

TECHNICAL BRIEF

Technical appendix for:

**Missing at the top: Lower-income students
underrepresented among high achievers**

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1. Introduction

The purpose of this technical appendix is to share detailed results and to more fully describe the sample and methods used in the research included in the brief. We investigated three main research questions in this brief:

- 1) Were lower-income students underrepresented among math high achievers in grades K-8?
- 2) Did lower-income students who started off as high-achieving remain at the top of the pack across school years at similar rates to higher-income students?
- 3) Among initially high-achieving students who were not able to maintain high-achieving status, did lower-income students fall further than higher-income students?

2. Data

Math Assessment

The MAP Growth 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' reading and math achievement and gains, with assessments typically administered in the fall (usually between August and November), winter (usually December to March), and spring (late March through June). MAP Growth is a computer adaptive test that precisely measures achievement, even for students above or below grade level.

MAP Growth uses different test forms to match students' developmental stages while maintaining a common RIT scale across versions. **MAP Growth K-2** is designed for early learners (primarily grades K-2) and includes audio support, reduced reading demands, and greater emphasis on foundational literacy and numeracy skills, making it appropriate for emerging readers. **MAP Growth 2-5** is intended for students who can read independently and focuses on grade-level reading comprehension, vocabulary, and mathematics content typically taught in grades 2-5; audio support is generally not built into the assessment experience. **MAP Growth 6+** is designed for middle and high school students and emphasizes more advanced content, including algebraic reasoning, statistics, complex problem solving, and sophisticated text analysis, while de-emphasizing early foundational skills. Although the content and item pools differ across K-2, 2-5, and 6+, scores are reported on the same vertically scaled RIT metric, allowing educators to track achievement and growth over time as students transition between test versions.

Test scores are reported on the RIT (Rasch unit) scale¹, which is a linear transformation of the logit scale units from the Rasch item response theory model. MAP Growth test scores are highly reliable across all grade levels, with marginal reliability estimates ranging from .92 to .97 (see Table 7.7 in the [MAP Growth technical appendix](#)). Additionally, the adaptive nature of the test ensures that reliability is high across the test score distribution, including at our high-achieving threshold.

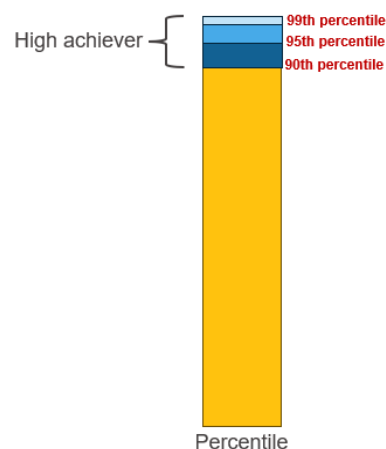
¹ In the 2023-24 school year, NWEA began the phased implementation of an enhanced item-selection algorithm for the MAP Growth assessment. The [enhanced item-selection algorithm \(EISA\)](#) prioritizes grade-level content while still adapting to off-grade items where necessary to provide items of appropriate difficulty for students. All scores in this study are converted to be on the EISA scale.

Classification of High Achiever

In this study, we use the [2025 MAP Growth norms](#) to calculate students' percentile rank in each grade/term. Since MAP Growth can be administered at any point during the school year, the MAP Growth achievement norms condition on each student's grade, subject, and instructional week of testing (i.e., the week in the school calendar in which a student tested). Instructional weeks were calculated for each student based on their school start date and the individual student's testing dates (for more details on the calculation of instructional weeks, see the norms study). Test score percentiles range from 1 to 99.

In our main analysis, students scoring at or above the 95th percentile are defined as **high achievers**. In other words, these students score above 95% of their peers nationally in that grade.

In addition to the top 5th percentile definition used in the main brief, we also present results in the technical appendix for two additional high-achieving thresholds: (a) students scoring in the top decile and (b) students scoring in the top 1st percentile.



Measure of Student-Level Poverty

When districts roster students in the MAP Growth system, districts are required to provide student characteristics such as race/ethnicity and gender for the students in their district. While districts are not required to submit information about socioeconomic background, a subset of districts voluntarily provide free or reduced-priced (FRPL) eligibility for students. For this study, we define **lower-income** students as those who were FRPL eligible in at least one year of the study². **Higher-income** students were not reported as FRPL eligible in any year of the study.

3. Sample Characteristics

To understand representation and persistence of lower-income high achievers across kindergarten to eighth grade, we ran two separate analyses. First, we conducted a cross-sectional analysis of students in K-8 in fall 2025 to examine how well represented lower-income students were among high achievers. Second, to understand differences by income level in the persistence of high achievers across school years, we conducted longitudinal analyses following two cohorts of students across five grade levels (K-4th and 4-8th) between fall 2021 and fall 2025. In both analyses, we restricted our sample to schools that provided student-level poverty measures during the years of the study.

Cross-sectional Sample

In total, our cross-sectional K-8 analytic sample contained over 940,000 students in 2,337 schools in fall 2025. Table 1a shows the descriptive characteristics of the overall sample by grade as well as broken out by income level. Using data from the [Common Core of Data](#),

² By this definition, students in the longitudinal sample were considered lower income if they ever were FRPL eligible in any school year of the five-year panel. We also re-ran our analyses using a stricter definition of consistently low income (e.g., always eligible for FRPL) and results were similar, though our lower-income sample size got quite small, so estimates were noisier.

Table 2 compares the school-level descriptive statistics of our analytic sample compared to the population of public schools serving students in kindergarten to eighth grade in 2024-25. The sample of NWEA schools in fall 2025 used in this study represented a higher percentage of schools serving Hispanic students and a larger share of urban schools.

Longitudinal Samples

We have two longitudinal samples in this study. First, we followed students in the kindergarten class of 2021-22 from fall 2021 to the fall of fourth grade (fall 2025). Second, we followed students who were in 4th grade in fall 2021 to the fall of 8th grade (fall 2025). Students were required to have observed math test scores in each of the five falls to be included in our analytic sample. Each cohort is described in more detail below.

Kindergarten to 4th grade cohort

In total, our K-4 cohort sample included 53,598 K-4 students in 1,403 schools with observed math test scores in the fall of each grade between kindergarten (fall 2021) and fourth grade (fall 2025). Table 1b describes the sample characteristics of the K-4 cohort. Approximately 41% of our sample was White, 15% was Black, 31% was Hispanic, and 5% was Asian. Table 2 compares our K-4 longitudinal sample of NWEA schools relative to the population of U.S. public schools serving students in kindergarten to eighth grade. The NWEA K-4 longitudinal sample reflected a higher percentage of urban schools and smaller percentage of schools enrolling White students.

4th to 8th grade cohort

In total, our 4-8th grade cohort sample included 63,311 fourth to eighth grade students in 2,250 schools with observed math test scores in the fall of each grade between 4th grade (fall 2021) and 8th grade (fall 2025). Table 1b also describes the sample characteristics of the 4-8th grade cohort. Approximately 46% of our sample was White, 14% was Black, 26% was Hispanic, and 5% was Asian. The NWEA 4-8th grade cohort sample reflected schools serving a higher percentage of urban schools and slightly higher percentage of students eligible for FRPL (see Table 2).

4. Methods

RQ1. Lower-income student representation among high achievers

We classified lower-income representation among high-achieving students in two ways. First, we looked at the share of lower-income students among all students classified as high achievers (e.g., scoring at or above the 95th percentile). These results are presented in Figure 1 in the main brief and in Table 3. Among the top 10th and 5th percentile, approximately 20% of high achievers were lower income, with only small differences across grade levels. Among the top 1st percentile, only about 10-15% of high achievers were lower income.

Second, separately among lower-income and higher-income students, we calculated the percentage of students in each income level that were high-achieving. We also calculated the ratio of the lower-income and higher-income percentages to understand the difference in the rates of high-achieving students by income level. These results are presented in Table 3. Across high-achieving thresholds, higher-income students were high achievers at 3 to 9 times the rate of lower-income students. The greatest disproportionality (favoring higher-income students) was among the top 1st percentile high achievers.

RQ2. Consistency of high-achieving status among lower-income students

We followed initially high-achieving kindergarten and fourth grade students across five grade levels to understand whether students that had reached high-achieving status were able to maintain it. Table 4 presents the mean test scores, median percentile, and percentage of students in the high-achieving group across grade levels.

We classified initially high-achieving students into two groups. **Stable high achievers** retained their high-achieving status in both the first fall and final fall of the panel.³ **Descenders** dropped from being initially high-achieving in the first fall to no longer being high-achieving in the final term.

Table 5 presents the results for the K-4th and 4-8th grade cohorts. In the K-4th cohort, the majority of initially high-achieving students in both income groups were no longer high achievers by fourth grade. Only 26% of lower-income initially high-achieving kindergarteners remained at the top of the distribution, compared to 41% of higher-income initially high-achieving kindergarteners. Among initially high-achieving 4th graders, the majority of lower-income (72%) and higher-income (80%) students remained high-achieving by 8th grade.

RQ3. Trajectories of descenders among lower-income students

Our final research question asked whether initially high-achieving students (descenders) who were lower-income dropped further than higher-income students. The average RIT and median percentile for the descenders by cohort and income level are shown in Table 6.

5. Limitations

Several limitations should be considered when interpreting these results. First, lower-income status (as measured by students' FRPL eligibility) is an imperfect proxy for students' broader educational opportunities and experiences. Second, the analysis describes patterns in achievement and persistence but does not identify the specific mechanisms driving income-based differences. Third, the study focuses on students with available MAP Growth math scores across the observed years; student mobility, missing test records, or differences in testing participation may affect estimates of persistence. Finally, because high achievement was defined using a fixed percentile threshold, small changes in relative standing can move students in or out of the high-achieving group even when their achievement remains very strong.

³ Within this definition, a subset of students may have fallen out of the high-achieving group in the middle of the panel but returned to high-achieving status by the final timepoint.

Table 1a. Descriptive statistics for the cross-sectional analytic sample (fall 2025)

Grade	Income level	Achievement Group	N. Students	N. Schools	N. Districts	% Low income	Male	White	Black	Hispanic	Asian	Low-Poverty School	High-Poverty School	Urban	Rural	Town	Suburb
All	All	All	940,775	2,337	406	50%	51%	33%	15%	38%	7%	16%	35%	48%	35%	11%	6%
K	All	All	78,661	1,285	244	50%	51%	30%	16%	39%	6%	14%	42%	53%	31%	11%	6%
1	All	All	95,174	1,456	292	51%	50%	31%	15%	39%	7%	14%	39%	49%	35%	10%	5%
2	All	All	107,422	1,575	323	51%	51%	33%	15%	37%	7%	16%	36%	47%	36%	12%	5%
3	All	All	113,324	1,639	330	51%	51%	33%	15%	38%	7%	17%	36%	48%	36%	11%	5%
4	All	All	117,865	1,633	324	50%	51%	33%	14%	38%	7%	17%	36%	48%	36%	11%	5%
5	All	All	115,867	1,535	321	50%	51%	33%	14%	38%	7%	17%	35%	48%	36%	11%	5%
6	All	All	108,151	810	324	50%	51%	34%	14%	38%	6%	15%	31%	48%	35%	11%	6%
7	All	All	107,986	699	319	50%	51%	33%	14%	39%	6%	14%	30%	48%	35%	11%	6%
8	All	All	96,325	690	317	51%	51%	32%	15%	39%	6%	13%	31%	47%	36%	11%	6%
K	Lower-income	All	38,959	1,199	193	100%	51%	18%	21%	49%	3%	4%	59%	61%	25%	9%	5%
1	Lower-income	All	48,939	1,378	243	100%	50%	19%	19%	50%	4%	4%	56%	59%	26%	9%	5%
2	Lower-income	All	54,419	1,501	277	100%	51%	20%	20%	48%	4%	4%	53%	56%	28%	11%	5%
3	Lower-income	All	57,331	1,571	299	100%	51%	21%	19%	49%	4%	5%	53%	58%	27%	10%	5%
4	Lower-income	All	58,833	1,568	291	100%	51%	20%	18%	50%	4%	5%	53%	58%	28%	9%	5%
5	Lower-income	All	57,688	1,476	295	100%	51%	21%	18%	50%	4%	5%	52%	58%	27%	9%	5%
6	Lower-income	All	54,116	770	298	100%	51%	21%	18%	49%	4%	5%	44%	55%	28%	10%	6%
7	Lower-income	All	53,875	669	298	100%	51%	21%	18%	50%	4%	5%	44%	56%	28%	10%	6%
8	Lower-income	All	49,352	655	294	100%	52%	20%	19%	50%	4%	5%	44%	56%	28%	10%	6%
K	Higher-income	All	39,702	1,212	233	0%	51%	42%	12%	28%	9%	23%	25%	44%	37%	13%	6%
1	Higher-income	All	46,235	1,391	281	0%	51%	43%	11%	27%	10%	25%	22%	39%	45%	11%	5%
2	Higher-income	All	53,003	1,501	314	0%	51%	45%	11%	25%	10%	29%	20%	37%	45%	13%	6%
3	Higher-income	All	55,993	1,556	319	0%	51%	45%	11%	25%	11%	30%	19%	37%	45%	13%	6%
4	Higher-income	All	59,032	1,565	308	0%	51%	46%	10%	26%	10%	30%	19%	38%	45%	12%	6%
5	Higher-income	All	58,179	1,470	312	0%	51%	45%	10%	26%	10%	29%	19%	38%	44%	12%	6%
6	Higher-income	All	54,035	763	309	0%	51%	46%	10%	28%	8%	24%	17%	40%	43%	11%	6%
7	Higher-income	All	54,111	661	308	0%	51%	46%	10%	28%	8%	23%	17%	40%	42%	12%	6%
8	Higher-income	All	46,973	648	302	0%	50%	46%	11%	28%	7%	22%	17%	37%	45%	12%	6%
K	Lower-income	Top 5th	1,119	592	121	100%	63%	25%	19%	37%	8%	9%	43%	58%	10%	5%	27%
1	Lower-income	Top 5th	851	534	132	100%	69%	30%	17%	33%	11%	10%	36%	55%	10%	6%	30%
2	Lower-income	Top 5th	922	567	151	100%	75%	28%	14%	34%	15%	12%	36%	52%	10%	4%	33%
3	Lower-income	Top 5th	874	534	137	100%	72%	26%	12%	40%	16%	15%	40%	61%	7%	3%	30%
4	Lower-income	Top 5th	1,005	575	148	100%	77%	29%	9%	38%	17%	14%	39%	58%	8%	4%	31%
5	Lower-income	Top 5th	1,176	609	164	100%	73%	26%	9%	40%	18%	13%	36%	57%	8%	4%	32%
6	Lower-income	Top 5th	1,553	431	163	100%	68%	25%	10%	44%	15%	14%	35%	58%	8%	4%	30%
7	Lower-income	Top 5th	1,331	383	169	100%	62%	28%	10%	36%	19%	17%	31%	52%	7%	4%	37%
8	Lower-income	Top 5th	1,085	298	152	100%	60%	28%	9%	38%	18%	14%	33%	51%	6%	4%	39%
K	Higher-income	Top 5th	4,039	760	179	0%	59%	49%	7%	14%	20%	42%	8%	43%	13%	4%	39%
1	Higher-income	Top 5th	3,954	806	191	0%	66%	49%	5%	13%	23%	45%	6%	44%	10%	4%	43%
2	Higher-income	Top 5th	4,484	868	207	0%	67%	48%	4%	11%	27%	50%	6%	39%	11%	4%	47%
3	Higher-income	Top 5th	4,580	864	207	0%	67%	46%	4%	10%	31%	52%	4%	40%	10%	3%	47%
4	Higher-income	Top 5th	4,991	857	197	0%	70%	48%	3%	10%	30%	53%	4%	41%	8%	3%	47%
5	Higher-income	Top 5th	5,868	874	213	0%	67%	46%	3%	11%	30%	54%	5%	42%	8%	3%	47%
6	Higher-income	Top 5th	6,486	480	207	0%	62%	50%	4%	12%	25%	45%	4%	44%	7%	4%	46%
7	Higher-income	Top 5th	5,988	420	206	0%	59%	51%	4%	11%	25%	44%	4%	37%	8%	3%	51%
8	Higher-income	Top 5th	4,922	347	184	0%	58%	51%	4%	9%	25%	43%	3%	34%	7%	3%	56%

Note. This table presents the descriptive statistics of students in K-8 in fall 2025.

Table 1b. Descriptive statistics for the longitudinal analytic samples (fall 2021 to fall 2025)

Cohort	Income level	Achievement Group	N. Students	N. Schools	N. Districts	% Low income	Male	White	Black	Hispanic	Asian	Low- Poverty School	High- Poverty School	Urban	Rural	Town	Suburb
K-4	All students	All	53,598	1,403	324	56%	51%	41%	27%	19%	5%	13%	26%	56%	33%	7%	4%
K-4	Lower-income students	All	27,345	1,290	270	100%	51%	28%	36%	24%	4%	4%	36%	63%	27%	7%	4%
K-4	Lower-income students	Initially High Achievers (10th)	1,893	809	178	100%	56%	44%	25%	15%	7%	8%	21%	57%	30%	9%	4%
K-4	Lower-income students	Initially High Achievers (5th)	867	529	146	100%	56%	48%	24%	13%	7%	9%	17%	57%	30%	9%	4%
K-4	Lower-income students	Initially High Achievers (1st)	177	129	63	100%	57%	46%	22%	14%	11%	11%	17%	52%	37%	9%	1%
K-4	Lower-income students	Consistently High Achievers (5th)	220	189	61	100%	68%	56%	14%	11%	14%	16%	10%	53%	9%	5%	33%
K-4	Higher-income students	All	26,253	1,297	287	0%	51%	58%	16%	13%	6%	24%	14%	47%	41%	9%	3%
K-4	Higher-income students	Initially High Achievers (10th)	5,589	861	229	0%	56%	72%	6%	6%	9%	37%	5%	44%	46%	8%	3%
K-4	Higher-income students	Initially High Achievers (5th)	3,164	694	200	0%	60%	72%	4%	5%	11%	39%	4%	44%	47%	7%	2%
K-4	Higher-income students	Initially High Achievers (1st)	840	345	105	0%	67%	69%	2%	4%	20%	46%	3%	50%	44%	4%	2%
K-4	Higher-income students	Consistently High Achievers (5th)	1,279	442	124	0%	72%	69%	2%	4%	17%	45%	2%	46%	4%	1%	49%
4-8	All students	All	63,311	2,250	404	50%	51%	48%	21%	19%	6%	17%	18%	44%	41%	8%	7%
4-8	Lower-income students	All	31,851	2,093	340	100%	51%	31%	31%	27%	4%	6%	26%	55%	33%	7%	5%
4-8	Lower-income students	Initially High Achievers (10th)	628	361	162	100%	66%	58%	8%	10%	17%	19%	13%	51%	32%	8%	9%
4-8	Lower-income students	Initially High Achievers (5th)	258	178	92	100%	72%	56%	10%	6%	22%	24%	9%	59%	29%	5%	7%
4-8	Lower-income students	Initially High Achievers (1st)	83	62	45	100%	89%	58%	5%	7%	23%	27%	12%	56%	38%	6%	0%
4-8	Lower-income students	Consistently High Achievers (5th)	190	135	76	100%	75%	57%	8%	6%	24%	25%	9%	62%	5%	7%	25%
4-8	Higher-income students	All	31,460	2,016	371	0%	50%	65%	11%	11%	7%	28%	10%	33%	49%	9%	8%
4-8	Higher-income students	Initially High Achievers (10th)	3,043	622	214	0%	63%	68%	2%	4%	20%	49%	2%	31%	58%	6%	5%
4-8	Higher-income students	Initially High Achievers (5th)	1,504	452	173	0%	68%	63%	1%	4%	25%	52%	2%	33%	58%	4%	4%
4-8	Higher-income students	Initially High Achievers (1st)	523	234	101	0%	71%	50%	1%	6%	36%	62%	2%	33%	63%	3%	1%
4-8	Higher-income students	Consistently High Achievers (5th)	1,207	373	139	0%	67%	60%	1%	5%	28%	54%	1%	34%	3%	3%	60%

Note. This table presents the descriptive statistics of students in K-4th and 4-8th cohorts between fall 2021 and fall 2025.

Table 2. Descriptive statistics for schools in the NWEA analytic samples

	Population of schools serving K-8	Cross-sectional Sample (Fall 2025)	Longitudinal Samples	
			K-4th Cohort	4-8th Cohort
Number of Schools	77,847	2,337	1,403	2,250
Average Sch. Enrollment	458	546	485	531
% FRPL	56%	62%	60%	56%
County-level Median Income	82,203	82,285	71,244	71,908
% White	48%	33%	40%	44%
% Black	15%	16%	29%	24%
% Hispanic	26%	40%	21%	20%
% Asian	4%	5%	4%	5%
City	29%	46%	53%	47%
Suburb	31%	33%	33%	36%
Rural	29%	14%	11%	12%
Town	11%	6%	3%	6%
West	11%	12%	5%	5%
Midwest	24%	21%	25%	33%
South	25%	59%	68%	59%
Northeast	15%	7%	3%	3%

Note: FRPL=free or reduced-priced lunch. The source of the demographic variables is the Common Core of Data (CCD) collected by the National Center for Educational Statistics. The U.S. public school population comparison was determined by limiting to the schools that were operational in 2024-25 and enrolled students in kindergarten to 8th grade.

Table 3. Lower-income representation among high achievers in fall 2025

Grade	High-achieving threshold	All Students			Lower-income students			Higher-income students			Ratio	Share of lower-income high achievers
		Total N	N High achievers	% High achievers	Total N	N High achievers	% High achievers	Total N	N High achievers	% High achievers		
K	Top 10th	78,661	10,034	12.8%	38,959	2,634	6.8%	39,702	7,400	18.6%	2.76	26%
1	Top 10th	95,174	9,403	9.9%	48,939	2,116	4.3%	46,235	7,287	15.8%	3.65	23%
2	Top 10th	107,422	10,985	10.2%	54,419	2,283	4.2%	53,003	8,702	16.4%	3.91	21%
3	Top 10th	113,324	11,207	9.9%	57,331	2,410	4.2%	55,993	8,797	15.7%	3.74	22%
4	Top 10th	117,865	11,272	9.6%	58,833	2,349	4.0%	59,032	8,923	15.1%	3.79	21%
5	Top 10th	115,867	12,830	11.1%	57,688	2,748	4.8%	58,179	10,082	17.3%	3.64	21%
6	Top 10th	108,151	13,982	12.9%	54,116	3,325	6.1%	54,035	10,657	19.7%	3.21	24%
7	Top 10th	107,986	13,038	12.1%	53,875	2,895	5.4%	54,111	10,143	18.7%	3.49	22%
8	Top 10th	96,325	10,471	10.9%	49,352	2,363	4.8%	46,973	8,108	17.3%	3.61	23%
K	Top 5th	78,661	5,158	6.6%	38,959	1,119	2.9%	39,702	4,039	10.2%	3.54	22%
1	Top 5th	95,174	4,805	5.0%	48,939	851	1.7%	46,235	3,954	8.6%	4.92	18%
2	Top 5th	107,422	5,406	5.0%	54,419	922	1.7%	53,003	4,484	8.5%	4.99	17%
3	Top 5th	113,324	5,454	4.8%	57,331	874	1.5%	55,993	4,580	8.2%	5.37	16%
4	Top 5th	117,865	5,996	5.1%	58,833	1,005	1.7%	59,032	4,991	8.5%	4.95	17%
5	Top 5th	115,867	7,044	6.1%	57,688	1,176	2.0%	58,179	5,868	10.1%	4.95	17%
6	Top 5th	108,151	8,039	7.4%	54,116	1,553	2.9%	54,035	6,486	12.0%	4.18	19%
7	Top 5th	107,986	7,319	6.8%	53,875	1,331	2.5%	54,111	5,988	11.1%	4.48	18%
8	Top 5th	96,325	6,007	6.2%	49,352	1,085	2.2%	46,973	4,922	10.5%	4.77	18%
K	Top 1st	78,661	1,460	1.9%	38,959	263	0.7%	39,702	1,197	3.0%	4.47	18%
1	Top 1st	95,174	1,689	1.8%	48,939	229	0.5%	46,235	1,460	3.2%	6.75	14%
2	Top 1st	107,422	1,378	1.3%	54,419	180	0.3%	53,003	1,198	2.3%	6.83	13%
3	Top 1st	113,324	1,617	1.4%	57,331	171	0.3%	55,993	1,446	2.6%	8.66	11%
4	Top 1st	117,865	2,044	1.7%	58,833	240	0.4%	59,032	1,804	3.1%	7.49	12%
5	Top 1st	115,867	2,071	1.8%	57,688	208	0.4%	58,179	1,863	3.2%	8.88	10%
6	Top 1st	108,151	3,020	2.8%	54,116	363	0.7%	54,035	2,657	4.9%	7.33	12%
7	Top 1st	107,986	2,674	2.5%	53,875	348	0.6%	54,111	2,326	4.3%	6.65	13%
8	Top 1st	96,325	2,534	2.6%	49,352	336	0.7%	46,973	2,198	4.7%	6.87	13%

Note. N=number of students.

Table 4. Descriptive statistics of longitudinal sample

Cohort	Income level	Term	Grade	N	Marginal Reliability	Mean RIT	SD RIT	Median Percentile	Top 10th percentile	Top 5th percentile	Top 1st percentile
K-4th	All	F21	K	53,598	0.93	141.80	12.42	51	13%	7%	2%
K-4th	All	F22	1	53,598	0.93	160.58	12.84	55	10%	5%	2%
K-4th	All	F23	2	53,598	0.95	173.09	14.98	52	10%	5%	1%
K-4th	All	F24	3	53,598	0.95	185.48	14.29	55	9%	4%	1%
K-4th	All	F25	4	53,598	0.95	197.85	14.76	54	9%	5%	1%
K-4th	Higher-income	F21	K	26,253	0.93	146.06	12.51	65	21%	12%	3%
K-4th	Higher-income	F22	1	26,253	0.93	164.98	12.46	68	17%	9%	3%
K-4th	Higher-income	F23	2	26,253	0.95	178.39	14.54	65	17%	9%	3%
K-4th	Higher-income	F24	3	26,253	0.94	190.55	13.86	68	16%	8%	2%
K-4th	Higher-income	F25	4	26,253	0.95	203.20	14.26	66	16%	9%	3%
K-4th	Lower-income	F21	K	27,345	0.92	138.40	11.23	37	6%	3%	1%
K-4th	Lower-income	F22	1	27,345	0.93	157.06	12.03	47	4%	2%	1%
K-4th	Lower-income	F23	2	27,345	0.95	168.86	13.94	41	4%	2%	0%
K-4th	Lower-income	F24	3	27,345	0.94	181.43	13.30	46	4%	1%	0%
K-4th	Lower-income	F25	4	27,345	0.94	193.58	13.71	44	4%	2%	0%
4-8th	All	F21	4	63,311	0.96	195.29	15.29	47	6%	3%	1%
4-8th	All	F22	5	63,311	0.96	207.10	16.13	53	10%	6%	2%
4-8th	All	F23	6	63,311	0.96	211.98	16.09	54	12%	7%	3%
4-8th	All	F24	7	63,311	0.97	220.00	17.73	56	14%	8%	3%
4-8th	All	F25	8	63,311	0.97	225.79	19.36	57	16%	10%	4%
4-8th	Higher-income	F21	4	31,460	0.96	201.10	14.22	61	11%	6%	2%
4-8th	Higher-income	F22	5	31,460	0.96	213.02	15.60	66	17%	10%	4%
4-8th	Higher-income	F23	6	31,460	0.96	217.84	15.91	67	19%	12%	5%
4-8th	Higher-income	F24	7	31,460	0.96	226.66	17.24	71	22%	14%	6%
4-8th	Higher-income	F25	8	31,460	0.97	233.12	18.55	72	26%	16%	6%
4-8th	Lower-income	F21	4	31,851	0.96	189.50	14.07	34	2%	1%	0%
4-8th	Lower-income	F22	5	31,851	0.95	201.27	14.42	40	4%	2%	1%
4-8th	Lower-income	F23	6	31,851	0.95	206.22	14.07	40	4%	2%	1%
4-8th	Lower-income	F24	7	31,851	0.96	213.46	15.65	41	5%	3%	1%
4-8th	Lower-income	F25	8	31,851	0.96	218.60	17.33	42	7%	3%	1%

Table 5. Percentage of consistent high achievers by income level and achievement threshold

Cohort	Achievement Level	Grade	Term	Trajectories of Initially High Achievers					
				Higher-income students			Lower-income students		
				N. Initial High Achievers	Mean RIT	% High Achieving	N. Initial High Achievers	Mean RIT	% High Achieving
K-4 Cohort	Top 10th Percentile	K	F21	5,589	163.0	100%	1,893	161.7	100%
K-4 Cohort	Top 10th Percentile	1	F22	5,589	178.2	59%	1,893	174.6	42%
K-4 Cohort	Top 10th Percentile	2	F23	5,589	192.9	52%	1,893	188.6	36%
K-4 Cohort	Top 10th Percentile	3	F24	5,589	203.6	49%	1,893	198.6	30%
K-4 Cohort	Top 10th Percentile	4	F25	5,589	216.2	47%	1,893	210.6	28%
K-4 Cohort	Top 5th Percentile	K	F21	3,164	166.3	100%	867	165.3	100%
K-4 Cohort	Top 5th Percentile	1	F22	3,164	181.3	49%	867	177.8	37%
K-4 Cohort	Top 5th Percentile	2	F23	3,164	196.1	42%	867	192.0	32%
K-4 Cohort	Top 5th Percentile	3	F24	3,164	206.8	40%	867	201.5	27%
K-4 Cohort	Top 5th Percentile	4	F25	3,164	219.4	41%	867	213.3	26%
K-4 Cohort	Top 1st Percentile	K	F21	840	172.8	100%	177	173.1	100%
K-4 Cohort	Top 1st Percentile	1	F22	840	188.0	52%	177	181.7	33%
K-4 Cohort	Top 1st Percentile	2	F23	840	203.1	38%	177	195.5	28%
K-4 Cohort	Top 1st Percentile	3	F24	840	215.1	35%	177	207.0	18%
K-4 Cohort	Top 1st Percentile	4	F25	840	226.4	32%	177	219.1	19%
4-8th Cohort	Top 10th Percentile	4	F21	3,043	225.7	100%	628	223.7	100%
4-8th Cohort	Top 10th Percentile	5	F22	3,043	238.5	85%	628	235.2	76%
4-8th Cohort	Top 10th Percentile	6	F23	3,043	243.2	85%	628	239.9	81%
4-8th Cohort	Top 10th Percentile	7	F24	3,043	252.9	88%	628	248.9	79%
4-8th Cohort	Top 10th Percentile	8	F25	3,043	260.0	89%	628	256.2	83%
4-8th Cohort	Top 5th Percentile	4	F21	1,504	231.7	100%	258	230.0	100%
4-8th Cohort	Top 5th Percentile	5	F22	1,504	244.6	77%	258	241.9	70%
4-8th Cohort	Top 5th Percentile	6	F23	1,504	249.4	79%	258	246.7	73%
4-8th Cohort	Top 5th Percentile	7	F24	1,504	258.2	80%	258	255.4	70%
4-8th Cohort	Top 5th Percentile	8	F25	1,504	264.9	80%	258	262.8	72%
4-8th Cohort	Top 1st Percentile	4	F21	523	241.9	100%	83	241.0	100%
4-8th Cohort	Top 1st Percentile	5	F22	523	254.7	83%	83	253.4	81%
4-8th Cohort	Top 1st Percentile	6	F23	523	259.1	82%	83	255.6	82%
4-8th Cohort	Top 1st Percentile	7	F24	523	266.4	81%	83	263.2	83%
4-8th Cohort	Top 1st Percentile	8	F25	523	272.1	82%	83	268.8	81%

Table 6. Score trajectories for descenders by income level

Cohort	Income Level	Term	Grade	N	Mean RIT	Median Percentile
K-4th	Higher-income students	F21	K	1873	165.1	97
K-4th	Higher-income students	F22	1	1873	177.0	91
K-4th	Higher-income students	F23	2	1873	191.1	89
K-4th	Higher-income students	F24	3	1873	201.1	88
K-4th	Higher-income students	F25	4	1873	211.9	84
K-4th	Lower-income students	F21	K	644	165.3	97
K-4th	Lower-income students	F22	1	644	175.1	89
K-4th	Lower-income students	F23	2	644	189.1	87
K-4th	Lower-income students	F24	3	644	197.9	84
K-4th	Lower-income students	F25	4	644	209.1	81
4-8th	Higher-income students	F21	4	308	226.7	97
4-8th	Higher-income students	F22	5	308	231.5	94
4-8th	Higher-income students	F23	6	308	233.3	93
4-8th	Higher-income students	F24	7	308	242.4	93
4-8th	Higher-income students	F25	8	308	243.9	91
4-8th	Lower-income students	F21	4	76	225.8	96
4-8th	Lower-income students	F22	5	76	228.7	92
4-8th	Lower-income students	F23	6	76	231.0	91
4-8th	Lower-income students	F24	7	76	239.5	90
4-8th	Lower-income students	F25	8	76	242.6	89.5

Note. This table presents the score trajectory for the students that were initially high-achieving in the first year of the cohort but had fallen out of the high-achieving group by the final year of the cohort.