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Linking Exact Path Diagnostic and Montana Aligned to Standards Through-Year (MAST) Scores



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Introduction

The purpose of this study is to develop psychometric links between Edmentum's Exact Path diagnostic scores and scores on the Montana Aligned to Standards Through-Year Assessment (MAST), and to predict students' proficiency and performance levels on the MAST from their Exact Path diagnostic scores. Specifically, linking analyses were conducted using Montana students' English language arts (ELA) and mathematics scores from the 2024–2025 academic year. This report provides a detailed look at the equipercentile linking results, multiple measures of classification accuracy, and performance level projections across the fall, winter, and spring testing windows. The psychometric links established between the Exact Path diagnostic and MAST scales provide support for the validity and value of Edmentum's Exact Path diagnostic as an interim assessment for Montana and provide educators with performance level predictions to help inform instruction.

Exact Path Diagnostic and MAST Assessments

The Exact Path diagnostic assessment is a computer-adaptive, grade-agnostic assessment of language arts, mathematics, and reading for students in grades K–12. Each of the three subjects has a vertical scale ranging from 500 to 1500. The MAST serves as the state's summative assessment for ELA and mathematics in grades 3–8. Unlike Exact Path diagnostic scores, MAST scale scores are not on a vertical scale. For each subject and grade, scores are on a scale with a lowest obtainable scale score (LOSS) of 250, three cut scores to distinguish four performance levels, and a highest obtainable scale score (HOSS) of 400. In the present study, we establish relationships between:

1. scores on the MAST ELA and Exact Path diagnostic language arts,
2. scores on the MAST mathematics and Exact Path diagnostic mathematics, and
3. scores on the MAST ELA and Exact Path diagnostic reading.

Methods

Data

We acquired student-level data from the 2024–2025 academic year from 14 schools in Montana. The student-level data included MAST scores for ELA in grades 3–8 and for math in grades 6–8. For these data, we excluded records if:

- The same student had more than one MAST score for the same subject in the same academic year;
- The MAST score was missing or outside the range of LOSS and HOSS.

We included Exact Path diagnostic data from the 14 Montana schools for the 2024–2025 academic year. Exact Path diagnostic data were excluded if:

- A student's Exact Path diagnostic assessment was not completed;
- A student was not enrolled in grades 3–8;
- A student did not complete the entire test within 14 calendar days;
- A student was enrolled in a school district outside of Montana;
- A student received a non-effortful flag indicating that they may have been rapidly guessing;
- A student tested outside of the testing windows (or seasons) defined in Table 1.

In addition, if a student enrolled in Exact Path had multiple diagnostic test events for a specific subject within a single testing window, we used the median scale score of those test events.

Then, we merged the cleaned MAST data and the cleaned Exact Path diagnostic data by school district, academic year, and student ID. Student-level demographic data were unavailable in the present study. Instead, we used school-level demographic data to generate the empirical demographic distributions of interest for comparison with the state-level demographic distributions.

Table 1

Exact Path Diagnostic Testing Window Date Ranges by Year

Academic Year	Fall		Winter		Spring	
	Start Date	End Date	Start Date	End Date	Start Date	End Date
2024–2025	08/01/2024	10/31/2024	11/01/2024	02/28/2025	03/01/2025	06/30/2025

After we merged the cleaned data, there were 3,511 unique students for language arts, 1,744 unique students for mathematics, and 3,496 unique students for reading. Table 2 shows the number of unique students for each subject by academic year. Table 3 shows the number of diagnostic test administrations for each subject by academic year.

Table 2

Number of Unique Students in Matched Data by Subject and Academic Year

Academic Year	Number of Unique Students		
	Language Arts	Mathematics	Reading
2024–2025	3,511	1,744	3,496
Total	3,511	1,744	3,496

Table 3

Number of Diagnostic Test Administrations in Matched Data by Subject and Academic Year

Academic Year	Number of Diagnostic Test Administrations		
	Language Arts	Mathematics	Reading
2024–2025	8,977	4,222	8,938
Total	8,977	4,222	8,938

Weighted Equipercentile Linking

Exact Path diagnostic and MAST scores were linked grade by grade using the well-established equipercentile linking approach (Kolen & Brennan, 2014). This was implemented through the equate package (v2.0.8; Albano, 2016) within the R statistical software (v4.3.3; R Core Team, 2024). Because of the desire to use our sample to develop concordance tables that are applicable to general student samples in Montana, we conducted equipercentile linking utilizing student weights to adjust the linking results to better represent the state population.

Student weights were determined using the 2025 assessment data made available by the Montana Office of Public Instruction (Montana Office of Public Instruction, 2026a), such that the percentages of students in each of the four MAST performance levels in the sample distributions matched those of the state population distributions for each subject-grade-season combination. The strategy of applying weights to samples for linking has been shown to provide more accurate results (e.g., Powers, 2010, and Qian, Jiang, & von Davier, 2013). The linking process generated full concordance tables, providing linked scores between fall, winter, and spring Exact Path diagnostic administrations and the MAST for each subject-grade combination. Specifically, we linked (a) Exact Path diagnostic language arts scale scores to MAST ELA scale scores in grades 3–8, (b) Exact Path diagnostic mathematics scale scores to MAST mathematics scale scores in grades 6–8, and (c) Exact Path diagnostic reading scale scores to MAST ELA scale scores in grades 3–8.

Establishing Exact Path Diagnostic Cut Scores

We generated fall, winter, and spring Exact Path diagnostic cut scores that are associated with the four MAST performance levels for each subject-grade-season combination. To do this, we located the MAST cut scores on the full concordance table between fall Exact Path diagnostic scores and MAST scores for each subject-grade combination. The Exact Path diagnostic scores that were linked to these MAST cut scores in the fall-to-spring concordance tables served as the fall Exact Path diagnostic cut scores. We then used the full winter-to-spring concordance tables to determine the winter Exact Path diagnostic cut scores and the full spring-to-spring concordance tables to generate spring cut scores on the Exact Path diagnostic scale.

For the same performance level and the same season, we would expect the cut scores to increase from a lower grade to a higher grade. Similarly, for the same performance level and the same grade, we would expect the cut scores to increase from fall to winter to spring. However, this pattern was not always observed, and occasionally we observed reversals across seasons or across grades. To maintain monotonicity of cut scores across testing windows within grades and/or across grades within performance levels, we adjusted some of the Exact Path diagnostic cut scores. To achieve monotonicity of cut scores across testing windows within grades, we averaged fall and spring cut scores to obtain an adjusted winter cut score. To achieve monotonicity of cut scores across grades within performance levels, we averaged cut scores for a lower grade and an upper grade within the same performance level and testing window (e.g., grades 3 and 5 spring cut scores for the Partially Proficient performance level to obtain an adjusted grade 4 spring cut score for the same level).

Classification Accuracy for Proficiency on the MAST

A series of classification accuracy measures was computed to indicate how well the equipercentile linking approach classified students as proficient or not proficient on the MAST. We compared the students' MAST scores against the MAST cut scores to determine the students' observed (actual) performance levels. Then we compared the students' Exact Path diagnostic scores against the Exact

Path diagnostic cut scores, which were derived in the previous step, to determine students' predicted performance levels. These predicted performance levels represent students' expected performance level classification based on their Exact Path diagnostic scores. For each subject-grade-season combination, we categorized students' predicted and observed MAST performance levels as not proficient if their performance level classification was *Novice* or *Partially Proficient*, and we categorized their performance levels as proficient if their performance level classification was *Proficient* or *Advanced*. We computed overall classification accuracy to determine the proportion of students whose Exact Path diagnostic cut scores correctly predicted their proficiency classification on the MAST, using the formula:

$$Classification\ Accuracy = \frac{TP + TN}{N}$$

where *TP* is the number of students correctly classified as proficient on the MAST as predicted by their Exact Path diagnostic scores (true positives), *TN* is the number of students correctly classified as not proficient on the MAST as predicted by their Exact Path diagnostic scores (true negatives), and *N* is the total number of students in the subject-grade-season combination. Next, we computed the false negative rate (*FN* rate), or the proportion of students who were incorrectly identified as not proficient on the MAST based on their Exact Path diagnostic scores, and the false positive rate (*FP* rate), or the proportion of students who were incorrectly identified as proficient on the MAST based on their Exact Path diagnostic scores. We calculated the *FN* rate and the *FP* rate as:

$$FN\ rate = \frac{FN}{(FN + TP)}$$

$$FP\ rate = \frac{FP}{(FP + TN)}$$

where *FN* is the number of students incorrectly classified as not proficient on the MAST as predicted by their Exact Path diagnostic scores (false negatives), *FP* is the number of students incorrectly classified as proficient on the MAST as predicted by their Exact Path diagnostic scores (false positives), and *TP* and *TN* are the true positive and true negative measures referenced above. Using the same measures of true positives, true negatives, false positives, and false negatives, we also calculated three additional measures: (a) sensitivity as the proportion of students who were correctly predicted as proficient based on their Exact Path diagnostic scores among all observed proficient students on the MAST, (b) specificity as the proportion of students correctly predicted as not proficient based on their Exact Path diagnostic scores among all observed non-proficient students on the MAST, and (c) precision as the proportion of students who were correctly predicted as proficient on the MAST assessment among all students who were either correctly or incorrectly predicted as proficient based on their Exact Path diagnostic scores. We calculated sensitivity, specificity, and precision as:

$$Sensitivity = \frac{TP}{(TP + FN)}$$

$$Specificity = \frac{TN}{(TN + FP)}$$

$$Precision = \frac{TP}{(TP + FP)}$$

We also computed Area Under the Curve (AUC), a measure of how well Exact Path diagnostic scores distinguish between students classified as not proficient versus proficient on the MAST. AUC values greater than or equal to 0.80 are desirable and indicate that the model reliably distinguishes between students' proficiency classifications (Hosmer Jr. et al., 2013, p. 177).

Performance Level Projection and Proficiency Projection

After developing the fall, winter, and spring Exact Path diagnostic cut scores for each MAST performance level, we employed an ordinal logistic model to determine the probability of students being classified at each of the MAST performance levels based on their fall, winter, and spring Exact Path diagnostic scores. This is referred to as *performance level projection*, implemented through the MASS package (v7.3–60.0.1; Venables & Ripley, 2002) using the R statistical software. The model was formulated as follows with a logit link function:

$$Performance_Level = ExactPath_Scores$$

where *Performance_Level* is an ordered, categorical variable with four levels (1 = Novice, 2 = Partially Proficient, 3 = Proficient, and 4 = Advanced). These performance levels represent students' actual classifications on the spring MAST, not their performance levels derived from the Exact Path diagnostic cut scores. *ExactPath_Scores* is a continuous variable representing students' obtained Exact Path diagnostic scores. Each resulting probability reflects the likelihood of a student with an obtained Exact Path diagnostic score being classified into a MAST performance level compared to the other performance levels.

In addition, we used a binary logistic model to determine the probability of students being classified as proficient or not proficient on the MAST based on their fall, winter, and spring Exact Path diagnostic scores. This is referred to as *proficiency projection*, implemented through the R stats package (v4.3.3; R Core Team, 2024). The model was formulated as follows with a logit link function:

$$Proficiency_Level = ExactPath_Scores$$

where *Proficiency_Level* is a binary, categorical variable with levels 0 = not proficient and 1 = proficient, and *ExactPath_Scores* is a continuous variable representing students' obtained Exact Path diagnostic scores. Each resulting probability reflects the likelihood of a student being classified into the MAST's proficient performance levels based on their Exact Path diagnostic scores.

Although projections for each performance level provide additional information about student classifications, proficiency projections (probability of being classified as proficient versus not proficient) are a more familiar approach to viewing students' performance classification probabilities and can be easier to interpret.

Results

Demographics

Tables 4 through 6 compare the demographic distributions of the spring samples with the demographic distributions of the state population for the three subjects respectively, on five key demographic variables: (a) multilingual learner status, (b) gender, (c) ethnicity, (d) SES category (as determined by students' free or reduced-price lunch status), and (e) special education status. Each comparison is broken down further by grade.

For the state population, the empirical distributions of the SES category were aggregated across schools from the school nutrition data for the 2024–2025 academic year, using the total number of students enrolled in each school and its number of students eligible for free or reduced-price lunch (Montana Office of Public Instruction, 2026b). The empirical distributions of multilingual learner status, gender, ethnicity, and special education status were summarized based on all students taking the MAST ELA and mathematics in the same academic year (Hedalen, 2025).

For the fall, winter, and spring samples, we generated the empirical distributions of the five demographic variables based on the school-level subgroup percentages from different sources for the 14 Montana schools in the 2024–2025 academic year. For gender, ethnicity, and SES category, we obtained the subgroup percentages from the National Center for Education Statistics website (National Center for Education Statistics, 2026). The Montana state website provided subgroup percentages for multilingual learner status (Montana Office of Public Instruction, 2026c) and special education status (Montana Office of Public Instruction, 2026d). For each subject-grade-season combination, the school-level subgroup percentages were weighted by the total number of students enrolled in a school to approximate the subgroup percentages for the sample.

In general, compared to the state population, the students in the samples were more likely to be white and less likely to be American Indian or Alaska Native. Demographic distributions for the fall and winter seasons are shown in Appendix A.

Table 4

Demographic Comparison of Language Arts Sample to the State (Spring)

	State %	Sample %						
		Total	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7	Grade 8
Multilingual Learner Status								
MLL	3.65	3.20	2.78	2.82	3.11	4.10	3.74	2.50
Non-MLL	96.35	96.80	97.22	97.18	96.89	95.90	96.26	97.50
Gender								
F	48.84	47.83	48.14	48.17	47.57	47.30	47.94	47.74
M	51.16	52.17	51.86	51.83	52.43	52.70	52.06	52.26
Race/Ethnicity								
American Indian or Alaska Native	10.18	4.87	4.81	4.92	4.48	5.45	5.05	4.33
Asian	0.66	1.94	1.69	1.70	1.80	2.39	2.16	1.95
Black or African American	0.70	2.04	1.92	1.95	2.10	2.40	2.06	1.74
Hispanic	6.48	5.45	5.73	5.93	5.48	5.39	5.04	4.88
Multiracial	5.34	3.18	4.51	4.63	4.41	1.53	1.65	1.74
Native Hawaiian or other Pacific Islander	0.16	0.11	0.11	0.12	0.11	0.12	0.11	0.13
White	76.49	82.41	81.22	80.74	81.62	82.73	83.93	85.23
SES								
Free or Reduced Lunch	48.58	44.82	46.52	48.07	45.06	41.80	44.18	41.92
Paid Lunch	51.42	55.18	53.48	51.93	54.94	58.20	55.82	58.08
Special Education Status								
General Education	84.08	80.58	79.13	78.82	79.49	81.18	82.43	83.55
Special Education	15.92	19.42	20.87	21.18	20.51	18.82	17.57	16.45

Table 5

Demographic Comparison of Mathematics Sample to the State (Spring)

	State %	Sample %			
		Total	Grade 6	Grade 7	Grade 8
Multilingual Learner Status					
MLL	3.94	3.57	4.04	3.80	2.48
Non-MLL	96.06	96.43	95.96	96.20	97.52
Gender					
F	48.53	47.79	47.40	47.82	48.32
M	51.47	52.21	52.60	52.18	51.68
Race/Ethnicity					
American Indian or Alaska Native	9.67	5.00	5.41	5.06	4.29
Asian	0.75	2.17	2.38	2.16	1.89
Black or African American	0.73	2.08	2.37	2.08	1.62
Hispanic	6.06	5.09	5.36	5.06	4.72
Multiracial	5.27	1.63	1.52	1.67	1.73
Native Hawaiian or other Pacific Islander	0.15	0.12	0.12	0.10	0.14
White	77.38	83.91	82.84	83.86	85.61
SES					
Free or Reduced Lunch	48.58	42.95	41.45	44.95	41.95
Paid Lunch	51.42	57.05	58.55	55.05	58.05
Special Education Status					
General Education	84.92	82.36	81.28	82.36	84.00
Special Education	15.08	17.64	18.72	17.64	16.00

Table 6

Demographic Comparison of Reading Sample to the State (Spring)

	State %	Sample %						
		Total	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7	Grade 8
Multilingual Learner Status								
MLL	3.65	3.21	2.77	2.80	3.10	4.18	3.73	2.69
Non-MLL	96.35	96.79	97.23	97.20	96.90	95.82	96.27	97.31
Gender								
F	48.84	47.80	48.19	48.13	47.58	47.38	47.85	47.46
M	51.16	52.20	51.81	51.87	52.42	52.62	52.15	52.54
Race/Ethnicity								
American Indian or Alaska Native	10.18	4.88	4.79	4.92	4.51	5.49	5.04	4.47
Asian	0.66	1.95	1.69	1.71	1.79	2.40	2.16	2.02
Black or African American	0.70	2.05	1.92	1.94	2.09	2.41	2.08	1.87
Hispanic	6.48	5.46	5.77	5.90	5.48	5.38	5.06	5.01
Multiracial	5.34	3.20	4.51	4.65	4.40	1.52	1.66	1.72
Native Hawaiian or other Pacific Islander	0.16	0.11	0.11	0.13	0.11	0.12	0.11	0.12
White	76.49	82.35	81.21	80.75	81.62	82.69	83.90	84.80
SES								
Free or Reduced Lunch	48.58	44.83	46.52	48.00	44.87	41.92	44.32	41.95
Paid Lunch	51.42	55.17	53.48	52.00	55.13	58.08	55.68	58.05
Special Education Status								
General Education	84.08	80.52	79.12	78.79	79.54	81.15	82.39	83.11
Special Education	15.92	19.48	20.88	21.21	20.46	18.85	17.61	16.89

Means and Weighted Correlations

We computed descriptive statistics for Exact Path diagnostic and MAST scores by subject, grade, and season. Summary statistics are presented in Tables 7 through 9 for language arts, mathematics, and reading, respectively. The last column, *r*, includes weighted correlations as an indicator of the strength of the relationships between the MAST and Exact Path assessments. The student weights utilized for the weighted equipercentile linking were also applied in calculating the weighted correlations to correct for the restriction of range observed in our samples compared to the state population. Weighted correlation coefficients in the spring samples ranged from 0.81 to 0.86 for language arts, from 0.80 to 0.87 for mathematics, and from 0.82 to 0.87 for reading, suggesting strong relationships between the two assessments for language arts and reading in grades 3–8 and for mathematics in grades 6 through 8.

Table 7

Exact Path Language Arts and MAST Descriptive Statistics and Weighted Correlations

Season	Grade	Test	*N*	Mean	SD	Min	Max	LOSS	HOSS	*r*
Fall	3	MAST	560	313.67	25.50	254	400	250	400	0.80
	3	Exact Path	560	935.27	84.83	695	1199	500	1500	
	4	MAST	573	314.98	24.94	256	383	250	400	0.83
	4	Exact Path	573	984.21	91.77	685	1179	500	1500	
	5	MAST	553	322.97	26.50	256	391	250	400	0.83
	5	Exact Path	553	1041.69	98.88	720	1337	500	1500	
	6	MAST	489	314.13	23.71	256	377	250	400	0.83
	6	Exact Path	489	1067.04	101.04	699	1320	500	1500	
	7	MAST	542	314.63	26.63	256	376	250	400	0.78
	7	Exact Path	542	1106.35	101.83	651	1348	500	1500	
	8	MAST	499	315.31	25.62	250	400	250	400	0.82
	8	Exact Path	499	1117.32	112.08	765	1405	500	1500	
Winter	3	MAST	551	313.68	25.79	254	400	250	400	0.83
	3	Exact Path	551	980.90	101.31	658	1315	500	1500	
	4	MAST	561	314.04	25.01	256	376	250	400	0.86
	4	Exact Path	561	1025.81	105.54	696	1271	500	1500	
	5	MAST	537	323.21	26.37	258	391	250	400	0.86
	5	Exact Path	537	1073.40	106.53	688	1354	500	1500	
	6	MAST	478	315.16	22.68	261	377	250	400	0.84
	6	Exact Path	478	1094.22	115.76	635	1363	500	1500	
	7	MAST	521	315.20	26.71	256	376	250	400	0.81
	7	Exact Path	521	1119.57	116.87	739	1438	500	1500	
	8	MAST	154	308.70	24.69	257	390	250	400	0.84
	8	Exact Path	154	1108.09	132.34	704	1408	500	1500	
Spring	3	MAST	561	313.53	25.70	254	400	250	400	0.83
	3	Exact Path	561	1013.02	105.27	653	1332	500	1500	
	4	MAST	542	313.69	25.23	256	383	250	400	0.85
	4	Exact Path	542	1040.37	114.49	665	1317	500	1500	
	5	MAST	489	322.67	27.02	256	391	250	400	0.85
	5	Exact Path	489	1091.31	116.81	692	1381	500	1500	
	6	MAST	483	315.10	22.74	262	377	250	400	0.86
	6	Exact Path	483	1111.11	114.87	674	1372	500	1500	
	7	MAST	534	315.22	26.49	256	385	250	400	0.81
	7	Exact Path	534	1115.09	131.02	662	1470	500	1500	
	8	MAST	350	317.25	24.82	250	400	250	400	0.81
	8	Exact Path	350	1151.22	128.81	667	1431	500	1500	

Table 8

Exact Path Mathematics and MAST Descriptive Statistics and Weighted Correlations

Season	Grade	Test	*N*	Mean	SD	Min	Max	LOSS	HOSS	*r*
Fall	6	MAST	499	310.03	25.36	250	400	250	400	0.82
	6	Exact Path	499	1049.49	91.83	630	1251	500	1500	
	7	MAST	584	310.12	27.13	250	400	250	400	0.80
	7	Exact Path	584	1091.81	101.77	754	1354	500	1500	
	8	MAST	478	315.88	31.13	250	400	250	400	0.76
	8	Exact Path	478	1119.37	108.07	796	1442	500	1500	
Winter	6	MAST	483	309.00	25.61	250	400	250	400	0.85
	6	Exact Path	483	1075.99	108.37	666	1295	500	1500	
	7	MAST	532	311.66	27.53	250	400	250	400	0.82
	7	Exact Path	532	1119.66	120.30	696	1467	500	1500	
	8	MAST	256	314.30	30.10	250	400	250	400	0.85
	8	Exact Path	256	1153.00	133.84	746	1469	500	1500	
Spring	6	MAST	508	310.97	24.77	250	400	250	400	0.87
	6	Exact Path	508	1101.76	121.39	605	1405	500	1500	
	7	MAST	548	311.21	26.67	250	400	250	400	0.80
	7	Exact Path	548	1130.27	125.62	675	1500	500	1500	
	8	MAST	334	319.39	31.62	250	400	250	400	0.82
	8	Exact Path	334	1170.31	128.18	816	1500	500	1500	

Table 9

Exact Path Reading and MAST Descriptive Statistics and Weighted Correlations

Season	Grade	Test	*N*	Mean	SD	Min	Max	LOSS	HOSS	*r*
Fall	3	MAST	553	313.58	25.67	254	400	250	400	0.83
	3	Exact Path	553	981.24	95.18	686	1216	500	1500	
	4	MAST	580	314.93	24.86	256	383	250	400	0.83
	4	Exact Path	580	1034.21	94.89	719	1236	500	1500	
	5	MAST	553	322.86	26.44	258	391	250	400	0.84
	5	Exact Path	553	1091.27	99.88	727	1304	500	1500	
	6	MAST	500	313.99	23.52	256	377	250	400	0.85
	6	Exact Path	500	1123.74	99.89	777	1336	500	1500	
	7	MAST	555	313.98	26.74	255	385	250	400	0.81
	7	Exact Path	555	1146.72	105.81	759	1409	500	1500	
	8	MAST	494	315.77	25.83	250	400	250	400	0.83
	8	Exact Path	494	1159.97	108.67	730	1405	500	1500	
Winter	3	MAST	549	313.19	25.56	254	400	250	400	0.83
	3	Exact Path	549	1024.25	103.63	711	1293	500	1500	
	4	MAST	545	313.94	24.86	256	376	250	400	0.86
	4	Exact Path	545	1063.94	108.66	710	1271	500	1500	
	5	MAST	534	322.81	26.57	258	391	250	400	0.85
	5	Exact Path	534	1119.71	116.11	623	1379	500	1500	
	6	MAST	474	314.57	23.16	261	377	250	400	0.85
	6	Exact Path	474	1146.01	113.79	702	1368	500	1500	
	7	MAST	539	314.77	27.13	255	385	250	400	0.82
	7	Exact Path	539	1165.16	122.72	734	1443	500	1500	
	8	MAST	122	306.00	25.33	257	390	250	400	0.84
	8	Exact Path	122	1142.11	131.94	749	1384	500	1500	
Spring	3	MAST	561	313.66	25.52	258	400	250	400	0.83
	3	Exact Path	561	1059.38	108.52	692	1352	500	1500	
	4	MAST	538	313.55	25.12	256	383	250	400	0.84
	4	Exact Path	538	1082.93	114.17	703	1321	500	1500	
	5	MAST	500	322.51	26.69	264	391	250	400	0.86
	5	Exact Path	500	1131.99	122.67	696	1360	500	1500	
	6	MAST	458	315.40	23.01	262	377	250	400	0.87
	6	Exact Path	458	1156.66	122.00	667	1392	500	1500	
	7	MAST	509	315.61	26.69	256	385	250	400	0.82
	7	Exact Path	509	1161.69	135.45	695	1455	500	1500	
	8	MAST	374	317.84	25.55	250	400	250	400	0.86
	8	Exact Path	374	1190.60	131.21	682	1464	500	1500	

Weighted Equipercentile Linking

We used cumulative frequency distributions for fall, winter, and spring Exact Path diagnostic scores and for MAST scores to conduct weighted equipercentile linking for each subject-grade combination. The resulting concordance tables from this process provided linked scores between fall, winter, and spring Exact Path diagnostic and MAST results. We computed Exact Path diagnostic cut scores that are linked to MAST cut scores from these concordance tables. Table 10 provides the MAST scores corresponding to the four MAST performance levels. Tables 11 through 13 provide the Exact Path diagnostic scores that best correspond to each MAST performance level across fall, winter, and spring. For example, looking at Table 12, we could expect that a grade 6 student with an Exact Path diagnostic score below 1009 in mathematics during the fall testing window would most likely be classified in the Novice performance level on the MAST mathematics assessment.

For all three subjects, in our original Exact Path cut score estimates, we observed non-monotonic patterns within performance levels in which cut scores did not consistently increase as expected across testing windows within grades and/or across grades within testing windows. To maintain monotonically increasing patterns of cut scores within and across grades at a given performance level, we replaced non-monotonic patterns of cut scores with the average of the corresponding adjacent cut scores.

Specifically, for language arts, an across-grades reversal in cut scores was observed in grade 8 winter at the Proficient performance level. Within-grade reversals in cut scores occurred primarily in spring, for grades 6 and 7 at the Partially Proficient performance level and for grade 8 at the Advanced performance level. The only exception was found in grade 7 winter at the Partially Proficient performance level. For mathematics, within-grade reversals were found in grade 8 spring at the Partially Proficient performance level and the Proficient performance level. For reading, an across-grades reversal appeared in grade 8 fall at the Proficient performance level. Within-grade reversals were only observed in spring, for grade 5 at the Partially Proficient performance level and for grade 8 at the Partially Proficient performance level and the Proficient performance level. In grade 7 spring at the Partially Proficient performance level, the cut score reversal occurred both within and across grades and was adjusted once.

The general rule to determine revised cut scores was based on one of the following: the averaged cut scores for the lower and upper grades within the same testing window and performance level, or the averaged cut scores for the adjacent testing windows within the same grade and performance level. This rule did not apply to most of the cut score reversals associated with spring and/or grade 8, because spring was the last testing window and grade 8 was the highest grade level in our study. Instead, the grade 8 spring cut score reversals were determined by either (a) calculating the difference between the fall and winter cut scores at the corresponding performance level and then adding that difference to the winter cut score to obtain the spring cut scores, or (b) calculating the difference between the cut scores for grades 6 and 7 at the corresponding performance level and then adding that difference to the grade 7 cut score to obtain the grade 8 cut scores. Approach (a) was also adopted to adjust other spring cut score reversals. In addition, the adjustment was not necessarily implemented at the cut score where the reversal occurred. In some cases, the adjustment was applied to an unusually high or low score adjacent to the score reversal. For example, for the across-grades reading reversal in grade 8 at the Proficient performance level, the reversal observed in fall was not adjusted, because the corresponding grade 7 fall cut score appeared too high in relation to the other reading cut scores and thus was replaced. Similarly, for the language arts within-grade reversal in

grade 7 at the Partially Proficient performance level, the reversal occurred in the winter cut score, but the adjustment was made in the fall cut score.

The revised cut scores are displayed in bold and italicized fonts in Tables 11 through 13.

Table 10

MAST Scores by Performance Level

Grade	MAST Performance Level			
	Novice	Partially Proficient	Proficient	Advanced
MAST ELA				
3	<=294	295–314	315–344	345 +
4	<=294	295–314	315–344	345 +
5	<=294	295–314	315–347	348 +
6	<=294	295–314	315–343	344 +
7	<=294	295–314	315–353	354 +
8	<=294	295–314	315–351	352 +
MAST Mathematics				
6	<=294	295–314	315–334	335 +
7	<=294	295–314	315–340	341 +
8	<=294	295–314	315–342	343 +

Table 11

Exact Path Diagnostic Language Arts Scores Corresponding to MAST ELA Performance Levels

Season	Grade	Exact Path			
		Novice	Partially Proficient	Proficient	Advanced
Fall	3	500–881	882–953	954–1042	1043–1500
	4	500–927	928–1002	1003–1074	1075–1500
	5	500–956	957–1042	1043–1124	1125–1500
	6	500–1010	1011–1089	1090–1154	1155–1500
	7	500–1035	***1036***–1135	1136–1219	1220–1500
	8	500–1060	1061–1141	1142–1237	1238–1500
Winter	3	500–924	925–999	1000–1100	1101–1500
	4	500–967	968–1045	1046–1133	1134–1500
	5	500–984	985–1072	1073–1156	1157–1500
	6	500–1028	1029–1118	1119–1205	1206–1500
	7	500–1041	1042–1148	1149–1251	1252–1500
	8	500–1063	1064–1156	***1157***–1292	1293–1500
Spring	3	500–956	957–1039	1040–1146	1147–1500
	4	500–982	983–1062	1063–1153	1154–1500
	5	500–1003	1004–1092	1093–1183	1184–1500
	6	500–1046	***1047***–1129	1130–1227	1228–1500
	7	500–1058	***1059***–1150	1151–1262	1263–1500
	8	500–1069	1070–1171	1172–1297	***1298***–1500

Table 12

Exact Path Diagnostic Mathematics Scores Corresponding to MAST Mathematics Performance Levels

Season	Grade	Exact Path			
		Novice	Partially Proficient	Proficient	Advanced
Fall	6	500–1008	1009–1071	1072–1154	1155–1500
	7	500–1042	1043–1117	1118–1228	1229–1500
	8	500–1055	1056–1120	1121–1242	1243–1500
Winter	6	500–1027	1028–1106	1107–1195	1196–1500
	7	500–1065	1066–1147	1148–1264	1265–1500
	8	500–1080	1081–1170	1171–1298	1299–1500
Spring	6	500–1030	1031–1125	1126–1240	1241–1500
	7	500–1068	1069–1151	1152–1283	1284–1500
	8	500–1105	***1106***–1177	***1178***–1299	1300–1500

Table 13

Exact Path Diagnostic Reading Scores Corresponding to MAST ELA Performance Levels

Season	Grade	Exact Path			
		Novice	Partially Proficient	Proficient	Advanced
Fall	3	500–917	918–1008	1009–1095	1096–1500
	4	500–975	976–1056	1057–1125	1126–1500
	5	500–1005	1006–1091	1092–1177	1178–1500
	6	500–1065	1066–1145	1146–1220	1221–1500
	7	500–1086	1087–1162	***1163***–1264	1265–1500
	8	500–1096	1097–1178	1179–1286	1287–1500
Winter	3	500–973	974–1050	1051–1142	1143–1500
	4	500–1000	1001–1093	1094–1174	1175–1500
	5	500–1034	1035–1119	1120–1210	1211–1500
	6	500–1077	1078–1170	1171–1249	1250–1500
	7	500–1093	1094–1201	1202–1297	1298–1500
	8	500–1096	1097–1214	1215–1323	1324–1500
Spring	3	500–1000	1001–1089	1090–1187	1188–1500
	4	500–1033	1034–1110	1111–1200	1201–1500
	5	500–1063	***1064***–1136	1137–1230	1231–1500
	6	500–1077	1078–1186	1187–1272	1273–1500
	7	500–1100	***1101***–1204	1205–1317	1318–1500
	8	500–1123	***1124***–1222	***1223***–1323	1324–1500

Classification Accuracy for Proficiency on the MAST

Tables 14 through 16 provide several measures of classification accuracy for the fall, winter, and spring samples. These values represent the accuracy of the Exact Path diagnostic cut scores in classifying student performance as proficient or not proficient on the MAST based on their Exact Path diagnostic scores. Classification accuracy values around 0.80 are typical of state assessments (Lee et al., 2000; Young & Yoon, 1998). In our study, the classification accuracy values ranged from 0.78 to 0.86 for language arts, from 0.79 to 0.87 for mathematics, and from 0.80 to 0.88 for reading across testing windows. The AUC statistics ranged from 0.86 to 0.95 for language arts, from 0.90 to 0.94 for mathematics, and from 0.90 to 0.95 for reading across testing windows. These values suggest that Exact Path cut scores accurately classified students as proficient or not proficient on the MAST for language arts and reading in grades 3 through 8 and for mathematics in grades 6 through 8.

Table 14

Exact Path Diagnostic Language Arts Proficiency Classification Accuracy Statistics

Season	Grade	*N*	Classification Accuracy	*FP* Rate	*FN* Rate	Sensitivity	Specificity	Precision	AUC	CI_AUC
Fall	3	560	0.85	0.13	0.18	0.82	0.87	0.82	0.92	(0.89, 0.94)
	4	573	0.83	0.13	0.20	0.80	0.87	0.85	0.92	(0.89, 0.94)
	5	553	0.84	0.11	0.19	0.81	0.89	0.92	0.92	(0.90, 0.95)
	6	489	0.81	0.11	0.25	0.75	0.89	0.88	0.91	(0.89, 0.94)
	7	542	0.80	0.13	0.26	0.74	0.87	0.83	0.89	(0.86, 0.92)
	8	499	0.81	0.14	0.24	0.76	0.86	0.84	0.90	(0.87, 0.93)
Winter	3	551	0.84	0.13	0.19	0.81	0.87	0.83	0.92	(0.90, 0.94)
	4	561	0.83	0.13	0.21	0.79	0.87	0.86	0.92	(0.90, 0.94)
	5	537	0.83	0.12	0.20	0.80	0.88	0.92	0.94	(0.92, 0.95)
	6	478	0.80	0.13	0.27	0.73	0.88	0.88	0.91	(0.88, 0.93)
	7	521	0.79	0.14	0.28	0.72	0.86	0.84	0.89	(0.86, 0.92)
	8	154	0.78	0.14	0.33	0.67	0.86	0.76	0.86	(0.80, 0.92)
Spring	3	561	0.85	0.13	0.19	0.81	0.87	0.83	0.93	(0.91, 0.95)
	4	542	0.84	0.13	0.20	0.80	0.87	0.85	0.92	(0.90, 0.94)
	5	489	0.86	0.10	0.16	0.84	0.90	0.93	0.95	(0.93, 0.96)
	6	483	0.81	0.12	0.24	0.76	0.88	0.88	0.91	(0.89, 0.94)
	7	534	0.83	0.12	0.23	0.77	0.88	0.85	0.91	(0.88, 0.93)
	8	350	0.79	0.15	0.25	0.75	0.85	0.86	0.89	(0.86, 0.92)

Table 15

Exact Path Diagnostic Mathematics Proficiency Classification Accuracy Statistics

Season	Grade	*N*	Classification Accuracy	*FP* Rate	*FN* Rate	Sensitivity	Specificity	Precision	AUC	CI_AUC
Fall	6	499	0.84	0.17	0.16	0.84	0.83	0.77	0.92	(0.89, 0.94)
	7	584	0.85	0.14	0.15	0.85	0.86	0.80	0.94	(0.92, 0.96)
	8	478	0.79	0.21	0.21	0.79	0.79	0.78	0.90	(0.87, 0.92)
Winter	6	483	0.86	0.15	0.13	0.87	0.85	0.79	0.93	(0.90, 0.95)
	7	532	0.87	0.13	0.12	0.88	0.87	0.82	0.94	(0.93, 0.96)
	8	256	0.85	0.15	0.15	0.85	0.85	0.83	0.94	(0.91, 0.96)
Spring	6	508	0.86	0.14	0.12	0.88	0.86	0.81	0.94	(0.92, 0.96)
	7	548	0.86	0.14	0.14	0.86	0.86	0.81	0.94	(0.92, 0.96)
	8	334	0.86	0.12	0.16	0.84	0.88	0.88	0.93	(0.91, 0.96)

Table 16

Exact Path Diagnostic Reading Proficiency Classification Accuracy Statistics

Season	Grade	*N*	Classification Accuracy	*FP* Rate	*FN* Rate	Sensitivity	Specificity	Precision	AUC	CI_AUC
Fall	3	553	0.86	0.12	0.17	0.83	0.88	0.84	0.93	(0.91, 0.95)
	4	580	0.83	0.14	0.21	0.79	0.86	0.85	0.91	(0.89, 0.94)
	5	553	0.85	0.11	0.18	0.82	0.89	0.92	0.95	(0.93, 0.96)
	6	500	0.81	0.12	0.25	0.75	0.88	0.88	0.91	(0.89, 0.93)
	7	555	0.83	0.16	0.17	0.83	0.84	0.81	0.91	(0.88, 0.93)
	8	494	0.83	0.12	0.21	0.79	0.88	0.87	0.93	(0.90, 0.95)
Winter	3	549	0.86	0.12	0.16	0.84	0.88	0.84	0.93	(0.91, 0.95)
	4	545	0.82	0.14	0.22	0.78	0.86	0.84	0.92	(0.90, 0.94)
	5	534	0.87	0.09	0.15	0.85	0.91	0.94	0.95	(0.93, 0.97)
	6	474	0.82	0.11	0.24	0.76	0.89	0.89	0.93	(0.90, 0.95)
	7	539	0.83	0.11	0.22	0.78	0.89	0.87	0.91	(0.89, 0.94)
	8	122	0.84	0.13	0.24	0.76	0.88	0.76	0.90	(0.85, 0.95)
Spring	3	561	0.88	0.11	0.15	0.85	0.89	0.86	0.95	(0.93, 0.96)
	4	538	0.84	0.13	0.20	0.80	0.87	0.85	0.93	(0.91, 0.95)
	5	500	0.87	0.08	0.16	0.84	0.92	0.94	0.95	(0.94, 0.97)
	6	458	0.80	0.13	0.25	0.75	0.87	0.88	0.93	(0.90, 0.95)
	7	509	0.82	0.12	0.24	0.76	0.88	0.86	0.91	(0.89, 0.94)
	8	374	0.84	0.08	0.23	0.77	0.92	0.92	0.93	(0.91, 0.96)

Performance Level Projections

Using the Exact Path diagnostic cut scores derived for the fall, winter, and spring testing windows, we calculated students' probabilities of being classified into each of the four MAST performance levels based on their Exact Path diagnostic scores. Tables 17 through 19 provide the performance level projections for each of the three subjects.

Results from the Exact Path diagnostic norms are provided at every fifth percentile. We reported at every fifth percentile, as opposed to every percentile, to consolidate the information provided in this report. The "Exact Path Score" column for each testing window represents the Exact Path diagnostic score tied to the probability of being classified at each performance level. In Tables 17 through 19, a student's expected performance level classification (based on the grade-specific cut scores) is represented by the shaded column that corresponds to their obtained Exact Path diagnostic score.

To provide an example of how to interpret results in Tables 17 through 19, we can observe in Table 18 that a grade 6 student who earns an Exact Path diagnostic mathematics score of 1046 during the fall (corresponding to the 65th percentile) would be expected to be classified in the Partially Proficient performance level on the MAST mathematics assessment. Specifically, this student's probability of being classified into the Partially Proficient performance level is 0.63, which is higher than the probability of being classified into any of the other three performance levels. The "Level 2 Prob" column is shaded for grade 6 students with Exact Path diagnostic scores between 1011 and 1059 in mathematics because these students would be expected to be classified into the Partially Proficient performance level on the MAST, based on the cut scores provided in Table 10. The column shading switches to the "Level 3 Prob" column for an Exact Path diagnostic score of 1073 because a grade 6 student with this score in the fall would be expected to be classified into the Proficient performance level on the MAST. Similar interpretations across testing windows can be made for each subject-grade combination.

At the Exact Path diagnostic cut scores that delineate adjacent MAST performance levels, we expect the predicted classification to shift from one performance level to the next.

There were occasional instances where the cut scores and predicted performance levels determined via equipercentile linking did not align precisely with the performance level probabilities. This "misalignment" may be due to differences between the methodological approach used to generate cut scores (i.e., a nonlinear symmetric equipercentile linking approach) and the approach used to generate performance level projections (i.e., an ordinal logistic regression approach).

Table 17

Language Arts Performance Level Projections

Grade	%tile	Fall					Winter					Spring				
		Exact Path Score	Level 1 Prob	Level 2 Prob	Level 3 Prob	Level 4 Prob	Exact Path Score	Level 1 Prob	Level 2 Prob	Level 3 Prob	Level 4 Prob	Exact Path Score	Level 1 Prob	Level 2 Prob	Level 3 Prob	Level 4 Prob
3	5	723	0.99	0.01	0.00	0.00	737	0.99	0.01	0.00	0.00	757	1.00	0.00	0.00	0.00
	10	753	0.97	0.03	0.00	0.00	778	0.98	0.02	0.00	0.00	803	0.98	0.02	0.00	0.00
	15	779	0.94	0.06	0.00	0.00	809	0.95	0.05	0.00	0.00	842	0.94	0.05	0.00	0.00
	20	798	0.90	0.10	0.01	0.00	832	0.91	0.09	0.01	0.00	867	0.89	0.10	0.01	0.00
	25	815	0.83	0.15	0.01	0.00	853	0.84	0.15	0.01	0.00	889	0.81	0.18	0.01	0.00
	30	831	0.75	0.23	0.02	0.00	869	0.77	0.21	0.02	0.00	909	0.70	0.28	0.02	0.00
	35	845	0.66	0.30	0.03	0.00	885	0.67	0.30	0.03	0.00	927	0.58	0.38	0.04	0.00
	40	857	0.58	0.38	0.04	0.00	902	0.55	0.40	0.05	0.00	941	0.48	0.47	0.05	0.00
	45	869	0.48	0.45	0.06	0.00	916	0.45	0.48	0.07	0.00	956	0.37	0.55	0.08	0.00
	50	882	0.38	0.52	0.09	0.00	932	0.34	0.55	0.11	0.00	970	0.28	0.60	0.12	0.00
	55	897	0.28	0.58	0.13	0.01	945	0.26	0.59	0.15	0.01	981	0.22	0.62	0.15	0.01
	60	911	0.20	0.59	0.19	0.01	959	0.19	0.60	0.21	0.01	994	0.16	0.62	0.21	0.01
	65	925	0.14	0.58	0.27	0.02	971	0.14	0.58	0.27	0.02	1008	0.11	0.59	0.28	0.01
	70	938	0.10	0.53	0.35	0.03	983	0.10	0.54	0.34	0.02	1023	0.08	0.53	0.37	0.02
	75	954	0.06	0.44	0.45	0.04	999	0.07	0.46	0.44	0.03	1036	0.05	0.46	0.46	0.03
	80	970	0.04	0.34	0.55	0.07	1013	0.05	0.38	0.52	0.05	1051	0.03	0.37	0.55	0.05
	85	986	0.02	0.25	0.61	0.11	1033	0.03	0.27	0.62	0.09	1067	0.02	0.27	0.63	0.08
	90	1008	0.01	0.15	0.64	0.20	1051	0.02	0.18	0.66	0.14	1092	0.01	0.16	0.69	0.15
	95	1041	0.00	0.06	0.52	0.41	1082	0.01	0.08	0.62	0.29	1126	0.00	0.06	0.61	0.32

Note. Level 1 = Novice; Level 2 = Partially Proficient; Level 3 = Proficient; Level 4 = Advanced

Table 17

Language Arts Performance Level Projections (continued)

Grade	%tile	Fall					Winter					Spring				
		Exact Path Score	Level 1 Prob	Level 2 Prob	Level 3 Prob	Level 4 Prob	Exact Path Score	Level 1 Prob	Level 2 Prob	Level 3 Prob	Level 4 Prob	Exact Path Score	Level 1 Prob	Level 2 Prob	Level 3 Prob	Level 4 Prob
4	5	750	0.99	0.01	0.00	0.00	758	0.99	0.00	0.00	0.00	780	1.00	0.00	0.00	0.00
	10	789	0.96	0.04	0.00	0.00	812	0.98	0.02	0.00	0.00	843	0.97	0.03	0.00	0.00
	15	817	0.92	0.07	0.01	0.00	854	0.93	0.07	0.01	0.00	878	0.92	0.07	0.01	0.00
	20	846	0.83	0.15	0.02	0.00	879	0.86	0.13	0.01	0.00	907	0.84	0.15	0.01	0.00
	25	866	0.74	0.23	0.03	0.00	905	0.75	0.22	0.03	0.00	929	0.73	0.24	0.02	0.00
	30	886	0.62	0.33	0.05	0.00	925	0.63	0.32	0.04	0.00	946	0.62	0.34	0.04	0.00
	35	905	0.48	0.43	0.08	0.00	941	0.52	0.41	0.07	0.00	963	0.50	0.44	0.06	0.00
	40	921	0.37	0.50	0.12	0.01	955	0.43	0.47	0.10	0.00	979	0.39	0.52	0.09	0.00
	45	935	0.29	0.54	0.17	0.01	968	0.34	0.52	0.13	0.00	995	0.28	0.57	0.14	0.00
	50	948	0.22	0.55	0.22	0.01	981	0.27	0.55	0.18	0.01	1009	0.21	0.59	0.19	0.01
	55	961	0.16	0.53	0.29	0.02	995	0.20	0.55	0.24	0.01	1022	0.15	0.58	0.26	0.01
	60	973	0.12	0.50	0.36	0.02	1009	0.14	0.53	0.32	0.01	1036	0.11	0.54	0.34	0.01
	65	985	0.09	0.44	0.43	0.03	1023	0.10	0.48	0.40	0.02	1049	0.08	0.48	0.42	0.02
	70	1000	0.06	0.37	0.52	0.05	1037	0.07	0.41	0.49	0.03	1063	0.05	0.40	0.52	0.03
	75	1013	0.04	0.30	0.59	0.07	1051	0.05	0.34	0.57	0.04	1078	0.03	0.31	0.60	0.05
	80	1029	0.03	0.22	0.65	0.10	1066	0.03	0.26	0.64	0.06	1096	0.02	0.22	0.68	0.08
	85	1048	0.02	0.15	0.67	0.16	1085	0.02	0.18	0.70	0.10	1118	0.01	0.13	0.72	0.14
	90	1070	0.01	0.09	0.64	0.27	1111	0.01	0.10	0.70	0.19	1139	0.01	0.08	0.68	0.23
	95	1106	0.00	0.03	0.46	0.50	1146	0.00	0.04	0.57	0.39	1170	0.00	0.03	0.53	0.43

Note. Level 1 = Novice; Level 2 = Partially Proficient; Level 3 = Proficient; Level 4 = Advanced

Table 17

Language Arts Performance Level Projections (continued)

Grade	%tile	Fall					Winter					Spring				
		Exact Path Score	Level 1 Prob	Level 2 Prob	Level 3 Prob	Level 4 Prob	Exact Path Score	Level 1 Prob	Level 2 Prob	Level 3 Prob	Level 4 Prob	Exact Path Score	Level 1 Prob	Level 2 Prob	Level 3 Prob	Level 4 Prob
5	5	777	0.99	0.01	0.00	0.00	802	0.99	0.01	0.00	0.00	802	0.99	0.01	0.00	0.00
	10	831	0.94	0.05	0.01	0.00	852	0.97	0.03	0.00	0.00	863	0.96	0.03	0.00	0.00
	15	861	0.88	0.11	0.01	0.00	887	0.92	0.07	0.01	0.00	902	0.89	0.10	0.01	0.00
	20	885	0.78	0.19	0.02	0.00	910	0.85	0.14	0.01	0.00	932	0.78	0.21	0.02	0.00
	25	906	0.67	0.29	0.04	0.00	933	0.72	0.25	0.02	0.00	955	0.64	0.33	0.03	0.00
	30	926	0.53	0.39	0.07	0.00	950	0.60	0.36	0.04	0.00	975	0.49	0.45	0.06	0.00
	35	943	0.41	0.47	0.11	0.00	968	0.45	0.48	0.07	0.00	994	0.36	0.54	0.10	0.00
	40	957	0.32	0.51	0.16	0.00	983	0.34	0.55	0.11	0.00	1009	0.26	0.59	0.15	0.00
	45	971	0.24	0.53	0.22	0.01	1000	0.23	0.59	0.18	0.00	1023	0.19	0.60	0.21	0.00
	50	985	0.18	0.52	0.29	0.01	1014	0.16	0.58	0.25	0.00	1037	0.14	0.58	0.28	0.01
	55	1000	0.12	0.48	0.38	0.02	1030	0.10	0.53	0.36	0.01	1053	0.09	0.52	0.38	0.01
	60	1013	0.09	0.42	0.46	0.02	1042	0.07	0.47	0.45	0.01	1068	0.06	0.44	0.49	0.02
	65	1026	0.06	0.36	0.55	0.03	1055	0.05	0.38	0.55	0.02	1081	0.04	0.36	0.57	0.02
	70	1040	0.04	0.29	0.62	0.05	1068	0.03	0.30	0.64	0.03	1097	0.03	0.27	0.66	0.04
	75	1058	0.03	0.20	0.70	0.07	1085	0.02	0.20	0.73	0.05	1114	0.02	0.19	0.73	0.06
	80	1072	0.02	0.15	0.73	0.11	1105	0.01	0.12	0.79	0.08	1133	0.01	0.12	0.77	0.11
	85	1093	0.01	0.09	0.72	0.18	1129	0.00	0.06	0.77	0.17	1151	0.01	0.07	0.75	0.17
	90	1120	0.00	0.04	0.63	0.32	1148	0.00	0.03	0.70	0.27	1178	0.00	0.03	0.66	0.31
	95	1150	0.00	0.02	0.46	0.52	1178	0.00	0.01	0.49	0.49	1222	0.00	0.01	0.37	0.62

Note. Level 1 = Novice; Level 2 = Partially Proficient; Level 3 = Proficient; Level 4 = Advanced

Table 17

Language Arts Performance Level Projections (continued)

Grade	%tile	Fall					Winter					Spring				
		Exact Path Score	Level 1 Prob	Level 2 Prob	Level 3 Prob	Level 4 Prob	Exact Path Score	Level 1 Prob	Level 2 Prob	Level 3 Prob	Level 4 Prob	Exact Path Score	Level 1 Prob	Level 2 Prob	Level 3 Prob	Level 4 Prob
6	5	802	1.00	0.00	0.00	0.00	802	0.99	0.01	0.00	0.00	809	0.99	0.01	0.00	0.00
	10	852	0.98	0.02	0.00	0.00	856	0.98	0.02	0.00	0.00	868	0.97	0.03	0.00	0.00
	15	885	0.95	0.04	0.01	0.00	894	0.94	0.06	0.01	0.00	902	0.93	0.06	0.01	0.00
	20	911	0.90	0.09	0.01	0.00	919	0.89	0.10	0.01	0.00	932	0.87	0.12	0.01	0.00
	25	934	0.83	0.15	0.02	0.00	944	0.80	0.18	0.02	0.00	957	0.77	0.20	0.02	0.00
	30	956	0.72	0.24	0.04	0.00	964	0.71	0.26	0.04	0.00	976	0.68	0.28	0.04	0.00
	35	973	0.61	0.33	0.06	0.00	984	0.59	0.35	0.06	0.00	996	0.56	0.38	0.06	0.00
	40	988	0.51	0.40	0.09	0.00	1001	0.48	0.43	0.09	0.00	1011	0.47	0.44	0.08	0.00
	45	1004	0.39	0.47	0.13	0.00	1019	0.37	0.50	0.13	0.00	1029	0.36	0.51	0.13	0.00
	50	1018	0.30	0.51	0.19	0.00	1034	0.28	0.53	0.18	0.00	1044	0.28	0.55	0.17	0.00
	55	1031	0.23	0.51	0.25	0.01	1050	0.20	0.54	0.25	0.00	1061	0.20	0.55	0.24	0.00
	60	1045	0.17	0.49	0.33	0.01	1065	0.15	0.51	0.33	0.01	1078	0.14	0.52	0.33	0.01
	65	1059	0.12	0.45	0.42	0.01	1082	0.10	0.45	0.43	0.01	1093	0.10	0.48	0.41	0.01
	70	1074	0.08	0.38	0.52	0.02	1097	0.07	0.39	0.53	0.02	1110	0.07	0.40	0.51	0.02
	75	1089	0.05	0.30	0.61	0.03	1114	0.05	0.30	0.62	0.03	1133	0.04	0.29	0.64	0.03
	80	1108	0.03	0.21	0.70	0.06	1134	0.03	0.21	0.71	0.04	1149	0.03	0.22	0.71	0.04
	85	1130	0.02	0.13	0.75	0.10	1152	0.02	0.15	0.77	0.07	1169	0.02	0.15	0.76	0.07
	90	1151	0.01	0.08	0.74	0.18	1180	0.01	0.08	0.78	0.13	1206	0.01	0.07	0.77	0.15
	95	1183	0.00	0.03	0.62	0.35	1220	0.00	0.03	0.67	0.29	1239	0.00	0.03	0.67	0.30

Note. Level 1 = Novice; Level 2 = Partially Proficient; Level 3 = Proficient; Level 4 = Advanced

Table 17

Language Arts Performance Level Projections (continued)

Grade	%tile	Fall					Winter					Spring				
		Exact Path Score	Level 1 Prob	Level 2 Prob	Level 3 Prob	Level 4 Prob	Exact Path Score	Level 1 Prob	Level 2 Prob	Level 3 Prob	Level 4 Prob	Exact Path Score	Level 1 Prob	Level 2 Prob	Level 3 Prob	Level 4 Prob
7	5	820	0.99	0.01	0.00	0.00	832	0.98	0.02	0.00	0.00	832	0.94	0.06	0.01	0.00
	10	877	0.95	0.04	0.01	0.00	890	0.93	0.06	0.01	0.00	892	0.84	0.14	0.02	0.00
	15	908	0.91	0.08	0.01	0.00	922	0.87	0.11	0.02	0.00	930	0.73	0.24	0.03	0.00
	20	933	0.85	0.13	0.02	0.00	948	0.80	0.17	0.03	0.00	958	0.63	0.33	0.05	0.00
	25	957	0.78	0.19	0.03	0.00	966	0.74	0.22	0.04	0.00	981	0.53	0.40	0.07	0.00
	30	975	0.70	0.25	0.04	0.00	984	0.67	0.28	0.05	0.00	999	0.45	0.46	0.09	0.00
	35	991	0.63	0.31	0.06	0.00	1003	0.58	0.34	0.08	0.00	1017	0.37	0.50	0.12	0.00
	40	1006	0.55	0.37	0.08	0.00	1020	0.49	0.40	0.10	0.00	1036	0.30	0.53	0.16	0.00
	45	1022	0.46	0.42	0.11	0.00	1038	0.41	0.45	0.14	0.00	1051	0.25	0.55	0.20	0.01
	50	1035	0.39	0.46	0.14	0.00	1054	0.33	0.48	0.18	0.01	1066	0.20	0.55	0.24	0.01
	55	1052	0.31	0.49	0.19	0.01	1068	0.27	0.49	0.23	0.01	1083	0.16	0.53	0.30	0.01
	60	1066	0.25	0.50	0.24	0.01	1084	0.22	0.49	0.29	0.01	1100	0.12	0.50	0.36	0.01
	65	1081	0.19	0.49	0.30	0.01	1099	0.17	0.47	0.35	0.01	1118	0.09	0.45	0.43	0.02
	70	1097	0.15	0.46	0.38	0.02	1116	0.13	0.43	0.42	0.02	1135	0.07	0.40	0.50	0.03
	75	1113	0.11	0.42	0.45	0.02	1135	0.09	0.37	0.51	0.02	1153	0.05	0.34	0.57	0.04
	80	1134	0.07	0.34	0.55	0.04	1153	0.07	0.31	0.59	0.04	1175	0.04	0.27	0.64	0.05
	85	1154	0.05	0.26	0.63	0.06	1173	0.05	0.24	0.66	0.05	1207	0.02	0.18	0.71	0.09
	90	1178	0.03	0.18	0.70	0.09	1208	0.02	0.15	0.73	0.10	1232	0.01	0.13	0.73	0.13
	95	1221	0.01	0.09	0.70	0.20	1245	0.01	0.08	0.73	0.18	1267	0.01	0.08	0.70	0.22

Note. Level 1 = Novice; Level 2 = Partially Proficient; Level 3 = Proficient; Level 4 = Advanced

Table 17

Language Arts Performance Level Projections (continued)

Grade	%tile	Fall					Winter					Spring				
		Exact Path Score	Level 1 Prob	Level 2 Prob	Level 3 Prob	Level 4 Prob	Exact Path Score	Level 1 Prob	Level 2 Prob	Level 3 Prob	Level 4 Prob	Exact Path Score	Level 1 Prob	Level 2 Prob	Level 3 Prob	Level 4 Prob
8	5	830	0.99	0.01	0.00	0.00	858	0.97	0.03	0.00	0.00	864	0.95	0.04	0.00	0.00
	10	881	0.96	0.04	0.00	0.00	913	0.92	0.07	0.01	0.00	924	0.87	0.12	0.01	0.00
	15	915	0.91	0.08	0.01	0.00	950	0.84	0.14	0.02	0.00	964	0.75	0.23	0.03	0.00
	20	943	0.85	0.14	0.01	0.00	975	0.76	0.20	0.03	0.00	991	0.63	0.32	0.05	0.00
	25	968	0.75	0.22	0.03	0.00	996	0.68	0.27	0.05	0.00	1015	0.52	0.41	0.07	0.00
	30	986	0.67	0.29	0.04	0.00	1015	0.60	0.34	0.07	0.00	1034	0.43	0.47	0.10	0.00
	35	1003	0.57	0.37	0.06	0.00	1034	0.50	0.40	0.09	0.00	1056	0.32	0.52	0.15	0.00
	40	1020	0.48	0.44	0.08	0.00	1051	0.42	0.45	0.13	0.00	1073	0.26	0.54	0.20	0.00
	45	1037	0.38	0.50	0.12	0.00	1069	0.34	0.49	0.17	0.00	1089	0.20	0.54	0.25	0.01
	50	1055	0.29	0.54	0.17	0.00	1085	0.27	0.50	0.22	0.00	1103	0.16	0.53	0.30	0.01
	55	1072	0.21	0.55	0.23	0.01	1100	0.22	0.50	0.27	0.00	1120	0.12	0.49	0.38	0.01
	60	1087	0.16	0.54	0.30	0.01	1116	0.17	0.48	0.34	0.01	1138	0.09	0.44	0.46	0.01
	65	1102	0.12	0.50	0.37	0.01	1132	0.13	0.45	0.41	0.01	1153	0.07	0.39	0.53	0.02
	70	1118	0.08	0.44	0.46	0.02	1150	0.10	0.40	0.49	0.01	1172	0.05	0.32	0.61	0.03
	75	1136	0.06	0.36	0.56	0.02	1168	0.07	0.34	0.58	0.02	1193	0.03	0.24	0.69	0.04
	80	1153	0.04	0.29	0.64	0.03	1190	0.05	0.26	0.67	0.03	1222	0.02	0.16	0.75	0.07
	85	1175	0.02	0.20	0.72	0.06	1214	0.03	0.19	0.74	0.04	1243	0.01	0.11	0.77	0.11
	90	1207	0.01	0.11	0.77	0.11	1242	0.02	0.12	0.79	0.07	1270	0.01	0.07	0.76	0.17
	95	1247	0.00	0.05	0.71	0.24	1278	0.01	0.07	0.80	0.13	1317	0.00	0.03	0.63	0.34

Note. Level 1 = Novice; Level 2 = Partially Proficient; Level 3 = Proficient; Level 4 = Advanced

Table 18

Mathematics Performance Level Projections

Grade	%tile	Fall					Winter					Spring				
		Exact Path Score	Level 1 Prob	Level 2 Prob	Level 3 Prob	Level 4 Prob	Exact Path Score	Level 1 Prob	Level 2 Prob	Level 3 Prob	Level 4 Prob	Exact Path Score	Level 1 Prob	Level 2 Prob	Level 3 Prob	Level 4 Prob
6	5	835	1.00	0.00	0.00	0.00	841	1.00	0.00	0.00	0.00	847	1.00	0.00	0.00	0.00
	10	874	0.98	0.01	0.00	0.00	882	0.99	0.01	0.00	0.00	890	0.99	0.01	0.00	0.00
	15	904	0.96	0.04	0.00	0.00	915	0.98	0.02	0.00	0.00	922	0.96	0.04	0.00	0.00
	20	925	0.92	0.08	0.00	0.00	939	0.95	0.05	0.00	0.00	949	0.92	0.08	0.00	0.00
	25	943	0.85	0.14	0.01	0.00	960	0.90	0.09	0.00	0.00	968	0.86	0.14	0.00	0.00
	30	960	0.77	0.22	0.01	0.00	979	0.82	0.17	0.01	0.00	985	0.77	0.22	0.01	0.00
	35	975	0.66	0.31	0.02	0.00	998	0.70	0.29	0.01	0.00	1002	0.66	0.33	0.01	0.00
	40	989	0.55	0.41	0.04	0.00	1013	0.57	0.40	0.02	0.00	1018	0.54	0.44	0.02	0.00
	45	1000	0.45	0.49	0.05	0.01	1026	0.45	0.51	0.04	0.00	1035	0.40	0.56	0.03	0.00
	50	1011	0.36	0.56	0.07	0.01	1041	0.33	0.61	0.06	0.01	1051	0.29	0.66	0.05	0.00
	55	1022	0.28	0.60	0.10	0.01	1054	0.23	0.67	0.09	0.01	1066	0.20	0.71	0.08	0.01
	60	1032	0.22	0.63	0.13	0.02	1067	0.16	0.69	0.14	0.01	1083	0.12	0.73	0.13	0.01
	65	1046	0.15	0.63	0.20	0.03	1079	0.11	0.67	0.20	0.02	1098	0.08	0.70	0.20	0.02
	70	1059	0.10	0.59	0.27	0.05	1094	0.07	0.61	0.29	0.03	1113	0.05	0.64	0.28	0.03
	75	1073	0.06	0.51	0.35	0.07	1108	0.04	0.52	0.39	0.06	1128	0.03	0.55	0.38	0.04
	80	1088	0.04	0.41	0.43	0.12	1125	0.02	0.38	0.50	0.10	1148	0.02	0.40	0.51	0.08
	85	1103	0.02	0.30	0.49	0.18	1143	0.01	0.25	0.56	0.18	1169	0.01	0.26	0.59	0.14
	90	1123	0.01	0.18	0.49	0.31	1169	0.00	0.12	0.53	0.35	1195	0.00	0.13	0.59	0.28
	95	1156	0.00	0.07	0.35	0.58	1205	0.00	0.03	0.29	0.67	1237	0.00	0.04	0.36	0.60

Note. Level 1 = Novice; Level 2 = Partially Proficient; Level 3 = Proficient; Level 4 = Advanced

Table 18

Mathematics Performance Level Projections (continued)

Grade	%tile	Fall					Winter					Spring				
		Exact Path Score	Level 1 Prob	Level 2 Prob	Level 3 Prob	Level 4 Prob	Exact Path Score	Level 1 Prob	Level 2 Prob	Level 3 Prob	Level 4 Prob	Exact Path Score	Level 1 Prob	Level 2 Prob	Level 3 Prob	Level 4 Prob
7	5	838	1.00	0.00	0.00	0.00	848	1.00	0.00	0.00	0.00	856	1.00	0.00	0.00	0.00
	10	885	0.99	0.01	0.00	0.00	902	0.99	0.01	0.00	0.00	911	0.98	0.02	0.00	0.00
	15	917	0.98	0.02	0.00	0.00	935	0.98	0.02	0.00	0.00	942	0.96	0.04	0.00	0.00
	20	942	0.96	0.04	0.00	0.00	963	0.95	0.05	0.00	0.00	973	0.91	0.08	0.01	0.00
	25	963	0.92	0.07	0.01	0.00	987	0.90	0.10	0.01	0.00	998	0.85	0.14	0.01	0.00
	30	984	0.86	0.13	0.01	0.00	1005	0.83	0.15	0.01	0.00	1018	0.77	0.21	0.02	0.00
	35	1000	0.79	0.19	0.02	0.00	1020	0.76	0.22	0.02	0.00	1035	0.68	0.28	0.03	0.00
	40	1013	0.71	0.25	0.03	0.00	1035	0.67	0.30	0.02	0.00	1051	0.59	0.36	0.05	0.00
	45	1026	0.63	0.32	0.05	0.00	1051	0.56	0.40	0.04	0.00	1066	0.49	0.44	0.07	0.00
	50	1041	0.52	0.41	0.07	0.00	1064	0.46	0.48	0.06	0.00	1083	0.39	0.51	0.10	0.01
	55	1053	0.42	0.47	0.10	0.01	1078	0.36	0.55	0.08	0.00	1101	0.28	0.56	0.15	0.01
	60	1067	0.33	0.52	0.14	0.01	1093	0.26	0.61	0.13	0.01	1119	0.20	0.57	0.21	0.02
	65	1082	0.23	0.55	0.20	0.02	1109	0.18	0.62	0.19	0.01	1135	0.14	0.55	0.28	0.02
	70	1099	0.15	0.52	0.30	0.03	1124	0.12	0.60	0.26	0.02	1153	0.09	0.49	0.38	0.04
	75	1114	0.10	0.47	0.39	0.04	1142	0.07	0.52	0.37	0.03	1175	0.06	0.39	0.49	0.06
	80	1133	0.06	0.37	0.50	0.07	1164	0.04	0.39	0.50	0.06	1198	0.03	0.28	0.58	0.11
	85	1157	0.03	0.23	0.60	0.14	1188	0.02	0.25	0.61	0.12	1229	0.01	0.15	0.62	0.21
	90	1184	0.01	0.12	0.60	0.26	1217	0.01	0.13	0.62	0.25	1257	0.01	0.08	0.55	0.36
	95	1228	0.00	0.04	0.38	0.58	1260	0.00	0.04	0.41	0.55	1292	0.00	0.03	0.38	0.58

Note. Level 1 = Novice; Level 2 = Partially Proficient; Level 3 = Proficient; Level 4 = Advanced

Table 18

Mathematics Performance Level Projections (continued)

Grade	%tile	Fall					Winter					Spring				
		Exact Path Score	Level 1 Prob	Level 2 Prob	Level 3 Prob	Level 4 Prob	Exact Path Score	Level 1 Prob	Level 2 Prob	Level 3 Prob	Level 4 Prob	Exact Path Score	Level 1 Prob	Level 2 Prob	Level 3 Prob	Level 4 Prob
8	5	851	0.99	0.01	0.00	0.00	868	0.99	0.00	0.00	0.00	871	0.99	0.01	0.00	0.00
	10	900	0.97	0.03	0.00	0.00	918	0.98	0.02	0.00	0.00	933	0.97	0.03	0.00	0.00
	15	938	0.92	0.07	0.01	0.00	951	0.95	0.04	0.00	0.00	974	0.90	0.09	0.00	0.00
	20	964	0.86	0.12	0.02	0.00	980	0.91	0.09	0.01	0.00	1007	0.79	0.20	0.01	0.00
	25	990	0.76	0.20	0.03	0.00	1005	0.83	0.16	0.01	0.00	1028	0.68	0.30	0.02	0.00
	30	1007	0.68	0.27	0.05	0.00	1024	0.75	0.23	0.02	0.00	1051	0.53	0.43	0.04	0.00
	35	1023	0.59	0.33	0.07	0.01	1043	0.64	0.33	0.03	0.00	1072	0.38	0.55	0.06	0.00
	40	1038	0.50	0.39	0.10	0.01	1059	0.54	0.42	0.04	0.00	1090	0.28	0.62	0.10	0.00
	45	1054	0.41	0.44	0.14	0.01	1076	0.43	0.50	0.06	0.00	1109	0.18	0.65	0.16	0.01
	50	1070	0.32	0.48	0.19	0.02	1092	0.33	0.57	0.09	0.00	1127	0.12	0.63	0.23	0.01
	55	1085	0.24	0.49	0.25	0.02	1108	0.24	0.62	0.14	0.01	1142	0.08	0.59	0.31	0.02
	60	1099	0.19	0.47	0.31	0.03	1124	0.17	0.62	0.19	0.01	1159	0.05	0.51	0.41	0.03
	65	1113	0.14	0.44	0.38	0.04	1141	0.12	0.60	0.27	0.01	1182	0.03	0.38	0.54	0.05
	70	1128	0.10	0.39	0.45	0.06	1160	0.07	0.53	0.38	0.02	1205	0.02	0.25	0.64	0.09
	75	1145	0.07	0.32	0.52	0.09	1181	0.04	0.42	0.50	0.04	1228	0.01	0.15	0.68	0.16
	80	1169	0.04	0.22	0.59	0.15	1207	0.02	0.28	0.62	0.08	1253	0.00	0.08	0.64	0.28
	85	1195	0.02	0.14	0.59	0.25	1239	0.01	0.15	0.68	0.16	1279	0.00	0.04	0.52	0.44
	90	1226	0.01	0.07	0.50	0.41	1271	0.00	0.07	0.61	0.32	1308	0.00	0.02	0.35	0.63
	95	1269	0.00	0.03	0.30	0.67	1312	0.00	0.02	0.40	0.58	1351	0.00	0.01	0.14	0.85

Note. Level 1 = Novice; Level 2 = Partially Proficient; Level 3 = Proficient; Level 4 = Advanced

Table 19

Reading Performance Level Projections

Grade	%tile	Fall					Winter					Spring				
		Exact Path Score	Level 1 Prob	Level 2 Prob	Level 3 Prob	Level 4 Prob	Exact Path Score	Level 1 Prob	Level 2 Prob	Level 3 Prob	Level 4 Prob	Exact Path Score	Level 1 Prob	Level 2 Prob	Level 3 Prob	Level 4 Prob
3	5	773	0.98	0.02	0.00	0.00	787	0.99	0.01	0.00	0.00	805	1.00	0.00	0.00	0.00
	10	811	0.95	0.05	0.00	0.00	826	0.98	0.02	0.00	0.00	847	0.99	0.01	0.00	0.00
	15	836	0.90	0.10	0.01	0.00	854	0.96	0.04	0.00	0.00	876	0.97	0.03	0.00	0.00
	20	855	0.83	0.16	0.01	0.00	876	0.92	0.08	0.00	0.00	900	0.94	0.06	0.00	0.00
	25	870	0.76	0.23	0.01	0.00	894	0.87	0.13	0.01	0.00	924	0.87	0.12	0.01	0.00
	30	885	0.66	0.31	0.02	0.00	912	0.79	0.20	0.01	0.00	947	0.76	0.23	0.01	0.00
	35	899	0.56	0.40	0.03	0.00	932	0.67	0.31	0.02	0.00	966	0.64	0.34	0.02	0.00
	40	912	0.46	0.48	0.05	0.00	950	0.53	0.43	0.04	0.00	984	0.50	0.47	0.03	0.00
	45	929	0.34	0.58	0.08	0.00	968	0.39	0.54	0.07	0.00	1000	0.37	0.57	0.05	0.00
	50	944	0.24	0.63	0.12	0.01	985	0.27	0.62	0.11	0.00	1014	0.27	0.64	0.08	0.00
	55	961	0.16	0.64	0.19	0.01	1000	0.19	0.64	0.16	0.01	1030	0.18	0.68	0.13	0.01
	60	979	0.10	0.60	0.28	0.02	1014	0.13	0.63	0.22	0.01	1044	0.13	0.68	0.19	0.01
	65	993	0.07	0.53	0.37	0.03	1027	0.09	0.59	0.30	0.02	1057	0.09	0.64	0.26	0.01
	70	1006	0.05	0.46	0.46	0.04	1042	0.06	0.52	0.40	0.03	1071	0.06	0.57	0.35	0.02
	75	1020	0.03	0.36	0.54	0.06	1056	0.04	0.43	0.49	0.04	1087	0.03	0.47	0.47	0.03
	80	1036	0.02	0.27	0.61	0.10	1072	0.02	0.32	0.59	0.06	1104	0.02	0.35	0.58	0.05
	85	1055	0.01	0.17	0.65	0.17	1089	0.01	0.22	0.66	0.10	1121	0.01	0.24	0.66	0.09
	90	1077	0.01	0.10	0.62	0.28	1114	0.01	0.12	0.67	0.20	1142	0.01	0.14	0.69	0.16
	95	1110	0.00	0.04	0.44	0.52	1144	0.00	0.05	0.55	0.39	1175	0.00	0.05	0.59	0.35

Note. Level 1 = Novice; Level 2 = Partially Proficient; Level 3 = Proficient; Level 4 = Advanced

Table 19

Reading Performance Level Projections (continued)

Grade	%tile	Fall					Winter					Spring				
		Exact Path Score	Level 1 Prob	Level 2 Prob	Level 3 Prob	Level 4 Prob	Exact Path Score	Level 1 Prob	Level 2 Prob	Level 3 Prob	Level 4 Prob	Exact Path Score	Level 1 Prob	Level 2 Prob	Level 3 Prob	Level 4 Prob
4	5	805	0.99	0.01	0.00	0.00	819	0.99	0.01	0.00	0.00	826	0.99	0.01	0.00	0.00
	10	849	0.96	0.04	0.00	0.00	865	0.97	0.03	0.00	0.00	874	0.98	0.02	0.00	0.00
	15	874	0.92	0.08	0.01	0.00	895	0.93	0.06	0.00	0.00	910	0.94	0.06	0.00	0.00
	20	897	0.85	0.14	0.01	0.00	918	0.88	0.12	0.01	0.00	937	0.87	0.12	0.01	0.00
	25	918	0.75	0.23	0.02	0.00	942	0.77	0.21	0.02	0.00	960	0.79	0.20	0.02	0.00
	30	938	0.62	0.33	0.04	0.00	965	0.63	0.33	0.03	0.00	982	0.67	0.30	0.03	0.00
	35	957	0.49	0.44	0.07	0.00	986	0.48	0.46	0.06	0.00	1004	0.52	0.42	0.06	0.00
	40	976	0.35	0.53	0.12	0.00	1005	0.34	0.56	0.10	0.00	1020	0.41	0.50	0.09	0.00
	45	994	0.24	0.57	0.18	0.01	1020	0.25	0.60	0.15	0.00	1037	0.30	0.56	0.13	0.01
	50	1009	0.17	0.56	0.26	0.01	1036	0.17	0.61	0.21	0.01	1054	0.21	0.58	0.20	0.01
	55	1023	0.12	0.52	0.34	0.02	1052	0.11	0.57	0.30	0.01	1068	0.15	0.57	0.27	0.01
	60	1037	0.08	0.46	0.43	0.03	1066	0.08	0.51	0.39	0.02	1084	0.10	0.52	0.36	0.02
	65	1053	0.05	0.37	0.53	0.05	1080	0.05	0.43	0.49	0.03	1098	0.07	0.46	0.44	0.03
	70	1067	0.03	0.29	0.61	0.07	1093	0.04	0.35	0.57	0.04	1112	0.05	0.38	0.53	0.04
	75	1082	0.02	0.21	0.66	0.11	1109	0.02	0.26	0.66	0.06	1128	0.03	0.30	0.61	0.06
	80	1097	0.01	0.15	0.68	0.16	1124	0.01	0.19	0.71	0.09	1145	0.02	0.21	0.67	0.10
	85	1116	0.01	0.09	0.66	0.24	1142	0.01	0.12	0.72	0.15	1166	0.01	0.13	0.70	0.16
	90	1139	0.00	0.05	0.56	0.39	1165	0.00	0.07	0.68	0.25	1191	0.01	0.07	0.65	0.28
	95	1174	0.00	0.02	0.34	0.65	1196	0.00	0.03	0.51	0.46	1225	0.00	0.03	0.47	0.50

Note. Level 1 = Novice; Level 2 = Partially Proficient; Level 3 = Proficient; Level 4 = Advanced

Table 19

Reading Performance Level Projections (continued)

Grade	%tile	Fall					Winter					Spring				
		Exact Path Score	Level 1 Prob	Level 2 Prob	Level 3 Prob	Level 4 Prob	Exact Path Score	Level 1 Prob	Level 2 Prob	Level 3 Prob	Level 4 Prob	Exact Path Score	Level 1 Prob	Level 2 Prob	Level 3 Prob	Level 4 Prob
5	5	836	0.99	0.01	0.00	0.00	840	0.99	0.01	0.00	0.00	849	0.99	0.01	0.00	0.00
	10	880	0.97	0.03	0.00	0.00	896	0.97	0.03	0.00	0.00	904	0.96	0.03	0.00	0.00
	15	914	0.91	0.08	0.01	0.00	936	0.90	0.09	0.01	0.00	946	0.88	0.11	0.01	0.00
	20	944	0.80	0.19	0.02	0.00	967	0.78	0.21	0.02	0.00	977	0.74	0.24	0.02	0.00
	25	968	0.64	0.33	0.03	0.00	992	0.62	0.35	0.04	0.00	1000	0.59	0.38	0.03	0.00
	30	987	0.48	0.46	0.06	0.00	1013	0.45	0.48	0.07	0.00	1020	0.44	0.50	0.06	0.00
	35	1007	0.32	0.56	0.12	0.00	1030	0.33	0.56	0.11	0.00	1038	0.31	0.59	0.10	0.00
	40	1022	0.22	0.59	0.18	0.00	1046	0.23	0.60	0.16	0.00	1056	0.21	0.63	0.16	0.00
	45	1036	0.15	0.58	0.26	0.00	1060	0.16	0.60	0.23	0.00	1071	0.14	0.63	0.23	0.00
	50	1053	0.09	0.52	0.38	0.01	1073	0.11	0.57	0.31	0.01	1087	0.09	0.58	0.33	0.01
	55	1066	0.06	0.44	0.48	0.01	1087	0.08	0.51	0.41	0.01	1104	0.06	0.49	0.45	0.01
	60	1079	0.04	0.35	0.58	0.02	1102	0.05	0.42	0.52	0.02	1119	0.04	0.39	0.55	0.02
	65	1095	0.02	0.25	0.69	0.03	1117	0.03	0.32	0.62	0.03	1134	0.02	0.30	0.65	0.03
	70	1110	0.01	0.17	0.76	0.06	1131	0.02	0.24	0.70	0.04	1150	0.01	0.21	0.73	0.04
	75	1125	0.01	0.11	0.79	0.09	1147	0.01	0.17	0.76	0.06	1170	0.01	0.13	0.79	0.08
	80	1142	0.01	0.07	0.78	0.15	1165	0.01	0.10	0.78	0.11	1186	0.00	0.08	0.79	0.12
	85	1161	0.00	0.04	0.71	0.25	1185	0.00	0.06	0.76	0.18	1207	0.00	0.05	0.74	0.21
	90	1187	0.00	0.02	0.54	0.44	1209	0.00	0.03	0.65	0.32	1231	0.00	0.02	0.62	0.35
	95	1220	0.00	0.01	0.29	0.71	1241	0.00	0.01	0.43	0.56	1266	0.00	0.01	0.38	0.62

Note. Level 1 = Novice; Level 2 = Partially Proficient; Level 3 = Proficient; Level 4 = Advanced

Table 19

Reading Performance Level Projections (continued)

Grade	%tile	Fall					Winter					Spring				
		Exact Path Score	Level 1 Prob	Level 2 Prob	Level 3 Prob	Level 4 Prob	Exact Path Score	Level 1 Prob	Level 2 Prob	Level 3 Prob	Level 4 Prob	Exact Path Score	Level 1 Prob	Level 2 Prob	Level 3 Prob	Level 4 Prob
6	5	852	1.00	0.00	0.00	0.00	852	1.00	0.00	0.00	0.00	856	0.99	0.00	0.00	0.00
	10	899	0.99	0.01	0.00	0.00	916	0.98	0.02	0.00	0.00	917	0.97	0.02	0.00	0.00
	15	937	0.96	0.04	0.00	0.00	957	0.94	0.05	0.01	0.00	957	0.93	0.07	0.00	0.00
	20	967	0.90	0.09	0.01	0.00	985	0.88	0.11	0.01	0.00	985	0.86	0.13	0.01	0.00
	25	986	0.84	0.14	0.02	0.00	1010	0.79	0.19	0.02	0.00	1010	0.76	0.22	0.02	0.00
	30	1007	0.74	0.23	0.03	0.00	1033	0.67	0.29	0.04	0.00	1033	0.63	0.33	0.04	0.00
	35	1027	0.61	0.33	0.06	0.00	1053	0.54	0.39	0.07	0.00	1053	0.50	0.44	0.06	0.00
	40	1044	0.49	0.42	0.09	0.00	1071	0.41	0.47	0.11	0.00	1073	0.37	0.53	0.10	0.00
	45	1060	0.38	0.49	0.13	0.00	1089	0.30	0.53	0.17	0.00	1091	0.27	0.58	0.15	0.00
	50	1076	0.27	0.53	0.20	0.00	1102	0.23	0.54	0.23	0.00	1107	0.19	0.59	0.21	0.00
	55	1092	0.19	0.52	0.28	0.01	1115	0.17	0.53	0.29	0.01	1122	0.14	0.57	0.28	0.01
	60	1105	0.14	0.49	0.36	0.01	1129	0.12	0.49	0.38	0.01	1137	0.10	0.53	0.37	0.01
	65	1120	0.10	0.43	0.46	0.01	1143	0.09	0.43	0.47	0.01	1155	0.06	0.44	0.48	0.01
	70	1134	0.07	0.36	0.55	0.02	1161	0.06	0.34	0.58	0.02	1177	0.04	0.33	0.61	0.02
	75	1152	0.04	0.27	0.66	0.04	1180	0.03	0.25	0.68	0.04	1195	0.02	0.24	0.70	0.04
	80	1173	0.02	0.17	0.74	0.06	1200	0.02	0.16	0.75	0.06	1214	0.01	0.16	0.76	0.06
	85	1191	0.01	0.11	0.77	0.10	1221	0.01	0.10	0.78	0.11	1233	0.01	0.11	0.79	0.10
	90	1216	0.01	0.06	0.74	0.19	1242	0.01	0.06	0.76	0.17	1255	0.00	0.06	0.77	0.16
	95	1247	0.00	0.02	0.60	0.37	1276	0.00	0.02	0.62	0.35	1291	0.00	0.02	0.64	0.33

Note. Level 1 = Novice; Level 2 = Partially Proficient; Level 3 = Proficient; Level 4 = Advanced

Table 19

Reading Performance Level Projections (continued)

Grade	%tile	Fall					Winter					Spring				
		Exact Path Score	Level 1 Prob	Level 2 Prob	Level 3 Prob	Level 4 Prob	Exact Path Score	Level 1 Prob	Level 2 Prob	Level 3 Prob	Level 4 Prob	Exact Path Score	Level 1 Prob	Level 2 Prob	Level 3 Prob	Level 4 Prob
7	5	870	0.99	0.01	0.00	0.00	870	0.98	0.01	0.00	0.00	870	0.95	0.04	0.00	0.00
	10	922	0.97	0.03	0.00	0.00	924	0.95	0.04	0.00	0.00	932	0.87	0.12	0.01	0.00
	15	962	0.92	0.08	0.01	0.00	967	0.89	0.10	0.01	0.00	970	0.77	0.21	0.02	0.00
	20	983	0.87	0.12	0.01	0.00	989	0.83	0.15	0.02	0.00	993	0.69	0.28	0.04	0.00
	25	1002	0.80	0.18	0.02	0.00	1010	0.76	0.22	0.03	0.00	1022	0.56	0.38	0.06	0.00
	30	1025	0.70	0.27	0.03	0.00	1033	0.66	0.30	0.04	0.00	1041	0.48	0.44	0.08	0.00
	35	1042	0.61	0.34	0.05	0.00	1053	0.56	0.38	0.06	0.00	1064	0.37	0.50	0.12	0.00
	40	1063	0.48	0.44	0.08	0.00	1074	0.44	0.46	0.09	0.00	1082	0.30	0.54	0.16	0.00
	45	1079	0.39	0.50	0.11	0.00	1092	0.35	0.51	0.13	0.00	1099	0.24	0.55	0.20	0.01
	50	1095	0.30	0.54	0.15	0.00	1107	0.28	0.54	0.17	0.00	1116	0.19	0.55	0.26	0.01
	55	1111	0.22	0.56	0.21	0.01	1123	0.22	0.55	0.23	0.01	1135	0.14	0.52	0.33	0.01
	60	1126	0.17	0.55	0.27	0.01	1141	0.16	0.53	0.30	0.01	1151	0.11	0.48	0.39	0.01
	65	1140	0.13	0.52	0.34	0.01	1160	0.11	0.49	0.39	0.01	1171	0.08	0.42	0.48	0.02
	70	1158	0.08	0.45	0.44	0.02	1179	0.08	0.42	0.48	0.02	1188	0.06	0.37	0.55	0.03
	75	1178	0.05	0.37	0.55	0.03	1197	0.05	0.35	0.57	0.03	1206	0.04	0.30	0.62	0.04
	80	1198	0.03	0.27	0.64	0.05	1216	0.04	0.27	0.64	0.04	1225	0.03	0.24	0.68	0.05
	85	1217	0.02	0.20	0.70	0.08	1238	0.02	0.20	0.71	0.07	1245	0.02	0.18	0.72	0.07
	90	1243	0.01	0.12	0.73	0.14	1265	0.01	0.12	0.75	0.12	1274	0.01	0.12	0.75	0.12
	95	1280	0.00	0.05	0.66	0.28	1309	0.01	0.05	0.69	0.25	1315	0.01	0.06	0.71	0.23

Note. Level 1 = Novice; Level 2 = Partially Proficient; Level 3 = Proficient; Level 4 = Advanced

Table 19

Reading Performance Level Projections (continued)

Grade	%tile	Fall					Winter					Spring				
		Exact Path Score	Level 1 Prob	Level 2 Prob	Level 3 Prob	Level 4 Prob	Exact Path Score	Level 1 Prob	Level 2 Prob	Level 3 Prob	Level 4 Prob	Exact Path Score	Level 1 Prob	Level 2 Prob	Level 3 Prob	Level 4 Prob
8	5	876	0.99	0.01	0.00	0.00	887	0.99	0.01	0.00	0.00	890	0.99	0.01	0.00	0.00
	10	933	0.97	0.03	0.00	0.00	954	0.96	0.04	0.00	0.00	959	0.94	0.05	0.00	0.00
	15	972	0.92	0.07	0.01	0.00	989	0.91	0.09	0.01	0.00	991	0.88	0.12	0.01	0.00
	20	993	0.87	0.12	0.01	0.00	1016	0.84	0.15	0.01	0.00	1020	0.77	0.22	0.01	0.00
	25	1012	0.80	0.18	0.02	0.00	1040	0.75	0.23	0.02	0.00	1047	0.62	0.36	0.02	0.00
	30	1034	0.69	0.28	0.03	0.00	1064	0.63	0.34	0.03	0.00	1071	0.46	0.49	0.05	0.00
	35	1055	0.56	0.39	0.05	0.00	1084	0.52	0.43	0.05	0.00	1095	0.31	0.61	0.08	0.00
	40	1074	0.43	0.48	0.08	0.00	1103	0.41	0.52	0.08	0.00	1114	0.21	0.66	0.13	0.00
	45	1092	0.32	0.55	0.13	0.00	1119	0.32	0.57	0.11	0.00	1132	0.15	0.66	0.19	0.00
	50	1109	0.23	0.58	0.19	0.00	1137	0.24	0.61	0.15	0.00	1147	0.10	0.63	0.26	0.00
	55	1124	0.16	0.57	0.26	0.00	1151	0.18	0.61	0.20	0.00	1167	0.06	0.56	0.37	0.00
	60	1140	0.11	0.53	0.35	0.01	1170	0.13	0.59	0.28	0.01	1186	0.04	0.46	0.49	0.01
	65	1158	0.07	0.45	0.46	0.01	1191	0.08	0.52	0.39	0.01	1204	0.02	0.36	0.60	0.01
	70	1178	0.04	0.35	0.59	0.02	1207	0.06	0.46	0.48	0.01	1220	0.02	0.27	0.69	0.02
	75	1199	0.02	0.24	0.70	0.03	1224	0.04	0.37	0.57	0.02	1237	0.01	0.20	0.76	0.03
	80	1218	0.01	0.16	0.77	0.05	1243	0.03	0.29	0.66	0.03	1257	0.01	0.13	0.82	0.05
	85	1238	0.01	0.10	0.80	0.09	1267	0.01	0.19	0.75	0.05	1283	0.00	0.07	0.83	0.09
	90	1266	0.00	0.05	0.77	0.17	1296	0.01	0.11	0.79	0.09	1317	0.00	0.03	0.77	0.20
	95	1305	0.00	0.02	0.61	0.37	1340	0.00	0.04	0.73	0.22	1359	0.00	0.01	0.56	0.43

Note. Level 1 = Novice; Level 2 = Partially Proficient; Level 3 = Proficient; Level 4 = Advanced

Proficiency Projections

Tables 20 through 22 provide proficiency projections (classifications of not proficient versus proficient) for language arts, mathematics, and reading, respectively.

As an example of how to interpret proficiency projections presented in Tables 20 through 22, we can observe in Table 21 that a grade 6 student who earns a fall Exact Path diagnostic mathematics score of 925 (corresponding to the 20th percentile) would be expected to be classified as not proficient on the MAST grade 6 mathematics assessment. The proficiency probability of 0.00 associated with this student's Exact Path diagnostic score of 925 suggests that it is less probable that the student will be classified as proficient than as not proficient. On the other hand, a grade 6 student who earns a fall Exact Path mathematics score of 1088 (corresponding to the 80th percentile) has a probability of 0.56 of being classified as proficient on the MAST grade 6 mathematics assessment. This proficiency probability suggests that it is more probable that the student will be classified as proficient than as not proficient. Similar interpretations across testing windows can be made for each subject-grade combination.

In the tables, the shaded probabilities reflect the region of the Exact Path diagnostic scale that corresponds to the MAST classification of proficient, based on the Exact Path diagnostic proficient cut scores for language arts, mathematics, and reading reported in Tables 11 through 13, respectively. In the ideal scenario, we expect Exact Path diagnostic scores associated with the Exact Path diagnostic proficient cut scores to have probabilities of 0.50 or higher. However, due to the differences between the methodological approach used to generate cut scores (i.e., a nonlinear symmetric equipercentile linking approach) and the approach used to generate proficiency level projections (i.e., a logistic regression approach), the proficient cut score derived from the equipercentile approach does not always align with the predicted proficiency probabilities derived using logistic regression. That is, the probabilities of 0.50 and higher are not always associated with Exact Path diagnostic scale scores corresponding to the Exact Path diagnostic proficient cut scores.

Table 20

Language Arts Proficiency Projections

Grade	%tile	Fall		Winter		Spring	
		Exact Path Score	Proficiency Probability	Exact Path Score	Proficiency Probability	Exact Path Score	Proficiency Probability
3	5	723	0.00	737	0.00	757	0.00
	10	753	0.00	778	0.00	803	0.00
	15	779	0.00	809	0.00	842	0.00
	20	798	0.00	832	0.01	867	0.00
	25	815	0.01	853	0.01	889	0.01
	30	831	0.02	869	0.02	909	0.02
	35	845	0.02	885	0.03	927	0.03
	40	857	0.04	902	0.05	941	0.04
	45	869	0.05	916	0.07	956	0.07
	50	882	0.08	932	0.10	970	0.10
	55	897	0.12	945	0.15	981	0.14
	60	911	0.18	959	0.21	994	0.20
	65	925	0.27	971	0.28	1008	0.28
	70	938	0.36	983	0.35	1023	0.38
	75	954	0.49	999	0.47	1036	0.49
	80	970	0.62	1013	0.57	1051	0.61
	85	986	0.74	1033	0.71	1067	0.72
	90	1008	0.86	1051	0.81	1092	0.85
	95	1041	0.95	1082	0.92	1126	0.94

Table 20

Language Arts Proficiency Projections (continued)

Grade	%tile	Fall		Winter		Spring	
		Exact Path Score	Proficiency Probability	Exact Path Score	Proficiency Probability	Exact Path Score	Proficiency Probability
4	5	750	0.00	758	0.00	780	0.00
	10	789	0.00	812	0.00	843	0.00
	15	817	0.00	854	0.00	878	0.01
	20	846	0.01	879	0.01	907	0.01
	25	866	0.02	905	0.02	929	0.02
	30	886	0.03	925	0.04	946	0.04
	35	905	0.06	941	0.06	963	0.06
	40	921	0.10	955	0.09	979	0.10
	45	935	0.14	968	0.12	995	0.14
	50	948	0.20	981	0.17	1009	0.20
	55	961	0.28	995	0.23	1022	0.27
	60	973	0.36	1009	0.32	1036	0.35
	65	985	0.45	1023	0.41	1049	0.44
	70	1000	0.57	1037	0.51	1063	0.54
	75	1013	0.67	1051	0.61	1078	0.65
	80	1029	0.77	1066	0.71	1096	0.75
	85	1048	0.86	1085	0.81	1118	0.85
	90	1070	0.93	1111	0.90	1139	0.91
	95	1106	0.97	1146	0.96	1170	0.96

Table 20

Language Arts Proficiency Projections (continued)

Grade	%tile	Fall		Winter		Spring	
		Exact Path Score	Proficiency Probability	Exact Path Score	Proficiency Probability	Exact Path Score	Proficiency Probability
5	5	777	0.00	802	0.00	802	0.00
	10	831	0.00	852	0.00	863	0.00
	15	861	0.01	887	0.01	902	0.01
	20	885	0.02	910	0.01	932	0.01
	25	906	0.04	933	0.02	955	0.03
	30	926	0.07	950	0.04	975	0.05
	35	943	0.11	968	0.07	994	0.09
	40	957	0.15	983	0.11	1009	0.13
	45	971	0.21	1000	0.18	1023	0.19
	50	985	0.29	1014	0.26	1037	0.27
	55	1000	0.39	1030	0.38	1053	0.38
	60	1013	0.48	1042	0.47	1068	0.49
	65	1026	0.58	1055	0.58	1081	0.59
	70	1040	0.68	1068	0.68	1097	0.71
	75	1058	0.78	1085	0.79	1114	0.80
	80	1072	0.84	1105	0.88	1133	0.88
	85	1093	0.91	1129	0.94	1151	0.93
	90	1120	0.96	1148	0.97	1178	0.97
	95	1150	0.98	1178	0.99	1222	0.99

Table 20

Language Arts Proficiency Projections (continued)

Grade	%tile	Fall		Winter		Spring	
		Exact Path Score	Proficiency Probability	Exact Path Score	Proficiency Probability	Exact Path Score	Proficiency Probability
6	5	802	0.00	802	0.00	809	0.00
	10	852	0.00	856	0.00	868	0.00
	15	885	0.00	894	0.01	902	0.01
	20	911	0.01	919	0.01	932	0.02
	25	934	0.01	944	0.02	957	0.03
	30	956	0.03	964	0.04	976	0.04
	35	973	0.05	984	0.06	996	0.07
	40	988	0.07	1001	0.09	1011	0.10
	45	1004	0.12	1019	0.14	1029	0.14
	50	1018	0.17	1034	0.20	1044	0.19
	55	1031	0.24	1050	0.27	1061	0.27
	60	1045	0.32	1065	0.35	1078	0.35
	65	1059	0.43	1082	0.46	1093	0.44
	70	1074	0.54	1097	0.55	1110	0.54
	75	1089	0.66	1114	0.66	1133	0.67
	80	1108	0.78	1134	0.76	1149	0.75
	85	1130	0.87	1152	0.84	1169	0.83
	90	1151	0.93	1180	0.91	1206	0.92
	95	1183	0.97	1220	0.97	1239	0.96

Table 20

Language Arts Proficiency Projections (continued)

Grade	%tile	Fall		Winter		Spring	
		Exact Path Score	Proficiency Probability	Exact Path Score	Proficiency Probability	Exact Path Score	Proficiency Probability
7	5	820	0.00	832	0.00	832	0.00
	10	877	0.00	890	0.01	892	0.01
	15	908	0.01	922	0.01	930	0.02
	20	933	0.01	948	0.03	958	0.03
	25	957	0.02	966	0.04	981	0.05
	30	975	0.03	984	0.05	999	0.07
	35	991	0.04	1003	0.07	1017	0.10
	40	1006	0.06	1020	0.10	1036	0.13
	45	1022	0.09	1038	0.14	1051	0.17
	50	1035	0.12	1054	0.18	1066	0.22
	55	1052	0.17	1068	0.23	1083	0.28
	60	1066	0.22	1084	0.29	1100	0.35
	65	1081	0.29	1099	0.35	1118	0.44
	70	1097	0.37	1116	0.44	1135	0.52
	75	1113	0.46	1135	0.53	1153	0.61
	80	1134	0.59	1153	0.62	1175	0.70
	85	1154	0.70	1173	0.71	1207	0.82
	90	1178	0.80	1208	0.83	1232	0.88
	95	1221	0.92	1245	0.91	1267	0.94

Table 20

Language Arts Proficiency Projections (continued)

Grade	%tile	Fall		Winter		Spring	
		Exact Path Score	Proficiency Probability	Exact Path Score	Proficiency Probability	Exact Path Score	Proficiency Probability
8	5	830	0.00	858	0.01	864	0.01
	10	881	0.00	913	0.02	924	0.02
	15	915	0.01	950	0.04	964	0.04
	20	943	0.01	975	0.06	991	0.06
	25	968	0.02	996	0.08	1015	0.09
	30	986	0.03	1015	0.11	1034	0.12
	35	1003	0.05	1034	0.14	1056	0.17
	40	1020	0.07	1051	0.17	1073	0.22
	45	1037	0.10	1069	0.21	1089	0.27
	50	1055	0.15	1085	0.26	1103	0.33
	55	1072	0.22	1100	0.31	1120	0.40
	60	1087	0.28	1116	0.36	1138	0.48
	65	1102	0.36	1132	0.42	1153	0.55
	70	1118	0.46	1150	0.49	1172	0.63
	75	1136	0.57	1168	0.56	1193	0.72
	80	1153	0.66	1190	0.64	1222	0.81
	85	1175	0.77	1214	0.72	1243	0.86
	90	1207	0.88	1242	0.80	1270	0.91
	95	1247	0.95	1278	0.88	1317	0.96

Table 21

Mathematics Proficiency Projections

Grade	%tile	Fall		Winter		Spring	
		Exact Path Score	Proficiency Probability	Exact Path Score	Proficiency Probability	Exact Path Score	Proficiency Probability
6	5	835	0.00	841	0.00	847	0.00
	10	874	0.00	882	0.00	890	0.00
	15	904	0.00	915	0.00	922	0.00
	20	925	0.00	939	0.00	949	0.00
	25	943	0.01	960	0.01	968	0.01
	30	960	0.01	979	0.01	985	0.01
	35	975	0.02	998	0.02	1002	0.01
	40	989	0.04	1013	0.04	1018	0.02
	45	1000	0.06	1026	0.06	1035	0.04
	50	1011	0.08	1041	0.09	1051	0.06
	55	1022	0.11	1054	0.13	1066	0.10
	60	1032	0.15	1067	0.18	1083	0.15
	65	1046	0.23	1079	0.24	1098	0.22
	70	1059	0.32	1094	0.34	1113	0.31
	75	1073	0.43	1108	0.44	1128	0.42
	80	1088	0.56	1125	0.57	1148	0.57
	85	1103	0.68	1143	0.70	1169	0.71
	90	1123	0.81	1169	0.84	1195	0.85
	95	1156	0.93	1205	0.94	1237	0.95

Table 21

Mathematics Proficiency Projections (continued)

Grade	%tile	Fall		Winter		Spring	
		Exact Path Score	Proficiency Probability	Exact Path Score	Proficiency Probability	Exact Path Score	Proficiency Probability
7	5	838	0.00	848	0.00	856	0.00
	10	885	0.00	902	0.00	911	0.00
	15	917	0.00	935	0.00	942	0.00
	20	942	0.00	963	0.00	973	0.00
	25	963	0.00	987	0.00	998	0.01
	30	984	0.01	1005	0.01	1018	0.02
	35	1000	0.01	1020	0.01	1035	0.02
	40	1013	0.02	1035	0.02	1051	0.04
	45	1026	0.03	1051	0.03	1066	0.06
	50	1041	0.05	1064	0.05	1083	0.09
	55	1053	0.08	1078	0.08	1101	0.14
	60	1067	0.12	1093	0.12	1119	0.21
	65	1082	0.18	1109	0.18	1135	0.29
	70	1099	0.29	1124	0.26	1153	0.40
	75	1114	0.41	1142	0.38	1175	0.55
	80	1133	0.57	1164	0.55	1198	0.70
	85	1157	0.75	1188	0.72	1229	0.85
	90	1184	0.89	1217	0.87	1257	0.93
	95	1228	0.97	1260	0.96	1292	0.97

Table 21

Mathematics Proficiency Projections (continued)

Grade	%tile	Fall		Winter		Spring	
		Exact Path Score	Proficiency Probability	Exact Path Score	Proficiency Probability	Exact Path Score	Proficiency Probability
8	5	851	0.00	868	0.00	871	0.00
	10	900	0.00	918	0.00	933	0.00
	15	938	0.01	951	0.00	974	0.01
	20	964	0.02	980	0.00	1007	0.01
	25	990	0.03	1005	0.01	1028	0.02
	30	1007	0.05	1024	0.01	1051	0.04
	35	1023	0.07	1043	0.02	1072	0.07
	40	1038	0.10	1059	0.04	1090	0.11
	45	1054	0.14	1076	0.06	1109	0.17
	50	1070	0.19	1092	0.08	1127	0.25
	55	1085	0.26	1108	0.13	1142	0.33
	60	1099	0.33	1124	0.18	1159	0.43
	65	1113	0.40	1141	0.26	1182	0.58
	70	1128	0.49	1160	0.38	1205	0.72
	75	1145	0.60	1181	0.52	1228	0.82
	80	1169	0.72	1207	0.69	1253	0.90
	85	1195	0.83	1239	0.84	1279	0.95
	90	1226	0.91	1271	0.93	1308	0.97
	95	1269	0.97	1312	0.98	1351	0.99

Table 22

Reading Proficiency Projections

Grade	%tile	Fall		Winter		Spring	
		Exact Path Score	Proficiency Probability	Exact Path Score	Proficiency Probability	Exact Path Score	Proficiency Probability
3	5	773	0.00	787	0.00	805	0.00
	10	811	0.00	826	0.00	847	0.00
	15	836	0.00	854	0.00	876	0.00
	20	855	0.01	876	0.00	900	0.00
	25	870	0.01	894	0.01	924	0.00
	30	885	0.02	912	0.01	947	0.01
	35	899	0.03	932	0.02	966	0.01
	40	912	0.04	950	0.04	984	0.02
	45	929	0.07	968	0.06	1000	0.04
	50	944	0.11	985	0.10	1014	0.06
	55	961	0.18	1000	0.16	1030	0.10
	60	979	0.28	1014	0.23	1044	0.16
	65	993	0.39	1027	0.31	1057	0.24
	70	1006	0.50	1042	0.41	1071	0.34
	75	1020	0.61	1056	0.52	1087	0.48
	80	1036	0.73	1072	0.65	1104	0.64
	85	1055	0.84	1089	0.76	1121	0.77
	90	1077	0.92	1114	0.87	1142	0.88
	95	1110	0.97	1144	0.95	1175	0.96

Table 22

Reading Proficiency Projections (continued)

Grade	%tile	Fall		Winter		Spring	
		Exact Path Score	Proficiency Probability	Exact Path Score	Proficiency Probability	Exact Path Score	Proficiency Probability
4	5	805	0.00	819	0.00	826	0.00
	10	849	0.00	865	0.00	874	0.00
	15	874	0.01	895	0.00	910	0.00
	20	897	0.01	918	0.01	937	0.00
	25	918	0.02	942	0.02	960	0.01
	30	938	0.04	965	0.03	982	0.02
	35	957	0.07	986	0.06	1004	0.03
	40	976	0.11	1005	0.10	1020	0.06
	45	994	0.18	1020	0.15	1037	0.10
	50	1009	0.26	1036	0.22	1054	0.16
	55	1023	0.35	1052	0.31	1068	0.23
	60	1037	0.45	1066	0.40	1084	0.34
	65	1053	0.57	1080	0.51	1098	0.46
	70	1067	0.67	1093	0.60	1112	0.57
	75	1082	0.77	1109	0.70	1128	0.70
	80	1097	0.84	1124	0.79	1145	0.80
	85	1116	0.90	1142	0.86	1166	0.89
	90	1139	0.95	1165	0.92	1191	0.95
	95	1174	0.98	1196	0.97	1225	0.98

Table 22

Reading Proficiency Projections (continued)

Grade	%tile	Fall		Winter		Spring	
		Exact Path Score	Proficiency Probability	Exact Path Score	Proficiency Probability	Exact Path Score	Proficiency Probability
5	5	836	0.00	840	0.00	849	0.00
	10	880	0.00	896	0.00	904	0.00
	15	914	0.00	936	0.00	946	0.00
	20	944	0.01	967	0.01	977	0.01
	25	968	0.02	992	0.03	1000	0.02
	30	987	0.05	1013	0.05	1020	0.05
	35	1007	0.09	1030	0.09	1038	0.08
	40	1022	0.15	1046	0.14	1056	0.14
	45	1036	0.23	1060	0.21	1071	0.20
	50	1053	0.37	1073	0.30	1087	0.30
	55	1066	0.49	1087	0.40	1104	0.43
	60	1079	0.61	1102	0.53	1119	0.55
	65	1095	0.74	1117	0.65	1134	0.67
	70	1110	0.83	1131	0.75	1150	0.77
	75	1125	0.90	1147	0.84	1170	0.87
	80	1142	0.94	1165	0.90	1186	0.92
	85	1161	0.97	1185	0.95	1207	0.96
	90	1187	0.99	1209	0.98	1231	0.98
	95	1220	1.00	1241	0.99	1266	0.99

Table 22

Reading Proficiency Projections (continued)

Grade	%tile	Fall		Winter		Spring	
		Exact Path Score	Proficiency Probability	Exact Path Score	Proficiency Probability	Exact Path Score	Proficiency Probability
6	5	852	0.00	852	0.00	856	0.00
	10	899	0.00	916	0.00	917	0.00
	15	937	0.00	957	0.00	957	0.00
	20	967	0.01	985	0.01	985	0.01
	25	986	0.02	1010	0.02	1010	0.02
	30	1007	0.03	1033	0.03	1033	0.03
	35	1027	0.05	1053	0.06	1053	0.05
	40	1044	0.09	1071	0.10	1073	0.09
	45	1060	0.13	1089	0.16	1091	0.14
	50	1076	0.20	1102	0.21	1107	0.20
	55	1092	0.28	1115	0.29	1122	0.28
	60	1105	0.37	1129	0.38	1137	0.37
	65	1120	0.48	1143	0.48	1155	0.50
	70	1134	0.58	1161	0.61	1177	0.65
	75	1152	0.70	1180	0.74	1195	0.76
	80	1173	0.81	1200	0.84	1214	0.84
	85	1191	0.88	1221	0.91	1233	0.90
	90	1216	0.94	1242	0.95	1255	0.95
	95	1247	0.98	1276	0.98	1291	0.98

Table 22

Reading Proficiency Projections (continued)

Grade	%tile	Fall		Winter		Spring	
		Exact Path Score	Proficiency Probability	Exact Path Score	Proficiency Probability	Exact Path Score	Proficiency Probability
7	5	870	0.00	870	0.00	870	0.00
	10	922	0.00	924	0.00	932	0.01
	15	962	0.01	967	0.01	970	0.02
	20	983	0.01	989	0.01	993	0.02
	25	1002	0.01	1010	0.02	1022	0.04
	30	1025	0.03	1033	0.03	1041	0.06
	35	1042	0.04	1053	0.05	1064	0.10
	40	1063	0.07	1074	0.08	1082	0.13
	45	1079	0.10	1092	0.12	1099	0.18
	50	1095	0.14	1107	0.16	1116	0.23
	55	1111	0.20	1123	0.21	1135	0.31
	60	1126	0.27	1141	0.29	1151	0.38
	65	1140	0.34	1160	0.38	1171	0.48
	70	1158	0.45	1179	0.49	1188	0.56
	75	1178	0.58	1197	0.59	1206	0.65
	80	1198	0.70	1216	0.68	1225	0.73
	85	1217	0.79	1238	0.78	1245	0.80
	90	1243	0.88	1265	0.87	1274	0.88
	95	1280	0.95	1309	0.95	1315	0.94

Table 22

Reading Proficiency Projections (continued)

Grade	%tile	Fall		Winter		Spring	
		Exact Path Score	Proficiency Probability	Exact Path Score	Proficiency Probability	Exact Path Score	Proficiency Probability
8	5	876	0.00	887	0.00	890	0.00
	10	933	0.00	954	0.00	959	0.00
	15	972	0.00	989	0.01	991	0.01
	20	993	0.01	1016	0.01	1020	0.01
	25	1012	0.01	1040	0.02	1047	0.03
	30	1034	0.02	1064	0.03	1071	0.05
	35	1055	0.04	1084	0.05	1095	0.09
	40	1074	0.07	1103	0.08	1114	0.13
	45	1092	0.11	1119	0.11	1132	0.20
	50	1109	0.17	1137	0.15	1147	0.27
	55	1124	0.24	1151	0.20	1167	0.38
	60	1140	0.33	1170	0.27	1186	0.50
	65	1158	0.46	1191	0.38	1204	0.62
	70	1178	0.60	1207	0.47	1220	0.71
	75	1199	0.74	1224	0.56	1237	0.79
	80	1218	0.83	1243	0.66	1257	0.86
	85	1238	0.90	1267	0.77	1283	0.93
	90	1266	0.95	1296	0.87	1317	0.97
	95	1305	0.98	1340	0.95	1359	0.99

Conclusion

We used a well-established equipercentile approach (Kolen & Brennan, 2014) to generate the psychometric links between Exact Path diagnostic scores and the MAST scale scores for each subject-grade-season combination in our analyses. We then applied the fall, winter, and spring Exact Path diagnostic cut scores that are linked to the MAST scores to generate classification accuracy statistics and to produce the probabilities of students being classified into each MAST performance level. Classification accuracy values generally met accepted criteria for such statistics in the psychometric literature. Additionally, larger projection probabilities are associated with students' observed MAST performance levels compared to the probabilities associated with the other performance levels. This suggests that students' Exact Path diagnostic scores accurately predict their MAST performance levels. Overall, our findings support the validity and value of Edmentum's Exact Path diagnostic assessments as interim assessments for Montana students.

References

Albano, A. D. (2016). equate: An R package for observed-score linking and equating. *Journal of Statistical Software, 74*(8), 1–36. *https://doi.org/10.18637/jss.v074.i08*

Hedalen, S. (2025). *Montana Aligned to Standards Through-Year (MAST) assessment summative technical report, 2024–2025 school year*. Montana Office of Public Instruction.

Hosmer Jr., D. W., Lemeshow, S., & Sturdivant, R. X. (2013). *Applied logistic regression* (Vol. 398). United Kingdom: Wiley.

Kolen, M. J., & Brennan, R. L. (2014). *Test equating, scaling, and linking: Methods and practices* (3rd ed.). Springer Science+Business Media. *https://doi.org/10.1007/978-1-4939-0317-7*

Lee, W., Hanson, B. A., & Brennan, R. L. (2000, April). *Procedures for computing classification consistency and accuracy indices with multiple categories* [Paper presentation]. Annual meeting of the National Council of Measurement in Education, New Orleans, LA, United States.

Montana Office of Public Instruction (2026a). *Montana education facts: Proficiency levels for grades 3–8 in math and English language arts in school year 2024–2025* [Data set]. *https://gems.opi.mt.gov/*

Montana Office of Public Instruction (2026b). *Data reports: School programs–school nutrition e-rate (program year 2025)*. *https://gems.opi.mt.gov/school-district-data*

Montana Office of Public Instruction (2026c). *Interactive dashboards: School profile, school characteristics*. *https://gems.opi.mt.gov/school-district-data*

Montana Office of Public Instruction (2026d). *Interactive dashboards: School comparison, overview*. *https://gems.opi.mt.gov/school-district-data*

National Center for Education Statistics (2026). *Search for public schools (CCD public school data for the 2024–2025 school year)*. U.S. Department of Education.

Powers, S. J. (2010). *Impact of matched samples equating methods on equating accuracy and the adequacy of equating assumptions.* PhD thesis, University of Iowa. *http://ir.uiowa.edu/etd/875*

Qian, J., Jiang, Y., & von Davier, A. A. (2013). *Weighting test samples in IRT linking and equating: Toward an improved sampling design for complex equating* (Research Report No. RR-13-39). Princeton: Educational Testing Service. *http://dx.doi.org/10.1002/j.2333-8504.2013.tb02346.x*

R Core Team (2024). *R: A language and environment for statistical computing.* R Foundation for Statistical Computing. *https://www.R-project.org/*

Venables, W. N., & Ripley, B. D. (2002). *Modern applied statistics with S* (4th ed.). New York: Springer.

Young, M. J., & Yoon, B. (1998). *Estimating the consistency and accuracy of classifications in a standards-referenced assessment* (CSE Technical Report 475). Center for the Study of Evaluation, National Center for Research on Evaluation, Standards, and Student Testing, Graduate School of Education & Information Studies, University of California, Los Angeles.

Appendix A

Table A1

Demographic Comparison of Language Arts Sample to the State (Fall)

	State %	Sample %						
		Total	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7	Grade 8
Multilingual Learner Status								
MLL	3.65	3.25	2.84	2.77	2.88	3.88	3.58	3.72
Non-MLL	96.35	96.75	97.16	97.23	97.12	96.12	96.42	96.28
Gender								
F	48.84	47.84	48.21	47.99	48.38	47.28	47.74	47.33
M	51.16	52.16	51.79	52.01	51.62	52.72	52.26	52.67
Race/Ethnicity								
American Indian or Alaska Native	10.18	4.94	4.75	4.93	4.70	5.32	4.95	5.04
Asian	0.66	1.97	1.75	1.65	1.81	2.36	2.13	2.19
Black or African American	0.70	2.04	1.96	1.89	1.92	2.35	2.04	2.17
Hispanic	6.48	5.50	5.76	5.73	5.83	5.36	5.05	5.18
Multiracial	5.34	3.15	4.52	4.57	4.51	1.53	1.68	1.68
Native Hawaiian or other Pacific Islander	0.16	0.11	0.11	0.11	0.09	0.12	0.11	0.09
White	76.49	82.29	81.17	81.12	81.14	82.95	84.04	83.64
SES								
Free or Reduced Lunch	48.58	44.93	46.58	46.35	46.14	41.11	44.31	44.55
Paid Lunch	51.42	55.07	53.42	53.65	53.86	58.89	55.69	55.45
Special Education Status								
General Education	84.08	80.54	79.10	79.24	79.35	81.36	82.50	82.07
Special Education	15.92	19.46	20.90	20.76	20.65	18.64	17.50	17.93

Table A2

Demographic Comparison of Mathematics Sample to the State (Fall)

	State %	Sample %			
		Total	Grade 6	Grade 7	Grade 8
Multilingual Learner Status					
MLL	3.94	3.87	4.13	3.69	3.80
Non-MLL	96.06	96.13	95.87	96.31	96.20
Gender					
F	48.53	47.47	47.32	47.87	47.16
M	51.47	52.53	52.68	52.13	52.84
Race/Ethnicity					
American Indian or Alaska Native	9.67	5.16	5.46	4.99	5.06
Asian	0.75	2.24	2.40	2.13	2.20
Black or African American	0.73	2.21	2.41	2.04	2.20
Hispanic	6.06	5.20	5.39	5.03	5.22
Multiracial	5.27	1.64	1.52	1.68	1.71
Native Hawaiian or other Pacific Islander	0.15	0.10	0.12	0.11	0.08
White	77.38	83.45	82.71	84.02	83.54
SES					
Free or Reduced Lunch	48.58	44.05	41.86	44.75	45.47
Paid Lunch	51.42	55.95	58.14	55.25	54.53
Special Education Status					
General Education	84.92	81.91	81.16	82.51	81.96
Special Education	15.08	18.09	18.84	17.49	18.04

Table A3

Demographic Comparison of Reading Sample to the State (Fall)

	State %	Sample %						
		Total	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7	Grade 8
Multilingual Learner Status								
MLL	3.65	3.29	2.79	2.73	2.92	4.06	3.60	3.77
Non-MLL	96.35	96.71	97.21	97.27	97.08	95.94	96.40	96.23
Gender								
F	48.84	47.85	48.19	47.98	48.35	47.31	47.84	47.31
M	51.16	52.15	51.81	52.02	51.65	52.69	52.16	52.69
Race/Ethnicity								
American Indian or Alaska Native	10.18	4.96	4.76	4.86	4.75	5.42	4.96	5.07
Asian	0.66	1.97	1.72	1.66	1.79	2.39	2.13	2.20
Black or African American	0.70	2.05	1.93	1.87	1.92	2.39	2.03	2.18
Hispanic	6.48	5.48	5.73	5.71	5.81	5.38	5.03	5.19
Multiracial	5.34	3.15	4.52	4.57	4.52	1.52	1.67	1.68
Native Hawaiian or other Pacific Islander	0.16	0.10	0.11	0.11	0.09	0.12	0.11	0.09
White	76.49	82.29	81.24	81.21	81.11	82.78	84.06	83.58
SES								
Free or Reduced Lunch	48.58	44.96	46.39	46.19	46.13	41.66	44.22	44.79
Paid Lunch	51.42	55.04	53.61	53.81	53.87	58.34	55.78	55.21
Special Education Status								
General Education	84.08	80.54	79.12	79.20	79.41	81.21	82.54	82.01
Special Education	15.92	19.46	20.88	20.80	20.59	18.79	17.46	17.99

Table A4

Demographic Comparison of Language Arts Sample to the State (Winter)

	State %	Sample %						
		Total	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7	Grade 8
Multilingual Learner Status								
MLL	3.65	3.41	2.91	2.81	2.91	4.28	3.84	4.86
Non-MLL	96.35	96.59	97.09	97.19	97.09	95.72	96.16	95.14
Gender								
F	48.84	47.88	48.12	48.02	48.09	47.34	47.79	47.70
M	51.16	52.12	51.88	51.98	51.91	52.66	52.21	52.30
Race/Ethnicity								
American Indian or Alaska Native	10.18	5.02	4.76	5.01	4.64	5.54	5.16	5.20
Asian	0.66	1.96	1.79	1.63	1.79	2.42	2.23	2.01
Black or African American	0.70	2.08	1.97	1.91	1.95	2.44	2.16	2.09
Hispanic	6.48	5.53	5.74	5.80	5.69	5.40	5.13	4.91
Multiracial	5.34	3.34	4.55	4.57	4.48	1.52	1.61	1.97
Native Hawaiian or other Pacific Islander	0.16	0.10	0.11	0.12	0.10	0.11	0.11	0.00
White	76.49	81.98	81.06	80.96	81.34	82.57	83.60	83.82
SES								
Free or Reduced Lunch	48.58	45.68	46.57	47.01	45.47	42.30	43.42	56.50
Paid Lunch	51.42	54.32	53.43	52.99	54.53	57.70	56.58	43.50
Special Education Status								
General Education	84.08	80.26	79.15	79.17	79.41	81.04	82.08	82.52
Special Education	15.92	19.74	20.85	20.83	20.59	18.96	17.92	17.48

Table A5

Demographic Comparison of Mathematics Sample to the State (Winter)

	State %	Sample %			
		Total	Grade 6	Grade 7	Grade 8
Multilingual Learner Status					
MLL	3.94	3.98	4.34	3.93	3.42
Non-MLL	96.06	96.02	95.66	96.07	96.58
Gender					
F	48.53	47.26	47.24	47.95	45.86
M	51.47	52.74	52.76	52.05	54.14
Race/Ethnicity					
American Indian or Alaska Native	9.67	5.23	5.56	5.23	4.60
Asian	0.75	2.27	2.43	2.24	2.04
Black or African American	0.73	2.28	2.47	2.16	2.16
Hispanic	6.06	5.27	5.43	5.12	5.29
Multiracial	5.27	1.64	1.53	1.58	1.98
Native Hawaiian or other Pacific Islander	0.15	0.09	0.11	0.12	0.00
White	77.38	83.22	82.48	83.54	83.94
SES					
Free or Reduced Lunch	48.58	44.40	42.61	43.11	50.46
Paid Lunch	51.42	55.60	57.39	56.89	49.54
Special Education Status					
General Education	84.92	81.66	80.95	82.05	82.18
Special Education	15.08	18.34	19.05	17.95	17.82

Table A6

Demographic Comparison of Reading Sample to the State (Winter)

	State %	Sample %						
		Total	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7	Grade 8
Multilingual Learner Status								
MLL	3.65	3.39	2.90	2.80	2.90	4.32	3.87	4.70
Non-MLL	96.35	96.61	97.10	97.20	97.10	95.68	96.13	95.30
Gender								
F	48.84	47.93	48.13	47.95	48.13	47.21	48.02	48.36
M	51.16	52.07	51.87	52.05	51.87	52.79	51.98	51.64
Race/Ethnicity								
American Indian or Alaska Native	10.18	5.01	4.75	5.04	4.67	5.56	5.13	4.95
Asian	0.66	1.95	1.81	1.63	1.80	2.43	2.18	1.83
Black or African American	0.70	2.05	1.97	1.90	1.94	2.47	2.09	1.82
Hispanic	6.48	5.50	5.75	5.76	5.70	5.43	5.04	4.61
Multiracial	5.34	3.35	4.56	4.58	4.49	1.53	1.64	2.06
Native Hawaiian or other Pacific Islander	0.16	0.10	0.11	0.12	0.10	0.11	0.11	0.00
White	76.49	82.03	81.06	80.97	81.31	82.48	83.81	84.72
SES								
Free or Reduced Lunch	48.58	45.86	46.70	46.88	45.47	42.62	44.31	58.65
Paid Lunch	51.42	54.14	53.30	53.12	54.53	57.38	55.69	41.35
Special Education Status								
General Education	84.08	80.33	79.10	79.20	79.43	80.94	82.34	83.51
Special Education	15.92	19.67	20.90	20.80	20.57	19.06	17.66	16.49