



TECHNICAL REPORT

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National Norms for IXL's Diagnostic in Grades K-12

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Overview

The following report presents national norms for the IXL Diagnostic in mathematics and English language arts (ELA) from kindergarten through twelfth grade. Norm tables are presented by grade and time of year in which these measures are used for benchmarking: beginning of year (BOY; August-November), middle of year (MOY; December-February), or end of year (EOY; March-June). The national norms presented in this technical report are based on IXL Diagnostic Snapshot data from the 2022-23 school year.

IXL Diagnostic development and administration modes

The IXL Diagnostic is a formative and interim assessment developed by a collaborative team of educators and subject matter experts that covers material aligned with the Common Core and other academic standards (see Bashkov et al., 2021). IXL's Diagnostic is especially valuable because it provides insights for students and educators about students' knowledge levels in key strands of math and ELA.

IXL's Diagnostic is a reliable, valid assessment that can be used in two ways to best meet students' and educators' needs. In *Real-Time* mode, students can use the diagnostic anytime, allowing for real-time assessment of their current knowledge. After completing the initial assessment, which takes only 45 minutes per subject, students can answer just a handful of diagnostic questions each week to keep their diagnostic results and personalized recommendations up to date, ensuring that they make meaningful progress on their learning goals. Teachers can use the immediate insights from the Real-Time Diagnostic to understand exactly what students need to improve on a day-to-day basis and to easily differentiate instruction.

IXL's Diagnostic can also be used in *Snapshot* mode, which serves as a flexible, lightweight benchmark assessment. Snapshot mode allows administrators to capture student knowledge levels at a fixed point in time, across all students in a target grade level, school, or district. Unlike the Diagnostic's Real-Time mode, which provides assessment to ensure that students' personalized recommendations stay up-to-date, Snapshot mode is designed to be used one or more discrete times throughout the school year to provide a high-level overview of students' grade-level proficiency in key math and ELA strands. For example, a school administrator may administer the Diagnostic Snapshot for beginning-of-year benchmarking and then conduct a mid-year Snapshot to see how students' knowledge has grown. Snapshot mode allows administrators to easily track student progress between Snapshots, which can help inform school or district-level planning and decision-making.

IXL Diagnostic strands and scoring

To measure students' knowledge levels, the IXL Diagnostic applies item response theory to estimate the numeric scores that represent student knowledge levels in math and ELA overall and across key strands (i.e., broad skill categories). For math, the strands include (a) Numbers & Operations, (b) Algebra & Algebraic Thinking, (c) Fractions, (d) Geometry, (e) Measurement, and (f) Data, Statistics, & Probability. For ELA, the strands include (a) Reading Strategies, (b) Vocabulary, (c) Writing Strategies, and (d) Grammar & Mechanics. A Reading Level score for ELA is also provided. The overall diagnostic scores for math and ELA are weighted averages of the strand scores. IXL Diagnostic scores are scaled such that scores correspond to grade levels. For example, a score of 350 indicates that the student has acquired about 50% of third-grade material, whereas a score of 400 indicates that the student is ready to learn fourth-grade material.

Reliability and validity

Numerous studies have examined the psychometric properties of the IXL Diagnostic and have yielded desirable reliability and validity evidence, including coherent internal structure (IXL Learning, 2020a), multi-group measurement invariance (An et al., 2022), high reliability (IXL Learning, 2020a; Schonberg, 2021a), and strong predictive validity coefficients using multiple well-established assessments as criterion measures (An, 2021, 2022a, 2022b, 2022c, 2023; Hargis, 2022, 2023; IXL Learning, 2020b; Schonberg, 2021a, 2021b, 2022, 2023).

Norming

Assessment norms provide information about the typical levels of performance for an identifiable population of students or schools. For example, a student may achieve the highest test score in her class on a given assessment but still fall below the national average of students at her grade level who have completed the same assessment (i.e., a percentile rank < 50). This information allows educators to compare their students' scores to the scores of students across the United States who completed the same assessment. Such comparisons are often used to help educators to appropriately target resources to maximize student learning and achievement.

Norming Sample

The sample included IXL Diagnostic Snapshots administered to 734,064 students from 2,690 schools in 48 states and Washington D.C. during the 2022-23 academic year. School-level demographic data were obtained from the National Center for Education Statistics (NCES; <https://nces.ed.gov/ccd>). After matching the IXL Diagnostic sample with school-level demographics, we were able to compare the IXL Diagnostic student demographics with the national averages. As seen in Table 1, the IXL Diagnostic sample is sufficiently representative of student demographics nationwide.

Table 1. Demographics

	National %	IXL %
Gender		
Female	48.8	48.9
Male	51.1	51.1
Race/ethnicity		
American Indian or Alaska Native	0.8	1.3
Asian	5.0	5.4
Black or African American	15.4	18.5
Hispanic or Latino	30.3	28.2
Native Hawaiian or Pacific Islander	0.3	0.2
White	48.5	46.6
Free or reduced-price lunch	50.1	48.0

IXL Diagnostic Norms

The tables in the appendices show percentile ranks and corresponding IXL Diagnostic scores by grade. Percentile ranks indicate the percentage of students scoring below a specific score. This allows for the comparison of individual student scores to students nationwide. For example, if a fifth-grade student at the beginning of the year earned an overall score of 450 on the IXL Diagnostic in math, then that student scored in the 65th percentile (see Table A1). In other words, the student scored higher than 65% of students who completed the IXL Diagnostic math assessment.

School and district administrators can also see students' percentile ranks directly within the [Diagnostic Levels](#) and [Diagnostic Strands](#) reports in IXL Analytics.

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Appendix A: Beginning-of-Year Mathematics K-8

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Table A1. Beginning-of-Year Math: Overall

Percentile	K	1	2	3	4	5	6	7	8
1	-	10	20	50	70	100	110	140	160
5	-	30	60	100	160	220	240	280	310
10	10	40	80	140	210	270	290	340	370
15	10	50	90	170	240	300	330	370	420
20	20	60	110	190	270	320	350	400	450
25	20	70	130	210	280	340	380	430	480
30	20	70	140	220	300	360	400	460	510
35	30	80	150	230	310	370	410	480	540
40	30	80	170	240	320	390	430	500	560
45	40	90	180	250	330	400	450	520	590
50	40	90	190	260	350	410	470	540	610
55	40	100	200	270	360	420	480	560	630
60	50	100	200	280	370	440	500	580	650
65	50	110	210	290	380	450	520	610	680
70	60	120	220	300	390	460	540	630	700
75	60	140	230	310	400	480	560	650	720
80	70	150	240	320	410	500	580	680	750
85	80	160	250	330	430	510	600	700	780
90	80	180	270	350	440	540	640	740	820
95	100	210	290	370	470	580	690	790	870
99	170	280	350	430	550	680	780	900	980

Table A2. Beginning-of-Year Math: Numbers & Operations

Percentile	K	1	2	3	4	5	6	7	8
1	-	-	-	40	70	90	110	140	160
5	-	-	60	100	170	240	270	320	360
10	-	40	80	160	240	310	350	390	420
15	-	50	90	190	270	350	390	430	470
20	-	60	120	210	300	370	420	460	510
25	10	60	140	230	320	390	440	490	560
30	10	70	160	240	340	410	460	520	590
35	20	70	170	260	360	420	480	550	630
40	30	80	180	270	370	440	500	570	660
45	40	80	190	280	380	450	520	590	690
50	40	90	210	290	390	460	530	620	720
55	50	100	220	300	410	470	560	640	740
60	50	110	230	320	420	480	570	660	760
65	60	120	240	330	430	500	590	680	780
70	60	140	240	340	430	510	610	710	790
75	60	150	260	350	440	530	630	730	810
80	70	160	260	370	450	550	650	760	830
85	70	180	280	390	460	560	670	780	850
90	80	200	290	410	480	580	700	820	880
95	100	230	330	430	510	620	750	860	920
99	180	310	410	490	590	720	860	940	1030

Table A3. Beginning-of-Year Math: Algebra & Algebraic Thinking

Percentile	K	1	2	3	4	5	6	7	8
1	-	-	-	10	50	70	70	90	100
5	-	-	50	70	100	150	160	220	260
10	-	20	60	90	150	200	210	310	360
15	-	50	80	120	180	230	270	370	430
20	-	50	80	150	210	270	310	420	490
25	-	60	90	170	230	290	350	470	560
30	10	60	100	180	250	330	380	520	600
35	20	70	120	200	270	350	400	560	630
40	30	70	130	210	280	370	440	590	660
45	40	70	150	220	310	380	460	620	670
50	50	80	160	230	330	400	480	640	690
55	50	80	170	240	350	420	510	650	720
60	50	90	180	250	360	440	540	670	740
65	60	90	200	260	380	460	570	690	750
70	60	100	210	270	390	480	600	710	770
75	60	120	220	280	410	500	630	730	790
80	70	140	230	300	430	530	650	750	810
85	70	160	250	330	450	570	660	770	850
90	80	180	260	350	470	620	690	790	880
95	90	210	290	400	530	660	750	840	930
99	170	280	390	490	650	750	820	940	1060

Table A4. Beginning-of-Year Math: Fractions

Percentile	K	1	2	3	4	5	6	7	8
1	-	-	-	-	100	100	100	110	120
5	-	-	-	100	200	250	260	280	280
10	-	-	100	160	250	290	310	320	330
15	-	-	110	200	280	320	330	340	350
20	-	-	140	220	290	340	350	360	370
25	-	-	170	230	310	350	360	380	400
30	-	-	180	240	320	360	380	400	430
35	-	-	200	260	330	370	390	430	450
40	-	100	210	260	340	390	420	450	470
45	-	110	220	270	340	400	440	460	490
50	-	120	230	270	350	420	450	480	510
55	-	130	240	280	360	430	470	500	540
60	-	160	250	280	370	450	480	530	560
65	-	170	260	290	370	460	500	540	590
70	100	190	270	300	380	470	530	570	630
75	110	200	270	310	390	480	540	600	680
80	120	220	270	320	400	490	570	650	730
85	130	240	280	330	420	510	600	700	780
90	160	250	290	340	440	530	640	770	800
95	200	270	310	360	470	560	710	800	800
99	260	310	360	430	530	670	800	800	800

Table A5. Beginning-of-Year Math: Geometry

Percentile	K	1	2	3	4	5	6	7	8
1	-	-	-	-	-	20	0	50	50
5	-	-	-	40	70	90	90	110	130
10	-	-	40	70	100	150	150	210	240
15	-	10	60	80	130	230	230	260	290
20	-	30	70	90	190	260	260	310	340
25	-	50	80	100	230	300	300	340	370
30	-	60	80	120	250	330	330	360	410
35	-	70	90	130	270	340	350	390	440
40	10	70	100	150	290	360	380	420	470
45	20	80	100	180	320	380	410	450	510
50	30	80	110	200	330	400	430	480	550
55	40	90	130	230	340	420	450	510	580
60	50	100	140	230	350	440	470	550	630
65	60	100	150	240	370	450	500	580	660
70	70	110	180	260	380	460	520	610	680
75	70	120	200	270	400	480	550	650	710
80	80	140	230	300	420	500	570	670	750
85	90	160	230	320	430	510	600	690	780
90	100	200	250	340	450	530	640	730	830
95	120	230	280	370	490	570	690	790	880
99	230	280	350	450	560	690	790	890	990

Table A6. Beginning-of-Year Math: Measurement

Percentile	K	1	2	3	4	5	6	7	8
1	30	30	30	30	30	70	50	110	120
5	30	30	30	130	170	190	190	210	220
10	30	30	100	180	210	220	220	240	250
15	30	30	150	200	220	230	240	260	280
20	30	50	160	210	230	250	260	280	310
25	30	80	180	220	240	260	270	300	330
30	30	90	190	230	250	270	290	320	360
35	30	110	190	230	260	290	310	340	390
40	30	130	200	240	270	300	320	370	420
45	30	140	210	250	290	320	340	390	450
50	40	150	210	250	300	330	360	410	480
55	50	160	220	260	310	350	380	440	510
60	70	170	220	270	320	370	400	470	530
65	80	180	230	280	330	380	420	500	560
70	90	190	230	290	350	400	450	520	580
75	100	190	240	300	360	420	480	550	610
80	110	200	240	310	380	450	510	580	660
85	130	210	250	330	390	470	540	610	690
90	160	220	270	350	420	510	580	680	700
95	180	240	290	370	460	560	660	700	700
99	230	280	360	440	550	690	700	700	700

Table A7. Beginning-of-Year Math: Data, Statistics, & Probability

Percentile	K	1	2	3	4	5	6	7	8
1	-	-	-	-	40	70	70	90	100
5	-	-	40	80	110	160	170	210	240
10	-	10	70	110	160	220	250	290	310
15	-	40	90	140	200	260	290	330	350
20	-	60	100	160	240	300	320	360	390
25	-	70	110	170	270	310	340	390	430
30	10	70	120	190	290	330	370	420	450
35	10	80	140	220	310	360	390	450	480
40	30	90	150	240	320	380	410	470	500
45	50	90	160	250	340	390	430	490	540
50	60	100	170	270	350	410	450	510	580
55	70	100	180	280	370	430	460	540	600
60	70	110	200	300	380	450	480	580	640
65	70	120	220	310	390	460	500	600	660
70	80	140	240	320	420	470	520	620	690
75	90	150	250	330	440	490	550	650	730
80	90	160	270	350	450	510	580	670	760
85	100	170	290	380	460	550	610	700	800
90	110	200	310	390	480	590	640	740	850
95	150	250	330	450	520	630	690	810	910
99	230	320	420	500	640	730	850	940	1040

Appendix B: Beginning-of-Year ELA K-8

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Table B1. Beginning-of-Year ELA: Overall

Percentile	K	1	2	3	4	5	6	7	8
1	-	-	20	30	50	70	70	80	90
5	-	20	50	80	110	160	160	210	240
10	-	30	70	100	170	210	230	280	310
15	-	40	90	130	200	250	270	330	370
20	-	50	100	160	230	280	300	370	420
25	10	60	110	180	250	310	330	410	460
30	10	70	120	200	270	330	360	440	510
35	20	70	140	210	290	350	390	480	550
40	20	80	150	230	310	370	410	510	590
45	20	90	170	240	320	400	440	550	630
50	30	90	180	260	340	420	470	580	660
55	30	100	190	270	360	440	490	610	700
60	40	100	200	280	380	470	520	650	740
65	40	110	220	300	400	490	550	680	770
70	50	130	230	310	420	520	590	710	810
75	50	140	240	330	450	550	620	750	850
80	60	150	260	360	480	590	660	790	900
85	70	180	280	390	510	630	700	840	950
90	80	200	300	420	560	680	750	900	1020
95	100	240	350	480	630	760	840	1000	1110
99	200	330	480	620	770	920	1020	1160	1210

Table B2. Beginning-of-Year ELA: Reading Level

Percentile	K	1	2	3	4	5	6	7	8
1	-	-	10	20	30	50	50	70	70
5	-	-	30	70	100	140	150	200	230
10	-	20	60	100	160	210	230	290	320
15	-	30	80	120	200	260	290	340	370
20	-	40	90	150	240	300	330	380	410
25	-	50	100	180	270	330	360	410	450
30	-	60	120	200	290	350	380	440	480
35	10	70	140	220	310	370	400	460	510
40	10	80	150	240	330	390	430	490	550
45	10	80	170	260	350	410	450	520	590
50	20	90	180	280	370	430	470	550	640
55	20	90	200	290	380	450	490	590	680
60	30	100	220	310	400	470	510	630	730
65	30	110	230	330	410	490	540	670	770
70	30	120	250	340	430	510	570	710	820
75	40	140	270	360	450	540	610	750	870
80	50	160	290	380	480	580	660	800	920
85	60	180	310	400	510	630	710	860	990
90	80	220	340	430	560	680	770	940	1070
95	100	260	380	480	640	780	890	1050	1190
99	220	360	480	630	820	980	1100	1250	1300

Table B3. Beginning-of-Year ELA: Reading Strategies

Percentile	K	1	2	3	4	5	6	7	8
1	-	-	-	-	10	30	20	40	40
5	-	-	10	50	80	100	110	160	190
10	-	-	50	80	130	190	210	260	290
15	-	10	70	100	180	240	260	310	340
20	-	20	80	130	220	280	310	350	380
25	-	30	90	160	250	310	340	380	410
30	-	50	100	190	280	340	360	400	440
35	-	60	120	210	300	360	380	430	470
40	-	70	140	230	320	380	400	460	500
45	-	70	160	250	340	390	430	480	550
50	-	80	170	270	360	410	450	520	610
55	10	80	190	280	370	430	470	560	660
60	10	90	210	300	390	450	490	610	700
65	20	100	230	320	400	470	520	660	750
70	20	100	240	340	430	500	560	700	800
75	30	120	260	360	450	530	610	750	860
80	40	150	280	370	470	570	660	800	920
85	50	170	300	400	500	620	710	860	980
90	70	210	330	430	550	680	780	950	1060
95	90	250	380	480	650	790	910	1070	1210
99	210	350	480	640	850	1010	1140	1300	1300

Table B4. Beginning-of-Year ELA: Vocabulary

Percentile	K	1	2	3	4	5	6	7	8
1	-	-	-	30	70	100	110	140	150
5	-	-	70	120	170	200	220	260	310
10	-	30	110	160	210	270	300	360	390
15	-	60	140	190	250	320	350	400	440
20	-	80	160	200	290	360	380	440	480
25	-	90	170	220	320	380	400	470	530
30	-	100	180	240	340	400	430	500	570
35	10	120	190	260	360	420	450	540	620
40	10	130	200	290	380	440	470	570	650
45	30	140	210	310	390	460	490	600	700
50	40	150	220	320	400	470	520	630	740
55	50	160	230	340	420	490	540	660	770
60	60	170	250	350	430	510	570	700	810
65	70	180	260	370	450	540	600	740	840
70	80	190	290	380	470	570	620	770	880
75	90	200	310	390	490	600	650	800	930
80	100	210	330	410	520	630	680	840	1000
85	120	230	350	440	550	670	730	880	1070
90	150	260	370	470	600	730	780	970	1160
95	180	310	410	520	670	810	870	1110	1250
99	270	390	510	670	820	1020	1140	1300	1300

Table B5. Beginning-of-Year ELA: Writing Strategies

Percentile	K	1	2	3	4	5	6	7	8
1	-	-	-	-	-	-	-	-	-
5	-	-	-	-	-	-	200	200	200
10	-	-	-	-	-	200	210	220	250
15	-	-	-	-	-	210	220	270	320
20	-	-	-	-	200	230	260	330	380
25	-	-	-	-	220	260	290	380	450
30	-	-	-	200	240	290	330	430	510
35	-	-	-	220	260	320	360	480	570
40	-	-	-	220	280	350	410	540	630
45	-	-	200	240	300	390	450	580	700
50	-	-	210	260	330	430	490	640	760
55	-	200	220	270	350	460	530	700	790
60	-	210	230	280	380	490	570	750	810
65	-	220	250	300	410	540	620	780	840
70	200	220	260	320	450	570	680	810	860
75	220	240	280	340	480	610	740	830	900
80	220	260	290	370	530	680	780	860	960
85	220	270	310	430	580	760	820	910	1020
90	250	290	350	480	650	800	850	990	1110
95	280	340	420	570	770	860	960	1110	1230
99	390	520	600	780	870	1060	1170	1300	1300

Table B6. Beginning-of-Year ELA: Grammar & Mechanics

Percentile	K	1	2	3	4	5	6	7	8
1	-	-	-	-	20	40	20	40	40
5	-	-	30	60	70	80	80	110	140
10	-	20	60	70	90	130	140	190	240
15	-	40	70	80	120	170	190	250	300
20	-	50	70	90	150	200	230	290	360
25	-	60	80	110	170	240	260	340	410
30	-	60	90	130	200	260	280	380	450
35	10	70	90	150	230	290	320	420	480
40	10	70	100	160	250	320	350	450	520
45	20	70	110	180	260	350	380	480	560
50	30	80	130	190	290	380	410	510	590
55	40	80	140	210	320	410	440	550	620
60	50	90	150	230	340	430	460	580	660
65	50	90	160	250	360	460	490	610	690
70	60	100	170	270	390	480	530	640	730
75	60	110	190	290	420	510	570	680	760
80	70	120	210	330	450	540	600	720	800
85	70	140	230	360	470	580	640	760	850
90	80	150	250	400	520	610	700	810	900
95	90	190	310	460	580	690	770	900	980
99	140	270	450	590	720	850	950	1020	1100

Appendix C: Middle-of-Year Mathematics K-8

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Table C1. Middle-of-Year Math: Overall

Percentile	K	1	2	3	4	5	6	7	8
1	10	30	50	70	100	140	170	180	200
5	20	50	90	140	200	250	290	300	330
10	30	70	120	190	250	300	340	360	400
15	40	80	150	220	280	330	380	400	450
20	40	90	170	240	300	350	410	430	490
25	50	90	180	250	320	370	430	460	520
30	50	100	200	260	340	390	450	490	550
35	60	110	210	280	350	410	470	510	570
40	60	120	220	290	360	420	490	540	600
45	70	130	220	300	370	440	510	560	620
50	70	140	230	310	380	450	530	580	650
55	70	150	240	310	390	470	550	600	670
60	80	160	250	320	400	480	560	620	690
65	80	170	250	330	420	500	580	640	710
70	90	180	260	340	430	510	600	660	740
75	90	190	270	350	440	530	620	690	760
80	90	200	280	360	450	540	640	710	790
85	100	210	290	380	470	560	660	740	820
90	120	230	300	390	490	590	690	770	850
95	150	250	330	420	520	630	730	820	910
99	220	300	390	480	590	720	830	930	990

Table C2. Middle-of-Year Math: Numbers & Operations

Percentile	K	1	2	3	4	5	6	7	8
1	-	-	50	70	90	150	170	180	200
5	-	50	90	150	220	280	340	350	380
10	10	70	130	210	280	360	400	420	450
15	30	80	170	240	330	390	440	460	510
20	40	80	190	270	360	420	480	500	560
25	50	90	210	290	380	440	510	540	600
30	50	100	220	310	400	460	540	580	640
35	60	120	230	330	420	480	560	600	670
40	60	130	240	340	430	490	580	630	710
45	60	150	250	350	440	510	600	650	730
50	70	150	260	360	450	530	620	670	750
55	70	160	260	370	460	540	640	690	770
60	70	170	270	380	460	550	650	710	790
65	80	180	280	390	470	560	660	730	810
70	80	190	290	400	480	570	670	750	820
75	80	200	300	410	490	580	680	770	840
80	90	220	310	420	500	600	700	780	860
85	100	230	320	440	510	620	720	800	880
90	120	250	340	450	530	640	750	830	900
95	160	270	380	470	560	670	790	870	940
99	240	340	440	530	650	760	880	950	1050

Table C3. Middle-of-Year Math: Algebra & Algebraic Thinking

Percentile	K	1	2	3	4	5	6	7	8
1	-	-	30	50	70	80	90	100	120
5	-	40	70	90	130	170	200	230	280
10	10	60	80	120	180	220	270	340	400
15	30	60	100	150	210	260	330	400	490
20	40	70	110	180	240	290	370	470	570
25	50	70	130	200	260	330	420	540	630
30	50	80	150	210	290	360	460	590	660
35	50	90	170	230	320	380	490	620	680
40	60	90	180	240	350	400	540	650	720
45	60	100	190	260	360	430	570	670	750
50	60	110	200	270	380	450	600	690	770
55	70	120	210	280	400	470	620	710	790
60	70	140	220	300	420	490	640	740	810
65	70	150	230	320	440	520	650	750	830
70	70	160	250	340	450	540	670	770	850
75	80	170	260	360	470	570	680	780	870
80	80	190	260	370	480	590	690	800	890
85	90	200	280	390	500	630	720	820	910
90	100	220	300	420	530	650	750	840	940
95	130	250	330	460	600	680	780	890	980
99	210	310	430	560	680	760	870	1010	1070

Table C4. Middle-of-Year Math: Fractions

Percentile	K	1	2	3	4	5	6	7	8
1	-	-	-	100	100	170	180	180	190
5	-	-	100	180	240	280	290	290	310
10	-	-	160	220	280	320	330	330	340
15	-	-	190	240	300	340	350	350	360
20	-	-	210	260	320	350	380	370	380
25	-	100	230	270	330	370	400	400	420
30	-	130	240	270	340	380	430	430	440
35	-	150	240	280	350	400	460	450	460
40	-	170	250	290	360	420	480	470	480
45	-	180	260	300	360	440	500	490	510
50	-	200	260	300	370	450	520	520	530
55	100	210	270	310	380	470	530	540	550
60	110	230	270	320	390	480	550	560	580
65	130	240	270	330	410	490	570	590	610
70	150	240	280	340	420	510	590	620	650
75	170	250	290	340	430	530	610	660	700
80	180	260	300	350	450	540	640	700	760
85	210	270	310	360	460	570	670	750	790
90	230	270	320	380	480	590	710	790	800
95	250	290	340	400	510	620	770	800	800
99	290	330	390	470	580	730	800	800	800

Table C5. Middle-of-Year Math: Geometry

Percentile	K	1	2	3	4	5	6	7	8
1	-	-	-	-	30	60	60	60	70
5	-	-	50	70	90	110	130	130	170
10	-	40	70	80	120	200	220	230	260
15	-	60	80	100	180	250	260	270	320
20	20	70	90	120	230	280	310	320	360
25	30	70	100	140	250	320	340	340	390
30	40	80	100	170	270	340	360	370	430
35	50	80	120	200	300	360	390	390	460
40	60	90	130	230	320	380	420	420	490
45	70	90	140	240	340	410	450	450	530
50	70	100	160	250	350	430	480	480	570
55	80	110	170	260	370	440	500	510	610
60	80	120	190	280	380	460	530	540	650
65	90	130	220	300	400	480	550	580	670
70	90	140	230	320	410	490	580	620	700
75	100	150	240	330	430	510	610	660	740
80	100	180	240	350	450	520	640	680	780
85	120	210	260	370	470	540	660	710	820
90	140	230	290	390	490	570	680	760	860
95	180	250	330	430	520	620	730	830	910
99	250	310	400	500	590	720	870	940	1020

Table C6. Middle-of-Year Math: Measurement

Percentile	K	1	2	3	4	5	6	7	8
1	30	30	30	50	90	150	150	150	160
5	30	30	130	170	190	210	210	220	230
10	30	80	160	200	220	230	240	240	260
15	30	100	180	220	230	240	260	270	290
20	30	130	190	230	240	260	280	290	320
25	50	150	200	230	250	270	300	310	350
30	60	150	210	240	260	290	310	330	380
35	80	160	220	250	270	300	330	360	410
40	80	170	220	250	280	320	350	380	440
45	90	180	230	260	300	340	370	410	470
50	100	190	230	270	310	350	390	440	500
55	120	190	240	280	320	370	420	470	530
60	130	200	240	290	340	390	440	500	550
65	140	200	250	300	350	410	470	520	570
70	150	210	250	310	360	430	490	550	590
75	160	220	260	320	380	450	520	570	630
80	170	220	270	340	400	480	550	590	670
85	180	230	290	360	420	510	570	640	700
90	190	240	300	370	450	550	610	690	700
95	220	250	330	400	490	580	690	700	700
99	250	310	390	480	570	700	700	700	700

Table C7. Middle-of-Year Math: Data, Statistics, & Probability

Percentile	K	1	2	3	4	5	6	7	8
1	-	-	-	50	70	90	100	100	110
5	-	30	70	100	150	180	210	230	260
10	-	70	90	140	190	260	280	290	320
15	20	70	110	160	240	290	310	330	360
20	40	80	130	190	270	320	340	370	400
25	50	90	150	220	300	340	370	400	440
30	70	90	160	250	320	360	390	430	460
35	70	100	170	260	330	380	420	450	480
40	70	110	180	280	350	400	440	470	500
45	70	120	200	300	370	420	460	480	540
50	80	130	220	310	380	440	470	510	580
55	90	140	240	320	390	460	480	540	610
60	90	150	250	340	420	460	500	580	640
65	90	160	260	350	430	480	530	610	660
70	100	170	280	370	450	490	560	640	700
75	110	180	290	380	460	510	590	660	730
80	120	210	310	390	460	550	620	690	770
85	130	230	320	420	480	580	640	730	810
90	150	260	340	450	500	610	670	780	860
95	180	290	380	460	560	650	730	850	920
99	270	360	460	530	650	780	890	1000	1030

Appendix D: Middle-of-Year ELA K-8

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Table D1. Middle-of-Year ELA: Overall

Percentile	K	1	2	3	4	5	6	7	8
1	-	10	40	60	70	90	90	100	120
5	10	40	80	110	150	190	210	230	270
10	20	60	100	150	210	250	280	310	340
15	20	70	120	180	240	290	320	360	400
20	30	80	140	210	270	330	360	410	460
25	30	90	160	230	300	360	400	450	500
30	40	100	170	250	320	380	430	490	550
35	50	100	190	260	340	410	470	530	590
40	50	110	200	280	360	430	490	560	630
45	60	120	210	290	380	460	520	600	670
50	60	130	220	310	400	480	550	640	710
55	70	140	230	320	420	510	580	670	750
60	70	150	250	340	440	530	610	700	780
65	80	160	260	350	460	560	640	740	820
70	80	180	270	370	480	590	670	770	860
75	90	190	290	390	510	620	700	810	900
80	100	200	300	410	540	650	740	850	940
85	100	220	330	440	580	690	780	900	1000
90	120	240	350	480	630	740	830	960	1070
95	160	280	400	540	690	820	930	1060	1150
99	260	380	520	680	830	1000	1110	1200	1240

Table D2. Middle-of-Year ELA: Reading Level

Percentile	K	1	2	3	4	5	6	7	8
1	-	-	20	40	60	80	80	90	90
5	-	30	70	100	140	190	210	230	260
10	-	50	90	150	210	260	290	310	340
15	10	70	110	180	250	300	340	370	390
20	20	80	140	210	290	340	370	400	440
25	20	90	160	240	310	370	400	430	470
30	30	90	180	260	330	390	430	470	510
35	30	100	190	280	350	410	450	500	550
40	40	110	210	290	370	430	480	530	590
45	40	120	230	310	390	450	510	570	640
50	50	130	240	330	400	470	530	610	690
55	60	150	260	340	420	490	560	650	730
60	60	160	270	360	440	510	600	690	770
65	70	170	280	370	460	540	630	730	820
70	80	180	300	390	480	570	660	770	860
75	80	200	320	400	500	600	690	810	910
80	90	220	330	420	530	630	730	850	960
85	100	240	350	450	560	670	780	910	1020
90	120	270	380	480	620	740	850	990	1110
95	160	310	420	530	700	840	960	1110	1230
99	290	400	530	690	880	1040	1180	1280	1300

Table D3. Middle-of-Year ELA: Reading Strategies

Percentile	K	1	2	3	4	5	6	7	8
1	-	-	-	20	50	60	60	60	70
5	-	-	60	80	120	160	180	200	220
10	-	30	80	130	190	240	260	280	310
15	-	50	100	170	240	290	320	330	360
20	-	70	120	200	270	330	350	370	390
25	-	80	140	230	300	350	380	400	430
30	10	80	160	250	330	370	400	430	470
35	20	90	180	270	350	390	430	460	500
40	20	90	200	290	360	420	460	490	550
45	30	100	210	310	380	440	480	530	610
50	40	120	230	320	400	460	510	580	660
55	50	130	250	340	410	480	540	630	710
60	50	150	260	350	430	500	580	670	750
65	60	160	280	370	450	530	620	710	790
70	70	170	290	380	470	560	650	750	840
75	80	190	310	400	500	590	690	790	890
80	80	210	330	420	520	620	720	840	950
85	90	230	350	440	560	660	770	900	1010
90	100	260	370	470	610	730	850	980	1100
95	150	310	420	530	700	850	970	1120	1240
99	270	390	520	690	910	1070	1220	1300	1300

Table D4. Middle-of-Year ELA: Vocabulary

Percentile	K	1	2	3	4	5	6	7	8
1	-	-	30	70	100	140	140	150	170
5	-	50	110	160	190	240	260	300	340
10	-	80	150	190	250	320	360	380	420
15	-	100	170	220	310	370	400	430	470
20	20	120	180	250	340	400	430	470	520
25	40	140	200	280	370	420	460	510	570
30	50	150	210	310	380	440	490	550	620
35	60	160	220	330	400	470	510	590	660
40	70	170	240	350	410	480	540	630	700
45	80	170	250	360	430	500	570	660	750
50	90	180	270	370	450	530	600	700	780
55	100	190	290	380	470	550	630	740	820
60	110	200	310	400	480	580	660	770	850
65	120	210	320	410	500	610	680	800	890
70	130	220	340	420	520	640	720	830	940
75	150	230	360	440	550	660	750	870	1010
80	160	250	370	460	590	700	780	910	1070
85	170	280	390	490	620	750	820	980	1140
90	190	310	410	520	670	790	880	1080	1210
95	230	360	460	600	750	880	1010	1190	1290
99	340	440	590	750	910	1120	1220	1300	1300

Table D5. Middle-of-Year ELA: Writing Strategies

Percentile	K	1	2	3	4	5	6	7	8
1	-	-	-	-	-	-	-	-	200
5	-	-	-	-	-	200	200	200	210
10	-	-	-	-	200	210	230	250	280
15	-	-	-	-	210	250	270	310	350
20	-	-	-	200	230	280	330	360	430
25	-	-	-	210	260	320	370	430	490
30	-	-	-	220	280	350	420	480	560
35	-	-	200	240	310	390	470	540	630
40	-	-	210	260	330	430	520	590	710
45	-	-	220	270	360	460	560	650	760
50	-	-	230	290	390	500	600	720	790
55	-	200	240	310	430	530	650	760	810
60	-	220	260	330	460	570	700	790	840
65	-	220	270	340	490	600	750	810	870
70	200	240	280	370	520	650	780	840	900
75	210	250	300	400	560	710	810	870	960
80	230	270	320	440	590	770	830	910	1010
85	250	280	340	480	660	800	860	980	1070
90	280	300	380	550	750	840	920	1050	1160
95	320	340	460	630	810	920	1040	1180	1270
99	430	520	620	820	950	1140	1250	1300	1300

Table D6. Middle-of-Year ELA: Grammar & Mechanics

Percentile	K	1	2	3	4	5	6	7	8
1	-	-	20	40	60	60	60	60	70
5	-	40	60	70	90	110	120	150	180
10	-	50	70	90	130	170	200	240	270
15	20	60	80	110	170	220	250	300	340
20	30	70	90	140	200	260	290	350	400
25	40	70	100	160	230	290	330	400	450
30	50	80	110	180	250	330	370	440	480
35	50	80	130	200	280	360	400	470	520
40	60	90	140	230	300	390	440	500	570
45	60	90	160	240	330	420	460	540	600
50	60	100	170	260	350	450	490	580	630
55	70	100	180	270	380	470	520	600	670
60	70	110	190	300	400	490	560	640	710
65	80	120	210	320	430	510	580	680	740
70	80	140	230	340	450	540	610	710	770
75	90	150	240	360	470	570	640	740	800
80	90	160	260	380	490	590	680	770	830
85	90	180	280	420	530	620	720	800	880
90	100	200	320	450	570	680	760	850	930
95	130	230	380	510	630	750	840	940	990
99	200	330	500	630	780	910	990	1050	1100

Appendix E: End-of-Year Mathematics K-8

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Table E1. End-of-Year Math: Overall

Percentile	K	1	2	3	4	5	6	7	8
1	10	40	70	90	130	170	190	190	210
5	30	70	120	180	230	280	310	320	350
10	50	90	160	220	280	320	370	380	420
15	60	100	190	250	310	360	410	430	470
20	60	120	200	270	340	380	440	470	510
25	70	130	220	290	360	410	470	500	550
30	70	150	230	300	370	430	490	530	580
35	80	160	240	320	390	450	510	560	610
40	80	170	250	330	400	470	530	580	640
45	90	180	250	340	420	490	550	600	660
50	90	180	260	350	430	500	570	630	690
55	90	190	270	360	440	520	590	650	710
60	100	200	280	370	450	530	610	670	740
65	110	210	290	380	470	550	630	690	760
70	120	220	290	390	480	570	650	720	780
75	130	230	300	400	490	580	670	740	810
80	140	240	310	410	510	600	690	770	840
85	150	250	320	420	520	620	710	790	870
90	170	260	340	440	540	650	740	830	900
95	190	280	370	470	580	690	780	880	950
99	250	340	430	540	690	810	890	980	1040

Table E2. End-of-Year Math: Numbers & Operations

Percentile	K	1	2	3	4	5	6	7	8
1	-	30	60	80	130	170	190	200	220
5	20	70	120	190	250	310	360	380	400
10	40	80	170	240	320	380	430	440	470
15	50	100	210	280	360	420	470	490	540
20	60	120	230	300	390	440	520	540	600
25	60	140	240	330	410	460	550	580	640
30	70	160	250	350	430	480	580	610	680
35	70	170	260	360	440	500	600	640	720
40	80	180	270	370	450	520	620	660	750
45	80	190	280	380	460	530	640	690	770
50	90	200	290	390	470	550	650	710	790
55	90	210	290	400	480	560	670	730	810
60	100	220	300	410	490	570	680	750	830
65	100	230	310	420	500	590	700	770	840
70	120	240	320	430	510	600	710	780	860
75	130	240	340	440	520	620	730	800	880
80	150	250	350	440	530	640	750	820	890
85	160	260	370	450	550	660	770	840	920
90	180	280	390	470	570	690	800	870	950
95	210	310	420	490	610	730	840	920	1000
99	270	390	480	580	730	850	920	1030	1100

Table E3. End-of-Year Math: Algebra & Algebraic Thinking

Percentile	K	1	2	3	4	5	6	7	8
1	-	-	50	60	80	90	100	100	130
5	20	50	70	100	150	180	230	250	300
10	40	70	90	150	200	240	330	370	420
15	50	70	120	180	240	280	400	450	520
20	50	80	140	200	270	330	470	530	600
25	60	90	160	220	300	360	520	590	640
30	60	100	180	240	340	390	560	630	670
35	70	110	190	260	360	420	590	660	710
40	70	120	200	270	380	450	620	680	740
45	70	140	220	290	400	470	640	700	760
50	70	150	230	320	420	490	660	720	780
55	80	160	240	340	440	520	670	740	810
60	80	170	250	360	460	550	680	760	840
65	80	180	260	370	470	570	690	770	860
70	90	190	270	390	490	600	700	790	870
75	90	200	280	400	510	630	720	810	890
80	100	220	290	420	530	650	740	830	920
85	120	230	310	450	570	660	760	850	960
90	150	250	330	470	610	690	780	890	990
95	180	270	370	510	660	740	820	940	1030
99	240	350	470	640	750	830	920	1060	1130

Table E4. End-of-Year Math: Fractions

Percentile	K	1	2	3	4	5	6	7	8
1	-	-	100	100	180	210	200	190	190
5	-	-	160	240	280	300	300	300	310
10	-	100	200	270	320	340	340	340	340
15	-	140	230	290	340	360	360	360	370
20	-	170	240	310	360	390	380	380	400
25	-	190	250	320	380	420	410	410	430
30	-	200	260	330	400	450	440	440	450
35	-	220	260	340	410	470	460	460	470
40	100	230	270	350	430	490	480	480	500
45	120	240	270	360	440	510	500	510	530
50	140	240	270	360	450	530	520	530	550
55	160	250	280	370	460	540	540	560	580
60	170	260	280	380	470	560	560	580	600
65	180	260	290	390	480	570	580	620	650
70	200	270	300	390	490	580	600	660	700
75	220	270	310	400	500	600	630	710	750
80	230	270	320	410	510	610	660	750	790
85	240	280	330	420	520	630	700	790	800
90	260	290	340	440	540	660	750	800	800
95	270	310	360	460	570	710	800	800	800
99	310	350	430	520	660	800	800	800	800

Table E5. End-of-Year Math: Geometry

Percentile	K	1	2	3	4	5	6	7	8
1	-	-	-	30	60	70	70	70	80
5	-	40	60	80	110	160	160	180	210
10	20	60	80	120	210	250	240	260	290
15	40	70	90	160	250	320	300	320	350
20	50	80	100	220	300	350	340	360	390
25	60	90	120	240	330	390	380	400	430
30	70	90	130	260	360	420	420	430	480
35	80	100	150	280	380	450	450	470	520
40	80	110	170	300	400	470	490	520	560
45	80	120	190	320	420	490	520	560	600
50	90	130	220	340	430	500	550	600	650
55	90	140	230	350	450	520	580	640	680
60	100	150	240	360	460	530	610	670	710
65	110	160	250	380	470	550	640	700	750
70	120	180	270	400	480	560	660	730	780
75	130	200	280	410	500	570	680	760	820
80	140	220	300	430	510	590	700	780	850
85	150	230	320	440	520	610	720	810	880
90	190	250	340	470	540	650	750	850	910
95	230	280	370	500	570	690	800	890	960
99	290	350	470	560	690	830	910	990	1080

Table E6. End-of-Year Math: Measurement

Percentile	K	1	2	3	4	5	6	7	8
1	30	30	40	90	140	160	150	160	160
5	30	90	160	190	210	220	220	230	230
10	40	130	200	220	230	240	240	250	270
15	70	160	210	230	240	260	270	280	300
20	80	170	220	240	250	280	290	310	330
25	90	180	230	250	270	290	310	330	360
30	110	190	230	260	280	310	330	360	400
35	120	200	240	270	300	330	350	390	440
40	130	200	250	280	320	350	380	420	470
45	140	210	250	290	330	370	410	450	500
50	150	220	260	300	350	400	430	480	530
55	160	220	270	310	370	420	460	510	550
60	170	220	280	330	380	450	490	540	570
65	180	230	280	340	400	470	510	560	590
70	180	230	290	350	420	490	540	580	630
75	190	240	300	370	440	510	560	600	670
80	200	240	310	380	470	540	580	650	690
85	210	250	320	400	490	560	620	680	700
90	220	260	340	420	520	580	670	700	700
95	230	280	360	460	560	650	700	700	700
99	260	340	420	540	670	700	700	700	700

Table E7. End-of-Year Math: Data, Statistics, & Probability

Percentile	K	1	2	3	4	5	6	7	8
1	-	-	40	70	90	100	110	110	120
5	-	70	90	120	170	220	230	250	260
10	40	80	120	160	240	280	300	320	340
15	60	90	140	200	280	310	340	360	390
20	70	100	160	240	310	340	380	410	440
25	70	110	170	270	320	370	420	440	460
30	70	120	190	290	350	400	450	460	490
35	80	140	210	310	370	420	460	490	530
40	90	150	240	320	390	440	480	520	580
45	90	160	250	340	410	460	510	570	610
50	90	160	270	350	430	470	550	600	650
55	100	170	280	370	450	480	580	630	680
60	110	180	290	380	460	490	600	650	710
65	110	200	310	390	460	510	620	680	740
70	120	220	310	410	470	540	640	710	770
75	140	240	320	430	490	570	660	740	800
80	150	260	340	450	510	600	680	770	820
85	160	280	370	460	540	620	690	800	860
90	170	300	390	470	580	650	730	850	890
95	220	320	430	500	620	700	790	920	950
99	300	390	480	600	740	880	970	1050	1070

Appendix F: End-of-Year ELA K-8

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Table F1. End-of-Year ELA: Overall

Percentile	K	1	2	3	4	5	6	7	8
1	-	20	50	70	80	90	90	100	130
5	20	60	90	120	170	200	220	240	270
10	30	80	120	170	230	270	290	320	360
15	40	90	150	210	260	310	340	370	420
20	50	100	170	230	290	340	390	420	480
25	60	110	190	250	320	370	430	470	530
30	70	120	200	270	340	410	460	510	570
35	70	130	220	290	370	430	500	550	620
40	80	150	230	300	390	460	530	590	660
45	80	160	240	320	410	490	560	630	700
50	90	170	250	340	430	510	590	660	740
55	90	180	270	350	450	540	630	700	780
60	100	190	280	370	480	570	660	730	810
65	100	200	290	390	500	600	690	770	850
70	110	210	310	410	530	630	720	810	890
75	120	230	320	430	550	660	750	840	930
80	130	240	340	450	590	690	790	890	980
85	150	260	370	490	630	730	830	940	1040
90	170	280	400	530	680	780	890	1010	1100
95	200	320	460	600	750	870	1000	1110	1180
99	290	420	580	750	900	1070	1170	1220	1260

Table F2. End-of-Year ELA: Reading Level

Percentile	K	1	2	3	4	5	6	7	8
1	-	10	30	50	70	80	80	80	100
5	10	40	80	120	160	200	210	230	270
10	20	70	110	170	230	270	290	310	350
15	30	90	150	210	270	310	340	360	400
20	40	100	170	240	300	350	380	400	440
25	40	110	190	260	330	370	410	440	480
30	50	130	210	280	350	400	440	470	530
35	60	140	230	300	370	420	470	500	570
40	70	150	250	320	390	440	500	540	620
45	80	170	260	340	410	470	530	580	670
50	80	180	280	350	420	490	560	630	720
55	90	190	290	370	440	510	590	670	760
60	90	200	300	380	460	540	630	720	800
65	100	210	320	400	480	570	660	760	840
70	110	230	330	410	510	600	700	800	890
75	120	240	350	430	530	630	730	850	940
80	130	260	370	450	570	670	770	890	990
85	150	280	390	480	610	710	820	950	1060
90	180	310	410	510	660	780	910	1030	1150
95	220	350	460	590	740	900	1020	1160	1260
99	330	440	580	760	940	1110	1250	1300	1300

Table F3. End-of-Year ELA: Reading Strategies

Percentile	K	1	2	3	4	5	6	7	8
1	-	-	10	40	60	70	60	60	70
5	-	30	70	90	140	170	180	200	220
10	-	60	90	150	210	250	270	280	310
15	10	80	130	190	250	300	320	330	360
20	20	90	160	220	290	330	360	370	400
25	30	90	180	250	320	360	380	400	440
30	40	110	200	270	350	380	410	430	470
35	50	130	220	290	360	410	440	460	520
40	60	140	240	310	380	430	470	500	580
45	70	150	250	330	400	450	500	540	630
50	70	170	270	350	420	470	530	600	680
55	80	180	280	360	440	500	570	650	730
60	80	190	290	370	460	520	610	690	770
65	90	210	310	390	480	550	650	730	810
70	90	220	320	400	500	590	680	780	860
75	100	240	340	420	530	620	710	830	910
80	120	260	360	450	560	650	750	870	970
85	140	280	380	470	600	700	810	940	1040
90	170	310	410	510	650	770	900	1020	1140
95	210	350	460	590	740	900	1020	1160	1280
99	330	450	580	770	960	1130	1280	1300	1300

Table F4. End-of-Year ELA: Vocabulary

Percentile	K	1	2	3	4	5	6	7	8
1	-	-	50	80	110	140	140	150	170
5	-	80	130	170	200	250	280	300	350
10	20	110	170	210	270	340	370	390	430
15	50	130	190	250	330	380	410	440	490
20	60	150	200	280	360	410	450	490	550
25	80	160	220	310	380	440	490	530	600
30	90	170	240	340	400	470	520	580	650
35	100	180	260	360	420	490	550	620	700
40	110	190	280	370	440	510	590	660	740
45	120	190	300	380	460	540	620	700	780
50	130	200	320	400	480	560	640	740	820
55	140	220	330	410	490	590	670	780	850
60	150	230	350	420	520	620	710	810	900
65	160	240	360	440	540	640	740	840	940
70	170	260	370	460	570	670	770	880	1000
75	180	280	390	470	600	710	800	920	1060
80	190	300	400	490	640	750	840	980	1130
85	200	320	430	520	670	790	890	1060	1190
90	220	350	460	580	730	840	970	1150	1250
95	270	380	500	650	800	950	1120	1240	1300
99	370	470	660	800	990	1180	1300	1300	1300

Table F5. End-of-Year ELA: Writing Strategies

Percentile	K	1	2	3	4	5	6	7	8
1	-	-	-	-	-	-	-	-	200
5	-	-	-	-	-	200	200	200	210
10	-	-	-	-	200	220	240	250	290
15	-	-	-	-	220	260	300	320	370
20	-	-	-	200	250	300	350	380	450
25	-	-	-	220	280	340	410	450	530
30	-	-	200	240	320	380	460	500	600
35	-	-	210	260	340	420	510	570	670
40	-	-	220	280	370	460	570	630	750
45	-	-	240	290	410	490	610	700	780
50	-	200	250	320	440	530	670	760	810
55	-	210	260	340	470	570	730	790	840
60	-	220	280	360	500	600	770	810	860
65	-	230	290	380	540	650	790	840	890
70	200	250	300	420	570	720	810	860	940
75	210	260	330	450	610	770	840	900	990
80	220	280	350	490	660	800	870	960	1040
85	250	290	380	540	750	830	910	1020	1120
90	280	310	440	590	790	870	990	1090	1210
95	310	370	530	720	850	980	1110	1220	1290
99	490	530	720	860	1020	1190	1300	1300	1300

Table F6. End-of-Year ELA: Grammar & Mechanics

Percentile	K	1	2	3	4	5	6	7	8
1	-	-	30	50	60	60	60	60	70
5	10	50	70	80	100	120	140	150	200
10	40	60	80	100	150	190	210	250	300
15	50	70	90	140	190	240	270	320	370
20	50	80	100	170	230	280	330	370	430
25	60	80	130	190	250	330	370	420	470
30	60	90	140	220	280	360	410	460	510
35	70	90	160	240	320	390	450	490	550
40	70	100	170	260	340	430	480	540	590
45	70	110	190	270	370	450	510	570	630
50	80	120	200	300	390	470	550	600	670
55	80	130	220	320	420	500	570	640	700
60	90	140	230	340	440	530	600	670	740
65	90	150	250	360	460	560	630	710	760
70	90	170	260	380	480	580	660	740	790
75	100	180	280	410	510	600	700	770	820
80	100	190	310	430	540	630	730	800	860
85	110	220	340	460	570	670	770	840	910
90	130	240	380	490	610	730	810	890	960
95	160	270	440	570	680	800	890	970	1010
99	240	380	560	690	820	960	1020	1080	1100

Appendix G: High School

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Table G1. Math: Overall

Percentile	Grade 9			Grade 10			Grade 11			Grade 12		
	BOY	MOY	EOY	BOY	MOY	EOY	BOY	MOY	EOY	BOY	MOY	EOY
1	120	170	170	170	180	180	160	190	190	100	120	100
5	290	320	330	320	330	340	330	340	350	300	300	300
10	360	390	410	390	410	420	400	420	430	380	390	390
15	400	440	460	440	460	480	450	480	490	440	450	460
20	440	480	500	470	500	520	490	520	540	490	500	500
25	470	510	540	510	540	560	530	560	580	520	530	540
30	500	540	570	540	560	590	560	590	610	560	570	580
35	530	570	600	560	590	620	590	620	640	590	600	610
40	550	590	620	590	620	640	610	640	670	620	630	640
45	580	620	650	610	640	670	640	670	690	640	660	670
50	600	640	670	640	670	690	660	700	720	670	680	700
55	630	660	690	660	690	710	690	720	740	700	710	730
60	650	690	720	690	720	740	710	740	770	720	740	760
65	680	710	740	710	740	760	740	770	800	750	770	780
70	700	730	770	740	770	790	760	800	830	780	800	820
75	730	760	790	760	790	820	790	830	860	810	830	850
80	760	790	820	790	830	850	820	860	890	840	860	890
85	790	820	850	820	860	890	860	900	930	890	910	940
90	830	860	890	860	910	940	900	940	980	930	960	990
95	890	910	950	920	970	1010	970	1010	1060	1020	1060	1080
99	990	1010	1050	1040	1090	1130	1110	1130	1190	1180	1200	1210

Note. BOY = beginning of year; MOY = middle of year; EOY = end of year

Table G2. ELA: Overall

Percentile	Grade 9			Grade 10			Grade 11			Grade 12		
	BOY	MOY	EOY	BOY	MOY	EOY	BOY	MOY	EOY	BOY	MOY	EOY
1	80	80	90	90	100	100	110	130	140	90	100	90
5	230	240	250	250	260	270	280	290	300	270	270	270
10	320	330	340	350	370	370	380	390	400	380	380	370
15	390	390	410	420	440	440	460	470	480	460	460	450
20	440	450	470	490	510	510	530	530	550	540	540	520
25	490	500	520	540	570	570	590	600	610	600	610	590
30	550	550	570	600	620	630	650	660	670	670	670	660
35	590	600	620	650	670	680	710	710	720	720	720	710
40	640	650	670	700	720	730	760	760	770	780	770	760
45	680	690	720	740	770	780	800	800	820	830	820	820
50	720	740	760	790	810	830	840	850	860	870	870	860
55	760	780	810	830	860	870	890	890	910	910	920	910
60	800	820	850	870	900	920	920	930	950	950	960	960
65	840	860	890	910	940	960	960	970	1000	990	1000	1000
70	880	910	940	950	980	1000	1000	1020	1040	1030	1040	1040
75	930	950	990	990	1020	1040	1040	1060	1080	1070	1070	1080
80	970	1000	1040	1030	1060	1080	1070	1100	1120	1100	1110	1120
85	1020	1060	1090	1080	1110	1130	1110	1130	1160	1140	1150	1150
90	1080	1110	1140	1130	1150	1170	1160	1170	1190	1180	1180	1190
95	1160	1180	1200	1190	1200	1210	1200	1210	1220	1210	1220	1220
99	1240	1250	1270	1240	1270	1290	1260	1280	1290	1280	1300	1300

Note. BOY = beginning of year; MOY = middle of year; EOY = end of year

Table G3. Reading Level

Percentile	Grade 9			Grade 10			Grade 11			Grade 12		
	BOY	MOY	EOY	BOY	MOY	EOY	BOY	MOY	EOY	BOY	MOY	EOY
1	60	60	70	70	80	80	80	90	100	70	80	70
5	220	230	240	240	260	260	280	280	280	260	260	250
10	330	330	340	350	360	360	380	380	380	380	370	350
15	380	390	390	410	420	410	440	440	440	440	440	420
20	430	440	440	470	470	470	500	490	500	500	500	480
25	470	480	480	510	520	520	560	550	550	570	560	530
30	510	520	530	560	580	570	620	620	620	640	620	590
35	560	570	580	630	640	630	700	690	680	710	700	660
40	610	620	630	690	710	700	760	750	750	780	770	730
45	660	680	690	740	770	770	820	810	810	840	830	800
50	720	730	750	800	820	830	870	860	870	900	880	860
55	770	790	810	850	870	880	920	920	920	960	940	920
60	820	840	860	900	920	930	970	970	980	1000	1000	980
65	870	890	920	950	970	980	1010	1020	1030	1040	1040	1030
70	920	940	970	990	1020	1030	1050	1060	1080	1090	1090	1080
75	970	990	1020	1040	1060	1080	1090	1110	1130	1140	1130	1130
80	1020	1040	1080	1090	1110	1130	1130	1160	1190	1190	1190	1190
85	1070	1100	1140	1140	1170	1190	1190	1220	1250	1240	1250	1250
90	1150	1190	1220	1220	1240	1260	1250	1270	1280	1280	1280	1290
95	1250	1270	1290	1280	1290	1300	1290	1300	1300	1300	1300	1300
99	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300	1300

Note. BOY = beginning of year; MOY = middle of year; EOY = end of year