www.wsj.com/articles/masks-in-schools-districts-get-caught-between-health-authorities-and-parent-pushback-11645612200>

2 The race and ethnicity terms used in this report follow those used by the National Center for Education Statistics, which provides standards for uniformity and comparability in how student subgroups are defined and communicated. For the sake of brevity, we often use Hispanic to represent Hispanic or Latino. Likewise, we may use Black to represent Black or African American, and American Indian to represent American Indian and Alaska Native. We recognize that the language is imprecise and often will fall short in capturing the way individuals may identify themselves. As federal agencies and educators continue to evolve in how they address questions of identity, equity, and access, we will strive to remain as accurate and inclusive as possible.

3 US Department of Education. Office of Civil Rights. (2021, June). *Education in a pandemic: The disparate impacts of COVID-19 on America's students*. <https://www2.ed.gov/about/offices/list/ocr/docs/20210608-impacts-of-covid19.pdf>

4 Renaissance Learning, & Education Policy Institute. (2021, October). *Understanding progress in the 2020 to 2021 academic year: Findings from the summer term and summary of all previous findings*. Department for Education. [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/1029841/Understanding\\_progress\\_in\\_the\\_2020-21\\_academic\\_year\\_Report\\_4\\_October2021.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1029841/Understanding_progress_in_the_2020-21_academic_year_Report_4_October2021.pdf)

## Sample

To ensure a fair comparison, we restricted the new analysis to schools who used the same Star computer-adaptive assessments for early literacy, reading, or math during both the 2020–2021 and 2021–2022 school years. Our new sample includes 4.4 million students in grades K–12 at 19,049 schools for early literacy/reading and 2.9 million students in grades 1–12 at 12,754 schools for math, from all 50 states plus DC (see table 1). Within these sample schools, about 19 percent more students took Star Assessments in 2021–2022 than in 2020–2021.

In this study, we are also reporting two different grade 1 results for reading/early literacy, reflecting the fact that grade 1 is when many students begin to transition from taking Star Early Literacy (a test for pre-readers that is animated and auditory) to Star Reading (a test for independent readers that requires students to have a certain sight word vocabulary). Approximately 61% of all first-grade test records in our sample were from Star Early Literacy in both school years.<sup>5</sup> For more details about the sample, see [Appendix A. Sample Description](#).

**Table 1. Sample Size**

	Reading/Early Literacy		Mathematics	
	2020–2021	2021–2022	2020–2021	2021–2022
Kindergarten (Early Literacy)	181,989	229,999	--	--
Grade 1 (Early Literacy)	182,023	210,322	192,775	231,024
Grade 1 (Reading)	114,767	132,015		
Grade 2	391,022	458,842	291,969	344,813
Grade 3	466,304	538,404	314,305	368,004
Grade 4	469,340	543,347	325,217	375,405
Grade 5	454,983	530,091	321,769	370,742
Grade 6	393,165	459,324	280,755	330,678
Grade 7	344,843	409,046	249,640	300,154
Grade 8	331,378	405,307	235,690	288,385
Grade 9	143,830	196,145	98,354	135,715
Grade 10	116,256	147,893	71,068	92,302
Grade 11	73,184	95,677	49,706	62,352
Grade 12	49,350	63,747	28,316	34,750
<b>Overall (K–12)</b>	<b>3,712,434</b>	<b>4,420,159</b>	<b>2,459,564</b>	<b>2,934,324</b>

<sup>5</sup> Some kindergarten students also take Star Reading but are relatively low in number and were not included as a separate cohort in this analysis.

## Major Findings

The analyses yielded three findings that are summarized here and detailed further within the report:

- Finding 1: Performance. Overall, students are performing lower in 2021–2022 compared to 2020–2021, suggesting that the pandemic continues to have a compounding effect on student achievement.
- Finding 2: Growth. Fall-to-winter growth in 2021–2022 is stronger relative to the same period in 2020–2021, but in most grades remains below typical.
- Finding 3: Subgroups. Although performance and growth vary between student and school subgroups, most follow the overall pattern of lower performance but stronger growth in 2021–2022 relative to the prior year.

### About Renaissance Star Assessments

Star Assessments are uniquely positioned to answer performance and growth questions arising for US educators and students as a result of the COVID-19 pandemic. At their core, Star tests are purposeful, proven, powerful, and predictive.

Star is an interim assessment that is administered periodically, usually 3–4 times, throughout the school year for screening, benchmarking, and progress monitoring. (Interim tests fall in-between daily/frequent formative activities and end-of-year state summative tests.) Star adaptive assessments inform instructional decisions about individual students and help school leaders understand how all students are performing and growing. With cancellations of state and national testing programs, and other pandemic interruptions, interim assessments like Star have taken on an even greater role for educators.

Students at tens of thousands of schools worldwide take Star Assessments to measure reading and mathematics achievement and growth. For more information, see *Research Foundation for Star Adaptive Assessments: Science of Star*: <http://doc.renlearn.com/KMNet/R001480701GCFBB9.pdf>. For an independent review of the reliability, validity, and other technical characteristics of Star Assessments, see the National Center on Intensive Intervention tools charts: <https://intensiveintervention.org/>.

# Finding 1: Performance

## Overall, students are performing lower in 2021–2022 compared to 2020–2021, suggesting that the pandemic continues to have a compounding effect on student achievement.

Student performance in the second year of the pandemic is lower than during the first year. Table 2 shows average Star Unified Scaled Scores for fall and winter of both the 2020–2021 and 2021–2022 school years, for reading and math. When looking at the change in scores between school years, winter-to-winter score differences were smaller than fall-to-fall differences, indicating that winter 2021–2022 student performance is less behind than it was in the fall, but has not reached the level of the prior school year. On average, in 2021–2022, reading scaled scores were 9 points lower in the fall and 3 points lower in the winter, relative to the same time frame during the prior school year. In math, scores were 8 points lower in the fall and 3 points lower in the winter.

Examining grade 1 performance in table 2, note that scores are broken into two groups: students who took Star Early Literacy, a test for pre-readers, and students who tested on Star Reading, a test for independent readers. On average, in 2021–2022, Star Early Literacy scores were 19 points lower in the fall and still 17 points lower in the winter. For Star Reading, scores were 24 points lower in the fall and then 8 points lower in the winter. Because the winter-to-winter difference remains large for those students taking Star Early Literacy, pre-readers may have fallen farther behind their same-grade peers who can read independently. (For a discussion of grade 1 growth results, see Finding 2.)

Student performance in year two of the pandemic is lower than during the first year.

There were small winter-to-winter improvements apparent in math in grades 4 and 5. In prior *How Kids Are Performing* reports, these grades were among the most negatively impacted by the pandemic, so these new results are encouraging. However, math performance in middle and high school is behind prior year performance to a greater extent than earlier grades, suggesting multiple years of the pandemic have had greater compounding impacts on these students.



### Interpreting the metrics

**Unified Scaled Scores (SS)** are calculated based on the difficulty of questions and the pattern of responses. Unified Scaled Scores are useful for comparing student performance on Star Early Literacy and Star Reading over time and across grade levels. The Star Early Literacy scale ranges from 200 to 1100 and overlaps with the Star Reading Unified Scaled Score range of 600 to 1400. Star Math Unified Scaled Scores range from 600 to 1400.

Table 2. Star Unified Scaled Score Performance and Change from Prior Year

Reading/Early Literacy						
	Mean Unified Scaled Score					
	2020–2021 Performance		2021–2022 Performance		Fall Change from 2020–2021	Winter Change from 2020–2021
	Fall	Winter	Fall	Winter		
Kindergarten (Early Literacy)	712	763	685	753	-27	-10
Grade 1 (Early Literacy)	768	819	749	802	-19	-17
Grade 1 (Reading)	793	840	769	832	-24	-8
Grade 2	876	910	853	901	-23	-9
Grade 3	935	958	922	954	-13	-4
Grade 4	978	994	971	993	-7	-1
Grade 5	1010	1022	1006	1022	-4	0
Grade 6	1037	1044	1032	1043	-5	-1
Grade 7	1058	1062	1052	1059	-6	-3
Grade 8	1078	1080	1071	1077	-7	-3
Grade 9	1084	1084	1077	1079	-7	-5
Grade 10	1095	1094	1091	1092	-4	-2
Grade 11	1099	1097	1095	1095	-4	-2
Grade 12	1101	1097	1095	1091	-6	-6
<b>Overall (K–12)</b>					<b>-9</b>	<b>-3</b>

Note: positive (green) values indicate improvement in comparing the 2021–2022 and 2020–2021 school years; negative (red) values indicate decline.



Finding 1 | How Kids Are Performing

Mathematics						
	Mean Unified Scaled Score					
	2020–2021 Performance		2021–2022 Performance		Fall Change from 2020–2021	Winter Change from 2020–2021
	Fall	Winter	Fall	Winter		
Grade 1	800	835	785	830	-15	-5
Grade 2	861	894	851	890	-10	-4
Grade 3	920	950	912	948	-8	-2
Grade 4	965	990	960	991	-5	+1
Grade 5	1005	1026	1001	1027	-4	+1
Grade 6	1039	1053	1031	1049	-8	-4
Grade 7	1062	1074	1052	1066	-10	-8
Grade 8	1082	1092	1070	1082	-12	-10
Grade 9	1084	1089	1072	1079	-12	-10
Grade 10	1096	1100	1087	1093	-9	-7
Grade 11	1101	1105	1091	1095	-10	-10
Grade 12	1100	1101	1090	1090	-10	-11
<b>Overall (1–12)</b>					<b>-8</b>	<b>-3</b>

Note: positive (green) values indicate improvement in comparing the 2021–2022 and 2020–2021 school years; negative (red) values indicate decline.

## Finding 2: Growth

### Fall-to-winter growth in 2021–2022 is stronger relative to the same period in 2020–2021, but in most grades remains below typical.

Median Star SGPs are higher in 2021–2022 compared to 2020–2021 in nearly every grade. In both reading and math, overall median SGPs improved 3 points to 48 and 50, respectively. That said, for a widespread recovery to be underway, we would need to see SGPs consistently well above 50, the Student Growth Percentile threshold for typical pre-pandemic growth. However, few grades (as shown in table 3) have surpassed 50.

There are encouraging signs for reading in grades 3–5 and for math in grades 3–6, as fall-to-winter growth has met or exceeded 50. (Our prior report analyses of pandemic-era growth showed that during the 2020–2021 school year these grades were often below an SGP of 50.)

Of note is the lower growth demonstrated by grade 1 students taking Star Early Literacy (who might not yet be reading independently). Labeled “Early Literacy” in table 3, their median SGP was 35, which indicates very low growth, 10 points lower than the prior year. In contrast, grade 1 students who were able to independently read well enough to take Star Reading in the second year of the pandemic had a median SGP of 45, which is closer to the pre-pandemic expectation of 50.

In both reading and math, overall median SGPs improved 3 points to 48 and 50, respectively.

There are at least three factors that might help to explain why some first graders are seeing such low SGPs this school year. First, these students started kindergarten in Fall 2020 when many school buildings were shut and other disruptions may have impacted their development. As has been reported, many early grade teachers have described needing to spend a larger portion of time on social-emotional support this year than ever before.<sup>6</sup> Second, comparing SGPs from one year to the next for this grade is challenging because current-year data consists almost exclusively of in-school tests, while last year’s data was a mix of in-school and remote records.<sup>7</sup> Finally, there were significantly more students testing this year relative to last year in all grades. Thus, even though our sample is restricted to the same schools, the composition of the student body may be different in ways that are difficult to quantify. For example, it is possible that in 2021–2022 the sample contained more previously “missing” students who may have been held out or homeschooled during the 2020–2021 school year.

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6 Amplify. (2022, February). *Research brief: Amid academic recovery in classrooms nationwide, risks remain for youngest students with least instructional time during critical early years*. [https://amplify.com/wp-content/uploads/2022/02/mCLASS\\_MOY-Results\\_February-2022-Report.pdf](https://amplify.com/wp-content/uploads/2022/02/mCLASS_MOY-Results_February-2022-Report.pdf)  
Mader, J. (2021, November 21). “The Reading Year”: First grade is critical for reading skills, but kids coming from disrupted kindergarten experiences are way behind. *Hechinger Report*. <https://hechingerreport.org/the-reading-year-first-grade-is-critical-for-reading-skills-but-kids-coming-from-disrupted-kindergarten-experiences-are-way-behind/>  
University of Virginia School of Education and Human Development. (2021). *Examining the impact of Covid-19 on the identification of at-risk students: Fall 2021 literacy screening findings*. [https://pals.virginia.edu/public/pdfs/login/PALS\\_StateReport\\_Fall\\_2021.pdf](https://pals.virginia.edu/public/pdfs/login/PALS_StateReport_Fall_2021.pdf)

7 In the Winter 2020–2021 edition of *How Kids Are Performing*, we examined results for 2020–2021 as a function of whether tests were completed in school buildings or remotely. In many grades results were comparable, but for the early grades, in particular kindergarten and grade 1, remote testers performed substantially higher than in-school testers, raising questions about the validity of some of those scores.

**Table 3. Star Student Growth Percentile Results and Change from Prior Year**

	Median Fall to Winter SGP			
	Reading/Early Literacy		Mathematics	
	2021–2022 Growth	Change from 2020–2021	2021–2022 Growth	Change from 2020–2021
Kindergarten (Early Literacy)	51	+2	--	--
Grade 1 (Early Literacy)	35	-10	45	0
Grade 1 (Reading)	45	+1		
Grade 2	47	+4	48	0
Grade 3	52	+5	51	+4
Grade 4	52	+6	54	+8
Grade 5	50	+3	53	+7
Grade 6	48	+2	50	+3
Grade 7	47	+3	49	0
Grade 8	47	+4	49	-1
Grade 9	47	+3	45	0
Grade 10	47	+2	47	0
Grade 11	46	+2	46	-2
Grade 12	46	+1	45	-4
<b>Overall (K–12)</b>	<b>48</b>	<b>+3</b>	<b>50</b>	<b>+3</b>

Note: positive (green) values indicate improvement in comparing the 2021–2022 and 2020–2021 school years; negative (red) values indicate decline.



## Interpreting the metrics

**Student Growth Percentile (SGP)** compares a student's growth from one period to another with academic peers nationwide, defined as students in the same grade with a similar score history. SGPs range from 1 to 99 with 50 indicating typical growth, and their interpretation is similar to Percentile Rank scores in that lower numbers indicate lower relative growth and higher numbers indicate higher relative growth. For example, an SGP of 75 means the student's growth exceeds the growth of 75 percent of students in the same grade who had a similar score history.

Other key points:

- Star SGPs are time-adjusted, meaning the growth expectations change nearly every day. Therefore, taking an assessment earlier or later than another student would not unfairly advantage or disadvantage a student.
- The data driving the Renaissance SGP model was last updated in Summer 2019, using records from the 2017–2018 school year and two prior school years, and thus it characterizes growth in pre-COVID times.

## Finding 3: Subgroups

### Although performance and growth vary between subgroups, most follow the overall pattern of lower performance but stronger growth in 2021–2022 relative to the prior year.

Comparing subgroup **performance** in Winter 2021–2022 to Winter 2020–2021, none of the subgroups analyzed in this study showed improvement, which is consistent with the overall results in Finding 1. When we compare average performance across the two years and within each subgroup, with few exceptions, most subgroups' Percentile Rank scores in Winter 2021–2022 are lower by 1 to 4 PR points than they were in Winter 2020–2021 (see table 4).

Likewise, consistent with the overall **growth** trends summarized in Finding 2, median Fall to Winter SGPs in 2021–2022 (shown in table 4) were higher for nearly all subgroups than in the same period during 2020–2021.

Given that average student performance is lower than last school year, we need to observe several consecutive seasons of above average growth for students to get back to pre-pandemic performance levels, meaning Star SGPs consistently higher than 50.

We need to observe several consecutive seasons of above average growth for students to get back to pre-pandemic performance levels.



#### Interpreting the metrics

**Percentile Rank (PR)** is a norm-referenced score that provides a measure of a student's achievement compared to other students in the same grade nationally. PRs range from 1 to 99 and indicate the percentage of other students nationally who obtained scores equal to or lower than the score of a particular student. Percentile Rank norms were last updated in pre-COVID times, in Summer 2017. Note, because PRs are not equal-interval, they should not be averaged. Our results here and in the Star software reflect a conversion of PR to an equal-interval metric (Normal Curve Equivalent/ NCE), calculation of averages in NCE, and then a conversion back to PR.

Table 4. Star Performance, Growth, and Change from Prior Year by Subgroup

	Reading/Early Literacy				Mathematics			
	Performance (Mean Winter PR)		Growth (Median Fall to Winter SGP)		Performance (Mean Winter PR)		Growth (Median Fall to Winter SGP)	
	2021–2022	Change from 2020–2021	2021–2022	Change from 2020–2021	2021–2022	Change from 2020–2021	2021–2022	Change from 2020–2021
<b>Student Race/Ethnicity</b>								
American Indian/Alaska Native	32	-3	45	+4	43	-1	48	+6
Asian	55	-1	51	+1	72	-1	54	+1
Black or African American	24	-1	43	+6	32	-3	44	+6
Hispanic or Latino	23	-3	44	+7	37	-4	47	+7
Pacific Islander	39	-4	48	+9	48	-4	50	+7
Two or More Races	41	-1	49	+5	51	-1	50	+4
White	47	-1	51	+2	58	-1	52	+1
<b>Other Student Characteristics</b>								
Students with Disabilities	14	-1	43	+8	22	-1	43	+6
English Language Learners	15	-2	41	+7	34	-3	47	+9
<b>School Locale</b>								
Rural	40	-1	49	+2	52	0	50	+1
Suburban	42	-2	49	+3	53	-3	50	+2
Urban	34	-3	46	+4	43	-4	47	+4
<b>School Family Income</b>								
Title I Schoolwide	32	-2	46	+4	43	-2	48	+4
<b>School Type</b>								
Public	37	-2	48	+3	49	-2	50	+3
Catholic and Other Private Schools	61	-1	52	-1	66	0	50	-2
<b>Overall</b>								
All Grades	39	-2	48	+3	50	-2	50	+3

Note: positive (green) values indicate improvement in comparing the 2021–2022 and 2020–2021 school years; negative (red) values indicate decline.

# Summary and Recommendations

In summary, when we examined student performance and growth data from the 2020–2021 and 2021–2022 school years, we found:

1. Overall, students are performing lower in 2021–2022 compared to 2020–2021, suggesting that the pandemic continues to have a compounding effect on student achievement.
2. Fall-to-winter growth in 2021–2022 is stronger relative to the same period in 2020–2021, but in most grades remains below typical.
3. Although performance and growth vary between student and school subgroups, most follow the overall pattern of lower performance but stronger growth in 2021–2022 relative to the prior year.

In light of these findings, we suggest that schools focus their attention on the following areas:

**Screening and closely monitoring the progress of early learners.** Early literacy instruction has always been critical, and the study findings suggest that two years into the pandemic we may have reason to be particularly concerned about the progress of our youngest learners, particularly pre-readers. As a result, schools are strongly encouraged to use formative assessments and progress-monitoring tools to more closely gauge how their youngest learners, particularly students still testing on Star Early Literacy, are doing and intervene with evidence-based services and support.

**Providing professional development on and support for accelerated learning approaches.** There have been significant shifts in pedagogical thought on how to best plan instruction to optimally catch students up, most notably the rise of accelerated learning approaches (<https://www.renaissance.com/edwords/accelerated-learning/>). Accelerated learning has been mentioned in recovery guidance from the US Department of Education and, as a result, was also included in the recovery plans of most states. However, accelerated learning differs substantially from historical remediation approaches, meaning that many teachers have yet to be trained on these strategies. Providing training and support for educators will be critical to optimal recovery.

**Identifying the most critical grade-level skills and their essential prerequisites.** Time is of the essence in catching students up. Changes in overall student performance will not be mitigated until we are able to achieve above-typical growth (SGPs above 50) over multiple seasons. Now more than ever, we need to prioritize instruction on skills that are most essential for progress. Renaissance supports all schools with state-specific lists of “Focus Skills” for reading and math at each grade level and their necessary prerequisites, which are freely available at our Focus Skills Resource Center (<https://www.renaissance.com/focus-skills/>). Focus skills also provide critical support for implementing accelerated learning, as those approaches also require detailed knowledge of essential skills.

**Making use of all options for academic time.** Multiple seasons of below-typical growth are clearly having an impact on student learning. For all students there is ground to be covered but for some, high school sophomores and juniors for example, our time with them is counting down. As a result, we should take advantage of all options for academic time including extended day, tutoring, and summer learning, all of which are approved areas of use for Elementary and Secondary School Emergency Relief (ESSER) funds.

# Appendix A. Sample Description

Our sample was limited to US schools and national in scope: schools in all 50 states, plus DC, were represented. The sample consisted of 7.3 million students in 2021–2022 (4,420,159 in reading/early literacy and 2,934,324 in math) and 6.1 million students in 2020–2021 (3,712,434 in reading/early literacy and 2,459,564 in math). The students come from grades K–12 in schools that used the same Star assessment both school years.

One of the goals of this study was to understand how various subgroups of students have been performing and growing over the past two years. Some of those categories were characteristics of the schools that students attended, while others were defined as individual student characteristics (see table A1). Note, although the same schools are represented in both school years, the values for school characteristics vary slightly from year to year, not because the characteristics of the schools changed but because the percentages refer to the students in our sample. For instance, in 2021–2022, relatively more students in our sample were from schools in urban areas, while relatively fewer of the students in our sample were from schools in suburban areas.

**Table A1. Sample Characteristics**

	Reading/Early Literacy		Mathematics	
	2020–2021 School Year	2021–2022 School Year	2020–2021 School Year	2021–2022 School Year
Number of Schools	19,049		12,754	
Number of Students	3,712,434	4,420,159	2,459,564	2,934,324
<b>Student Race/Ethnicity</b>				
American Indian/Alaska Native	1%	1%	2%	2%
Asian	4%	4%	4%	4%
Black or African American	10%	10%	12%	12%
Hispanic or Latino	16%	17%	16%	18%
Pacific Islander	<1%	<1%	<1%	<1%
Two or More Races	2%	2%	2%	2%
White	27%	27%	31%	30%
Unknown	40%	39%	33%	32%
<b>Disability Status</b>				
Students with Disabilities	2%	2%	3%	3%
Unknown	98%	98%	97%	97%



	Reading/Early Literacy		Mathematics	
	2020–2021 School Year	2021–2022 School Year	2020–2021 School Year	2021–2022 School Year
<b>Language Status</b>				
English Language Learners	3%	3%	3%	4%
Unknown	97%	97%	97%	96%
<b>Testing Location</b>				
Testing Outside of School	33%	2%	34%	2%
Testing In School	61%	96%	60%	95%
Unknown	6%	2%	6%	3%
<b>School Type</b>				
Public	90%	90%	90%	91%
Catholic and Other Private Schools	7%	7%	7%	6%
Unknown	3%	3%	3%	3%
<b>School Locale</b>				
Rural	38%	38%	36%	36%
Suburban	33%	32%	35%	34%
Urban	24%	25%	24%	25%
Unknown	5%	5%	5%	5%
<b>Title I Schoolwide</b>				
Yes	58%	59%	58%	59%
No	29%	29%	30%	30%
Unknown	13%	12%	12%	11%

# Appendix B. Limitations and Technical Notes

As with any study, there are potential limitations to consider. First, although our sample is large and diverse, it may not be representative of K–12 education in the US. Related, we restricted our sample to schools that used the same Star assessment in both school years to ensure a fairer comparison; however, the populations of students taking Star in both years are similar but not necessarily the same. For example, within our sample schools, 19 percent more students took Star in 2021–2022 than in 2020–2021. Exercise caution in interpreting year-over-year cross-sectional comparisons.

We also lack complete demographic information for all students. Race/ethnicity data were available for just over 60 percent of our sample, and only 2–4 percent of students were identified as English Language Learners or students with disabilities. In contrast, school-level indicators such as type, locale, and Title I status were available for nearly the whole sample. It is possible that our subgroup results could differ with complete demographic data for all students.

An artifact of the pandemic that makes comparing results challenging is the amount of remote (outside-of-school) Star testing in 2020–2021, accounting for about 31% of all tests taken in the winter as many schools switched to remote instruction. As noted in prior *How Kids Are Performing* reports, testing location might explain differences in some results. Comparing remote and in-school 2020–2021 records within grade, there were differences in metrics such as the extent to which tests were paused and resumed, testing time, and Scaled Scores, particularly in grades 1 and 2.

Note too that the normative scores summarized in this report (Percentile Rank and Student Growth Percentile) were last normed using pre-pandemic samples. PRs are based on norms that were last updated in Summer 2017 and SGPs are based on growth norms that were last updated in Summer 2019.

Finally, the sample and methodology of this report differ from prior *How Kids Are Performing* reports, so we caution against directly comparing findings from this report with prior reports.



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## About Renaissance

As a global leader in assessment, reading, and math solutions for pre-K–12 schools and districts, Renaissance is committed to providing educators with insights and resources to accelerate growth and help all students build a strong foundation for success. Renaissance solutions reach more than 40 percent of US schools and more than half a million students in other regions across the world.

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