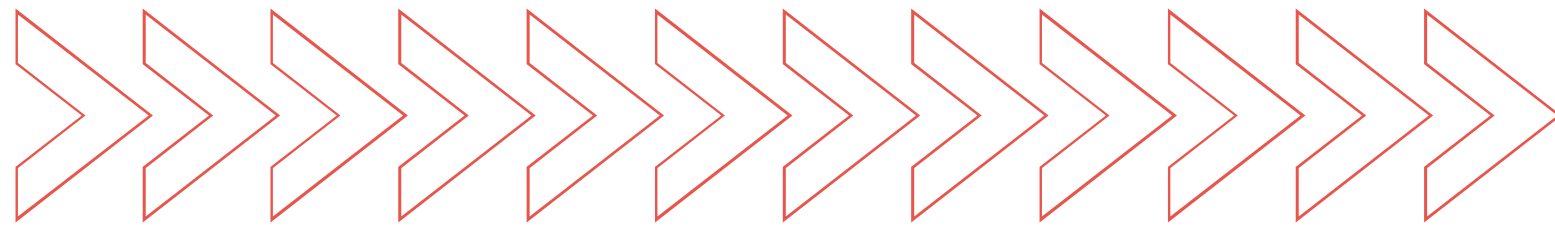


Linking MAP and MCAP Assessments for Grades 3–8 Students

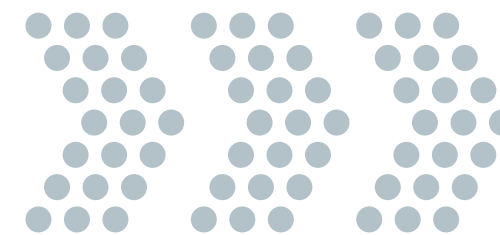
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Shared Accountability
Applied Research and Evaluation





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Linking MCAP and MAP Assessments

Montgomery County Public Schools Grades 3–8



Executive Summary

Research Scope

This linking study examined the predictive and concurrent relationships between the Measures of Academic Progress (MAP) and the Maryland Comprehensive Assessment Program (MCAP) assessments using reading and mathematics data from students in Grades 3–8 for the 2021–2022 school year.

Methods

The study adopted a single-group linking method to address research questions. With this design, linking samples that included students who took both the MAP and MCAP assessments were created to explore the predictive validity evidence in the relationship between the fall MAP and MCAP and the concurrent validity evidence in the relationship between the spring MAP and MCAP.

Results

- Predictive validity evidence was found to be strong or very strong in general across the grade levels and assessments, based on which threshold scores on the fall MAP were estimated to predict high likelihoods (65% and 75%) of meeting the college and career readiness (CCR) benchmark score on MCAP in reading and mathematics, respectively.
- Concurrent validity evidence was also found strong or very strong in general across the grade levels and assessments, based on which concordance tables were established to find any scores on MAP that corresponded to scores on MCAP, particularly, the spring MAP scores associated with the CCR benchmark score on MCAP in reading and mathematics, respectively.

Conclusion

- The estimated predictive threshold scores on the fall MAP can provide school administrators and teachers with information about which students are on track or at risk of not meeting the CCR benchmark on MCAP. This information can help guide instructional practices to improve student performance.
- The established concordance tables may provide instructional leaders with guidance for instructional planning that will motivate students to attain the MAP scores corresponding to the CCR benchmark score on MCAP as early as possible. In addition, the concordance tables allow the district to use the MAP and MCAP scores interchangeably for its accountability system.

For many years, MCPS has administrated the MAP assessments developed by the Northwest Evaluation Association (NWEA) in Grades 3–8, which serves the purposes of informing instruction, projecting proficiency on state accountability assessments, and identifying students for intervention (NWEA, 2015). School administrators and staff in MCPS have used MAP data to monitor student academic performance and progress toward proficiency aligned with the CCR standards on state accountability assessments and to adjust instructional practices accordingly. Therefore, it has become imperative to understand how the MAP assessments can serve as predictors of performance on the current state assessment (MCAP).



Investigate predictive validity by examining the correlation of fall MAP Rasch unit (RIT) scores with overall MCAP scale scores in reading and mathematics.



Look for evidence of concurrent validity by examining the correlation of spring MAP RIT scores with overall MCAP scale scores in reading and mathematics.



Identify thresholds on the fall MAP RIT scores that predict 65% and 75% probabilities of meeting the CCR benchmark on MCAP in reading and mathematics.



Develop concordance tables to show how spring MAP RIT scores are related to overall MCAP scale scores in reading and mathematics.





Research Scope

Predictive and Concurrent Validity

This linking study addressed how existing assessments (i.e., MAP) administered in MCPS can serve as predictive and concurrent indicators of college and career readiness as measured by the state assessments (i.e., MCAP). Specifically, the study examined the predictive and concurrent relationships between MAP and MCAP using Grades 3–8 reading and mathematics assessment data in the 2021–2022 school year.

Predictive validity exists when a measure can be used to predict scores on a future measure and concurrent validity exists when a measure shows scores that are closely related to scores on another measure given during the same time period (Messick, 1993). In the context of this study, the predictive validity results were used to understand how student performance on the fall MAP assessments would predict the CCR success on the MCAP assessments administered in the spring. In the meantime, the concurrent validity results of this study were used to find corresponding scores between the spring MAP assessments and the MCAP assessments also administered in the spring. Both predictive and concurrent validities were measured as correlations between MAP and MCAP.

Research objectives



Providing predictive relationship information on how to use MAP data to adjust instruction and to provide additional supports for students at risk of not attaining the CCR benchmark on MCAP.



Providing concurrent relationship information on MAP and MCAP to guide instructional planning and help improve the MCPS accountability system.

Research Questions

- 1 How did fall/spring MAP RIT scores correlate to overall MCAP scale scores in reading and mathematics?

What were thresholds on the fall MAP RIT scores that were associated with 65% and 75% probability (likelihood) of meeting the CCR benchmark on MCAP (performance level 3 or higher) in reading and mathematics?
 - How accurately did the established threshold scores in MAP predict college and career readiness on MCAP across student groups?
- 2 How did the spring MAP RIT scores correspond to overall MCAP scale scores in reading and mathematics?
 - What were the MAP RIT scores that could be converted to the CCR benchmark score on MCAP?



The study addressed the research questions through a single-group linking method, a commonly used design for linking studies that requires a sample of students who took both assessments of interest. This design can control for differential proficiency of examinees (Dorans et al., 2010). Specifically, this linking study used data of Grades 3–8 students who took both fall/spring MAP and MCAP assessments in the 2021–2022 school year.

MAP

- The MAP assessment is a computer adaptive assessment administered to students in Grades 3–8 in MCPS.
- MAP-Reading (MAP-R) is designed to measure six reading areas, including word recognition, reading comprehension, inferential or interpretive comprehension, evaluative comprehension, literary responses or analysis, and general reading.
- MAP-Mathematics (MAP-M) is designed to measure five mathematics areas, including number process, statistics or probability, algebra, geometry, and measurement.
- RIT scales, which are vertically equated, are used to measure student achievement and growth. RIT scores range from 100 to 300 with equal intervals between points on the scale.
- RIT scores and national percentile ranks on fall and spring MAP assessments in Grades 3 to 8 were analyzed in this study. National percentile ranks were based on NWEA 2020 MAP norms.

MCAP

- MCAP is a computer adaptive assessment, which provides information on student progress towards proficiency on the state CCR standards in English language arts/literature (ELA) and mathematics (MATH).
- MCAP ELA focuses on reading of literary and informational passages and engaging in multi-media, such as video or audio pieces, while students demonstrate their reading comprehension and literacy skills through responding to text-based questions and writing prompts.
- For MCAP MATH, students are asked to demonstrate their understanding of mathematics by solving real-world problems, making sense of quantities and their relationships, and reasoning mathematically.
- The overall MCAP scale scores range from 650 to 850 for each content area across the grade levels. Student performance is aligned with a proficiency continuum of 1 to 4 levels classified as beginning, developing, proficient, and distinguished learners. Performance level 3, corresponding to a score of 750, is defined as the CCR benchmark in reading and mathematics across the grade levels.
- The MCAP is administered in the spring toward the end of the school year (e.g., in 2023, MCAP took place between April 3 and May 26).
- The overall scale scores and national percentile ranks of 2022 MCAP in Grades 3 to 8 were analyzed in this study.

Study samples (linking samples) were created to include students who took both the fall and/or spring MAP and the MCAP assessments in 2021–2022 by content area (reading and mathematics) and across the assessments for Grades 3–8 and the Algebra 1 assessment.

Linking Sample Size and Total MCAP Examinees in 2021–2022

MCAP test	Linking samples				All MCAP takers in MCPS	
	Linking sample 1 (fall MAP-R & MCAP ELA)	Linking sample 2 (fall MAP-M & MCAP MATH)	Linking sample 3 (spring MAP-R & MCAP ELA)	Linking sample 4 (spring MAP-M & MCAP MATH)	MCAP ELA	MCAP MATH
3	10,891	10,903	11,247	11,377	11,344	11,475
4	10,837	10,890	11,155	11,283	11,277	11,405
5	11,099	11,144	11,425	11,508	11,558	11,662
6	10,646	10,686	11,033	11,175	11,418	11,489
7	11,054	7,120	11,386	7,423	11,756	11,762
8	11,404	3,748	11,551	4,009	12,133	12,176
Algebra 1		9,977		9,214	9,982	11,769

- A substantial number of middle school students, especially in Grades 7 and 8, who took high school mathematics courses participated in MCAP Algebra 1, Geometry, or Algebra 2 instead of the grade-level MCAP MATH assessments. These students were excluded from the mathematics linking samples of relevant grade levels due to a lack of comparable grade-level assessments for MAP. The exclusion led to a substantial gap between the size of mathematics samples and the number of middle school students who took the grade-level MCAP MATH assessments, especially in Grades 7 and 8.
- Given that middle school students taking MCAP Algebra 1 took MAP Math 6+ which includes items associated with high school Algebra 1, Algebra 1 linking samples were created for students that have scores on both of the assessments.
- Linking samples 1 and 2 were used for predictive validity analyses that would answer research question two. Linking samples 3 and 4 were used for concurrent validity analyses that would answer research question three.



The linkage of MAP and MCAP data was realized through various statistical procedures, such as Pearson correlation analysis, Logistic regression analysis, and Equipercntile linking method.

Pearson Correlation

- Pearson correlation analysis was used to address research question one, measuring the strength and direction of the relationship between MAP RIT scores and overall MCAP scale scores.
- Correlation coefficients range from -1 to +1 with higher values (those closer to -1 or +1) signifying a stronger correlation. The direction of the relation can be positive (between 0 and 1) or negative (between -1 and 0). A positive correlation means as one score increases, the other score also increases, whereas a negative correlation means as one score increases, the other score decreases.
- A high positive correlation indicates predictive and concurrent validity evidence. The correlation coefficients between MAP RIT scores and overall MCAP scale scores are presented for each of the linking samples created by test administration and content area for each of the grade levels.

Correlation Interpretation Guide

Size of correlation	General interpretation
0.8 to 1.0	Very strong relationship
0.6 to 0.8	Strong relationship
0.4 to 0.6	Moderate relationship
0.2 to 0.4	Weak relationship
0.0 to 0.2	Very weak or no relationship

Source: Salkind, N. J. (2011). Statistics for people who think they hate statistics. 4th ed. Sage: Thousand Oaks, California.

The linkage of MAP and MCAP data was realized through various statistical procedures, such as Pearson correlation analysis, Logistic regression analysis, and Equipercentile linking method.

Logistic Regression

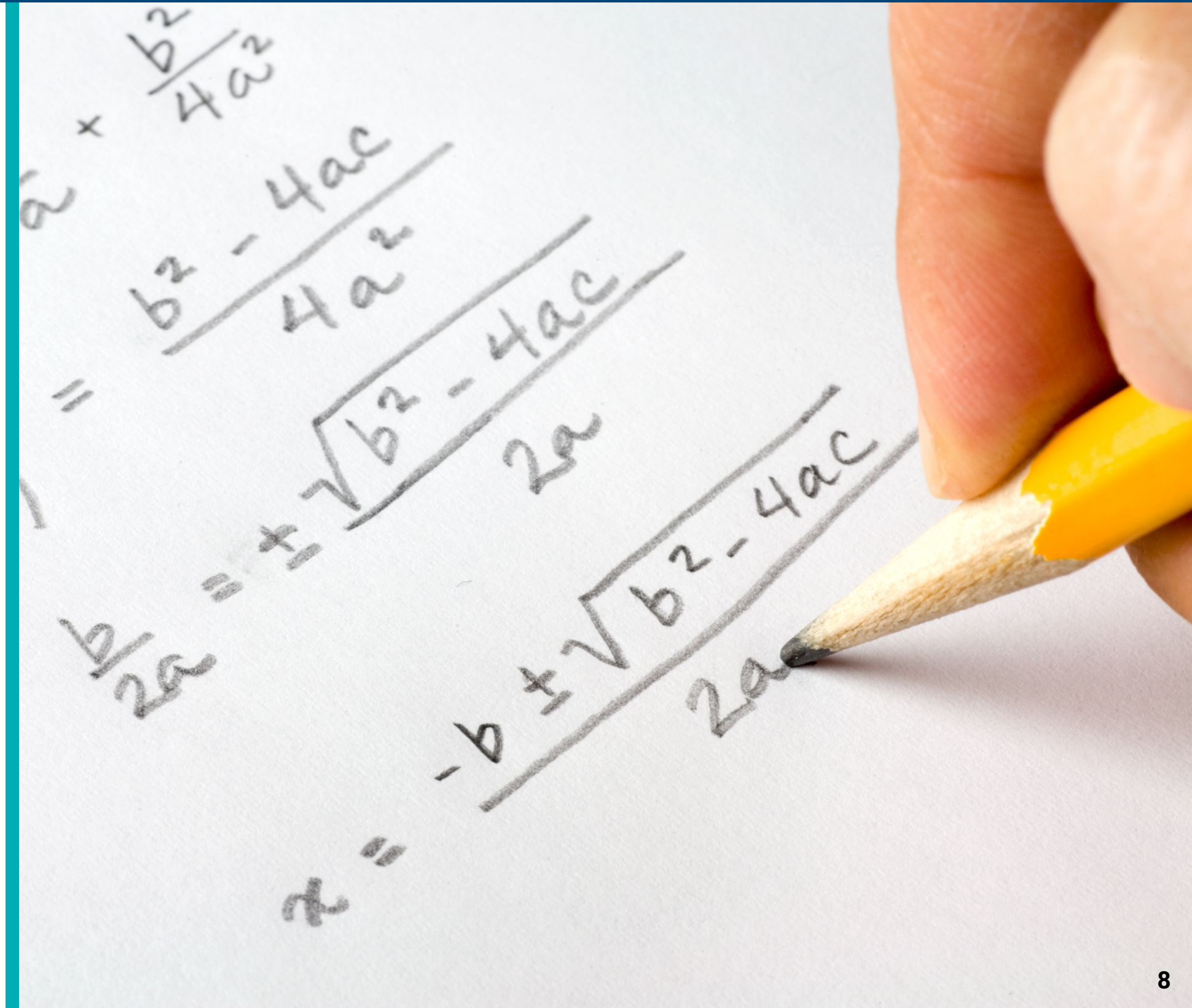
- Logistic regression analysis was applied to address research question two. The intent was to determine the thresholds (cut scores) for the fall MAP RIT scores that predict a high probability (65% and 75%) of meeting the college and career readiness benchmark (performance level 3 or higher) on MCAP.
- In this study, probability is how likely that a student who scores at a given cut score on MAP would meet the MCAP CCR benchmark in reading and mathematics assessments.
- To determine whether observed cut scores were precise, the prediction accuracy, whether students' predicted performance matched their actual performance on MCAP, was examined for the 75% probability by student group in three categories:
 - Accurate estimation: Students' performance relative to the fall MAP RIT threshold attainment (met or not) agreed with their eventual MCAP CCR benchmark attainment (met or not).
 - Underestimation: Students who scored below the fall MAP RIT threshold actually met or exceeded the MCAP CCR benchmark.
 - Overestimation: Students who scored at or above the fall MAP RIT threshold actually did not meet the MCAP CCR benchmark.

Equipercentile Linking

- Equipercentile linking was used to address research question four. Equipercentile linking is a statistical procedure that bridges the scores from one assessment to another through the corresponding percentile ranks on the two assessments (Holland & Dorans, 2006).
- The first step in equipercentile linking was to compute the percentile ranks of students in the linking samples for the score distribution on the spring MAP and MCAP, respectively.
- The second step was to generate concordance tables for the two assessments by pairing the scores on the two assessments based on the corresponding percentile ranks of the examinees.
- Linear interpolation was used in equipercentile linking when the test scores were discrete, or not continuous.
- The established concordance tables were used to convert spring MAP RIT scores to overall MCAP scale scores. Given any spring MAP RIT score, a corresponding MCAP can be identified.
- Using the concordance tables, MAP RIT scores corresponding to score 750, the score associated with the CCR benchmark at performance level 3 or higher, on the overall MCAP scale were specified in the reading and mathematics assessments.

Limitations of this linking study were associated with the exclusion of a substantial number of middle school students who took MCAP Algebra 1, Geometry, or Algebra 2 in stead of the grade-level MCAP MATH assessments, which led to the smaller and skewed middle school grade-level linking samples in mathematics.

- The insufficient and skewed middle school grade-level linking samples in mathematics may bias the analytical results of this study for the relevant grades, which needs cautions in interpreting and applying the results, especially in Grades 7 and 8.
- Results for middle school grade-level mathematics cannot be generalized to middle school students who took MCAP MATH assessments associated with high school mathematics courses such as Algebra 1, Geometry, and Algebra 2.



Descriptive Statistics of Linking Sample 1 for Fall MAP-R and MCAP ELA

MCAP ELA	% met MCAP benchmark	Overall MCAP ELA scale score				Fall MAP-R RIT score			
		Mean score	SD	Min. score	Max. score	Mean score	SD	Min. score	Max. score
ELA 3	59.1	757	23.30	650	843	189	20.61	131	243
ELA 4	55.2	752	19.58	659	825	200	18.90	140	246
ELA 5	50.5	749	19.68	683	823	208	18.21	136	259
ELA 6	53.6	750	18.02	666	808	214	17.74	150	266
ELA 7	50.5	749	17.33	650	808	219	16.90	149	274
ELA 8	53.9	751	21.69	650	850	224	16.96	151	274

Descriptive Statistics of Linking Sample 2 for Fall MAP-M and MCAP MATH

MCAP MATH	% met MCAP benchmark	Overall MCAP MATH scale score				Fall MAP-M RIT score			
		Mean score	SD	Min. score	Max. score	Mean score	SD	Min. score	Max. score
MATH 3	52.4	752	26.69	650	850	189	16.26	118	278
MATH 4	38.8	745	21.78	659	850	199	16.61	131	271
MATH 5	37.8	744	19.95	650	843	209	18.27	140	296
MATH 6	26.9	737	19.87	650	836	216	17.59	152	281
MATH 7	7.6	723	18.43	650	790	212	13.74	155	271
MATH 8	2.9	719	19.42	650	799	210	12.47	153	257
Algebra 1	24.2	737	18.69	650	827	228	16.27	158	300



Descriptive Statistics for Fall MAP and MCAP

The tables present mean scores, standard deviations (SD), and score ranges for the fall MAP RIT scores and MCAP scale scores by grade level and test administration. Also presented are rates for meeting CCR benchmark on MCAP.

Among students who took the fall MAP and MCAP (linking samples 1 and 2), rates for meeting the CCR benchmark ranged from 50.5% to 59.1% across the grade levels of MCAP ELA, and from 2.9% to 52.4% across the grade levels and Algebra 1 of MCAP MATH.

In mathematics, as indicated previously, caution should be used when reviewing results for the middle school grades that excluded students who took MCAP Algebra 1, Geometry, or Algebra 2. The exclusion may explain the low percentages of students meeting the MCAP MATH CCR benchmark and the low mean scores of both MCAP MATH and MAP-M in Grades 6–8.



Results

Descriptive Statistics of Linking Sample 3 for Spring MAP-R and MCAP ELA

MCAP ELA	% met MCAP benchmark	Overall MCAP ELA scale score				Spring MAP-R RIT score			
		Mean score	SD	Min. score	Max. score	Mean score	SD	Min. score	Max. score
ELA 3	58.4	756	23.38	650	843	198	19.75	141	248
ELA 4	54.5	752	19.63	659	825	206	18.73	142	257
ELA 5	49.7	749	19.80	683	823	212	18.35	142	268
ELA 6	53.2	750	18.16	666	808	217	18.10	149	269
ELA 7	49.6	749	17.47	650	808	221	17.96	153	280
ELA 8	53.3	750	21.71	650	850	225	18.16	152	273

Descriptive Statistics of Linking Sample 4 for Spring MAP-M and MCAP MATH

MCAP MATH	% met MCAP benchmark	Overall MCAP MATH scale score				Spring MAP-M RIT score			
		Mean score	SD	Min. score	Max. score	Mean score	SD	Min. score	Max. score
MATH 3	51.3	751	26.87	650	850	201	17.35	125	278
MATH 4	37.8	744	21.88	650	850	209	18.62	127	297
MATH 5	36.9	743	20.02	650	843	220	22.00	125	296
MATH 6	26.3	737	19.94	650	836	221	20.05	153	291
MATH 7	7.6	723	18.58	650	790	216	15.91	159	278
MATH 8	3.2	719	19.58	650	799	212	14.33	153	269
Algebra 1	26.4	739	18.40	650	827	234	18.33	155	324



Descriptive Statistics for Spring MAP and MCAP

The tables present mean scores, standard deviations (SD), and score ranges for the spring MAP RIT scores and MCAP scale scores by grade level and test administration. Also presented are rates for meeting CCR benchmark on MCAP.

Among students who took the spring MAP and MCAP (linking samples 3 and 4), rates for meeting the CCR benchmark ranged from 49.6% to 58.4% across the grade levels of MCAP ELA, and from 3.2% to 51.3% across the grade levels and Algebra 1 of MCAP MATH.

In mathematics, again, caution should be used when reviewing results for the middle school grades that excluded students who took MCAP Algebra 1, Geometry, or Algebra 2. The exclusion may explain the low percentages of students meeting the MCAP MATH CCR benchmark and the low mean scores of both MCAP MATH and MAP-M in Grades 6–8.

MAP–MCAP correlation

Correlation between MAP RIT Scores and MCAP Scale Scores

MCAP ELA	Correlation with fall MAP-R	Correlation with spring MAP-R	MCAP MATH	Correlation with fall MAP-M	Correlation with spring MAP-M
ELA 3	.843	.855	MATH 3	.844	.876
ELA 4	.827	.841	MATH 4	.851	.880
ELA 5	.830	.847	MATH 5	.864	.893
ELA 6	.820	.843	MATH 6	.852	.876
ELA 7	.785	.812	MATH 7	.706	.752
ELA 8	.761	.786	MATH 8	.527	.583
			Algebra 1	.789	.819

A few notes:

- While the magnitude of the correlation coefficients observed between MAP and MCAP provided predictive and concurrent validity evidence, it is important to remember that correlation does not imply causation.
- The relatively low correlation for Grade 7 and 8 mathematics reflected the impact of small and skewed linking samples for middle school mathematics, as previously indicated.
- Across the reading and mathematics assessments, the correlation of MAP with MCAP was slightly higher for spring MAP than for fall MAP, which indicated stronger concurrent relationships than predictive relationships between the two assessments.

Findings for Question One

Predictive validity evidence:

- The correlation coefficients for all the reading assessments and most of the mathematics assessments were between 0.706 and 0.864, which indicated strong to very strong positive correlations between MAP and MCAP.
- Predictive validity between the fall MAP RIT scores and the overall MCAP scale scores as well as the concurrent validity between the spring MAP and MCAP scores were evident with one exception for MATH 8 that had correlation coefficients below 0.6 (moderate correlation).



Fall MAP-R Prediction of CCR on MCAP ELA

Fall MAP-R RIT Cut Score Associated With Predicted Probability of Being College and Career Ready (Performance Level 3 or Higher on MCAP ELA)

MCAP ELA	Cut score at 65% probability	National percentile rank	Cut score at 75% probability	National percentile rank
ELA 3	190	58-59	193	64-66
ELA 4	203	64-65	205	69-70
ELA 5	213	69-70	216	75-76
ELA 6	218	68-69	220	72-73
ELA 7	224	72-73	227	78
ELA 8	227	70-71	230	75-76

Prediction Accuracy for Fall MAP-R RIT Cut Score Predicting 75% Probability of Being College and Career Ready (Performance Level 3 or Higher on MCAP ELA)

MCAP ELA	% Accurate estimation	% accurately predicted to be ready	% accurately predicted not to be ready	% Underestimation	% Overestimation
ELA 3	84.6	46.6	38.0	12.5	2.9
ELA 4	82.6	41.6	41.0	13.6	3.8
ELA 5	80.9	34.5	46.4	16.0	3.1
ELA 6	81.0	38.4	42.6	15.2	3.8
ELA 7	77.3	31.6	45.7	18.8	3.9
ELA 8	77.4	35.2	42.2	18.7	3.9



Findings for Question Two

MAP-R RIT cut scores were identified to predict CCR on MCAP ELA with high probability of 65% and 75%, presented along with corresponding national percentile ranks on NWEA 2020 MAP-R norms in the top table. Taking Grade 3 reading as an example below:

- Students who earned a RIT score of 190 on the fall MAP-R had a 65% probability of achieving level 3 or higher on MCAP ELA, which corresponds to a national percentile rank 58–59 of Grade 3 students in the national norming group who took the fall MAP-R at the same time.
- Student who earned a RIT score of 193 on the fall MAP-R had a 75% probability of performing at level 3 or higher on MCAP ELA, and their corresponding national percentile rank increased to 64–66.
- With the cut score 193 associated with 75% probability of attaining performance level 3 or higher, performance of nearly 85% of Grade 3 students was accurately predicted, as presented in the bottom table.
- Among accurately predicted students, 46.6% were accurately predicted to meet the CCR benchmark and 38% were accurately predicted not to.
- The underestimation rate was 12.5% and the overestimation rate was 2.9%.
- The prediction accuracy of MAP-R cut scores across student groups is presented in Table A1 in Appendix A. For Grade 3, the prediction accuracy rate ranged from 83.1% to 87.1% across student groups.

Fall MAP-M Prediction of CCR on MCAP MATH

Fall MAP-M RIT Cut Score Associated With Predicted Probability of Being College and Career Ready (Performance Level 3 or Higher on MCAP MATH)

MCAP MATH	Cut score at 65% probability	National percentile rank	Cut score at 75% probability	National percentile rank
MATH 3	192	59-60	194	65-67
MATH 4	208	71-73	209	76-77
MATH 5	218	71-73	220	76-77
MATH 6	231	84-85	233	87
MATH 7	238	84-85	240	87
MATH 8	242	81-82	244	84
Algebra 1	244	NA	246	NA

Prediction Accuracy for Fall MAP-M RIT Cut Score Predicting 75% Probability of Being College and Career Ready (Performance Level 3 or Higher on MCAP MATH)

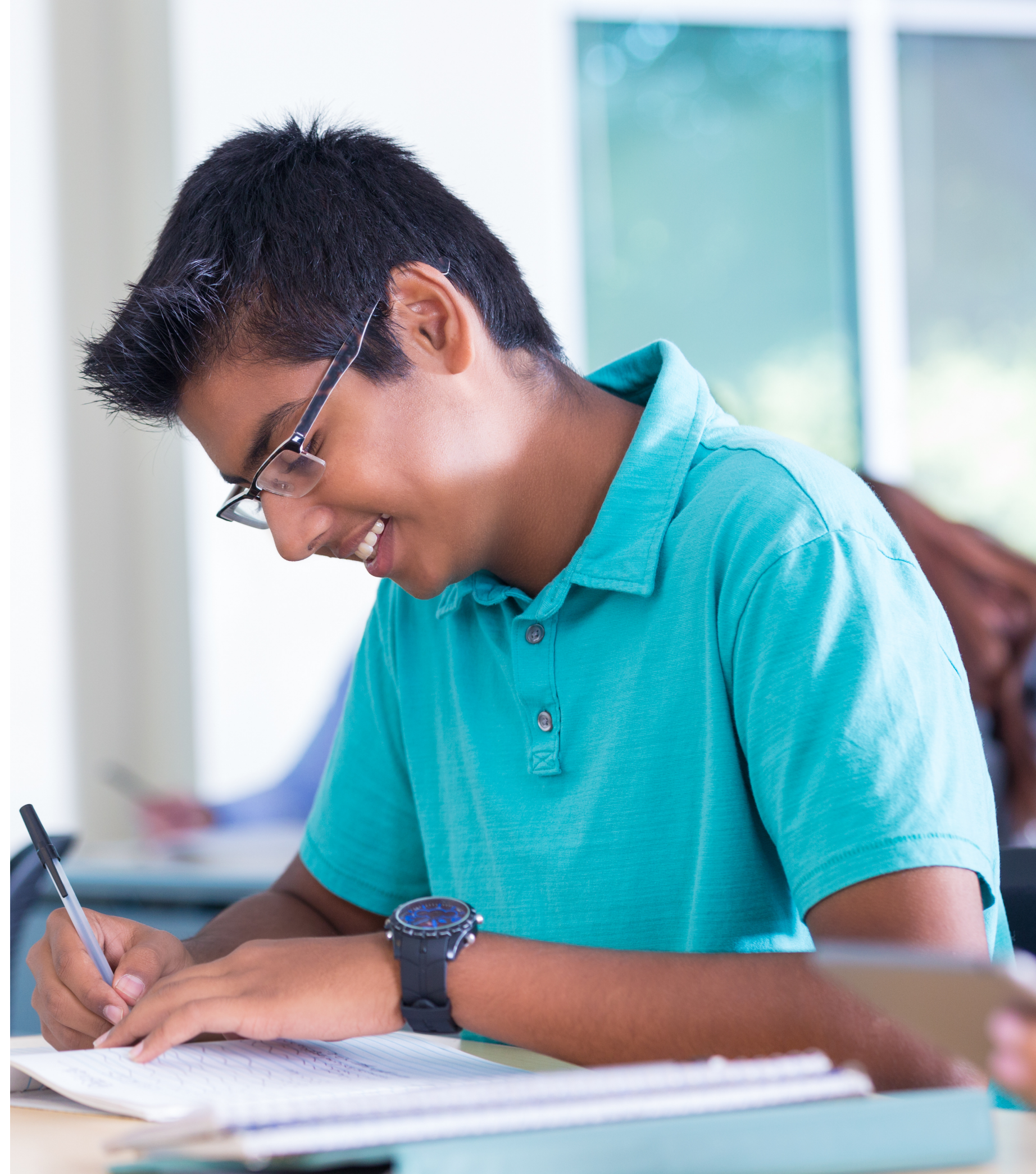
MCAP MATH	% Accurate estimation	% Readiness accurately predicted	% Non-readiness accurately predicted	% Underestimation	% Overestimation
MATH 3	83.7	38.9	44.8	13.5	2.8
MATH 4	85.6	27.0	58.6	11.8	2.6
MATH 5	86.3	25.9	60.4	11.8	1.9
MATH 6	88.4	16.8	71.6	10.1	1.5
MATH 7	93.6	1.5	92.1	6.1	0.4
MATH 8	97.2	0.2	97.0	2.7	0.1
Algebra 1	85.1	10.9	74.2	13.3	1.6

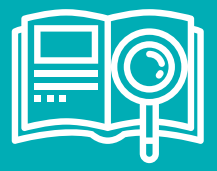
MAP-M RIT cut scores were identified to predict CCR on MCAP MATH with high probability of 65% and 75%, presented along with corresponding national percentile ranks on NWEA 2020 MAP-M norms in the top table. Taking Grade 5 mathematics as an example below:

- Students who earned a RIT score of 218 on the fall MAP-M had a 65% probability of achieving level 3 or higher on MCAP MATH, which corresponds to a national percentile rank 71–73 of Grade 5 students in the national norming group who took the fall MAP-M at the same time.
- Student who earned a RIT score of 220 on the fall MAP-M had a 75% probability of performing at level 3 or higher on MCAP MATH, and their corresponding national percentile rank increased to 76–77.
- With the cut score 220 associated with 75% probability of attaining performance level 3 or higher, performance of 86.3% of Grade 5 students was accurately predicted, as presented in the bottom table.
- Among accurately predicted students, 25.9% were accurately predicted to meet the CCR benchmark and 60.4% were accurately predicted not to.
- The underestimation rate was 11.8% and the overestimation rate was 1.9%.
- The prediction accuracy of MAP-M cut scores across student groups is presented in Table A2 in Appendix A. For Grade 5, the prediction accuracy rate ranged from 80% to 94.6% across student groups.

Notes about Findings on Question Two

- Findings indicate that a student who met the threshold cut scores in MAP-R or MAP-M in fall test administration would have a high probability (65% or 75%) of being college and career ready measured by MCAP ELA or MCAP MATH, otherwise, the student would be indicated at a high risk of not being college and career ready.
- The cut scores were estimated based on group performance, therefore, the standard error should be taken into account when applying the cut scores to individual students. In other words, an expected score for a particular student can be slightly higher or lower than the cut score due to estimation error.
- Probabilities, indicating the likelihood of MCPS students meeting the fall MAP thresholds established through this study, should not to be confused with performance at national percentiles established by NWEA MAP 2020 norms.
- The prediction accuracy analysis revealed that students whose performance was inaccurately estimated were more likely to be underestimated than overestimated. This observation denoted that the fall MAP RIT cut scores at 75% probability were reasonably rigorous, or were set high enough to have a relatively low rate of overestimation of college and career readiness on MCAP.





Spring MAP RIT Score and MCAP Scale Score Conversion

To answer research question three, concordance tables were established to convert any RIT scores on the spring MAP assessments to their corresponding scale scores on the MCAP assessments. The spring MAP RIT score that corresponded to the college and career readiness benchmark score (750) for performance level 3 or higher on MCAP can be identified for both reading and mathematics assessments through the concordance table below. The complete concordance tables can be found in Appendix B.

Concordance Table for Spring MAP RIT Scores Corresponding to the College and Career Readiness Benchmark Score (750) on MCAP by Content Area

MCAP ELA	Spring MAP-R corresponding score	MCAP ELA CCR benchmark score	MCAP MATH	Spring MAP-M corresponding score	MCAP MATH CCR benchmark score
ELA 3	197	750	MATH 3	203	750
ELA 4	207	750	MATH 4	216	750
ELA 5	216	750	MATH 5	228	750
ELA 6	218	750	MATH 6	235	750
ELA 7	223	750	MATH 7	238	750
ELA 8	226	750	MATH 8	237	750
			MATH Algebra 1	246	750



Spring MAP and MCAP Score Conversion

Findings for Question Three

- In reading, a RIT score of 197 on the spring MAP-R corresponded to the MCAP ELA CCR benchmark score of 750 for Grade 3, 207 for Grade 4, 216 for Grade 5, 218 for Grade 6, 223 for Grade 7, and 226 for Grade 8 (see the table in the previous slide).
- In mathematics, the spring MAP-M score corresponding to the MCAP MATH CCR benchmark score of 750 was 203 for Grade 3, 216 for Grade 4, 228 for Grade 5, 235 for Grade 6, 238 for Grade 7, 237 for Grade 8, and 246 for Algebra 1 (see the table in the previous slide).
- Given any observed MAP RIT score in reading or mathematics, one can find the corresponding overall scale score on MCAP through Tables B1 and B2. Taking Grade 4 reading as an example, a student who scored 212 on MAP-R in spring would have a score of 756 on MCAP ELA, and a student who scored 231 on MAP-R would have a score of 784 on MCAP ELA.
- For each grade level and content area, MAP scores corresponding to the MCAP scores related to performance level 3 (750) were highlighted in yellow in Tables B1 and B2.

Notes about Findings for Question Three

- Because MAP RIT scores are vertically equated, the MAP RIT scores corresponding to 750 on MCAP can serve as the expected performance on MAP for meeting the CCR benchmark on MCAP (performance level 3 or higher). Put differently, if a student at any grade level scored at or above the spring MAP scores corresponding to score 750 on MCAP at any time during the school year, s/he met the MCAP CCR benchmark.
- One may observe that the spring MAP-M score corresponding to the performance level 3 benchmark score of 750 on MCAP was slightly lower for MATH 8 (237) than for MATH 7 (238). This unreasonable result may be explained by the relatively low correlation between MAP-M and MCAP MATH in MATH 7 and MATH 8 that excluded students who took MCAP Algebra 1, Geometry, or Algebra 2. The exclusion may affect the score conversion result in the mathematics assessments of these grade levels.



Summary of Key Findings

This linking study used student MAP and MCAP assessment data from the 2021–2022 school year to examine predictive and concurrent relationships between the the fall and/or spring MAP and MCAP assessments across Grades 3–8. The results of the study revealed a strong to very strong correlation between the two assessments that provided predictive and concurrent validity evidence in both reading and mathematics assessments, except for MATH 8.

Implication of Predictive Validity Evidence

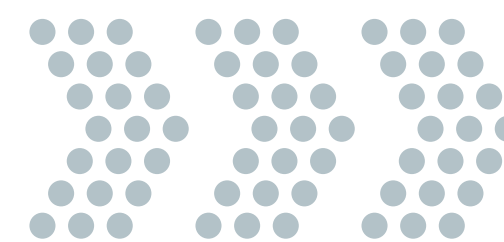
- The predictive validity evidence for fall MAP and MCAP supports the continued use of MAP assessments in MCPS to predict CCR as measured by MCAP. For example, fall MAP-R can be used to predict how well a student will do on MCAP ELA.
- The threshold cut scores on the fall MAP were determined to predict the high probabilities (i.e., 65% and 75%) of meeting the CCR benchmark, performance level 3 or higher, on MCAP across content areas and grade-level and Algebra 1 assessments.
- High prediction accuracy of the cut scores on the fall MAP was observed across the content areas, assessments, and student groups.
- The study results can provide information to guide instructional practices and to help improve student academic performance toward meeting the CCR benchmark on MCAP. Students who score below the predictive cut score in the fall MAP-R or MAP-M are at higher risk for not meeting the benchmark and may need more instructional support.
- It is worthy to note that, with the difficulty-adaptive nature of MAP assessments, if students did not make their best efforts, their MAP RIT scores may not accurately reflect their academic abilities. The fall MAP cut scores should be used along with other measures (i.e., course performance, motivation, test skills, etc.) in predicting success on MCAP.

Implication of Concurrent Validity Evidence

- Based on the demonstrated concurrent validity evidence for the spring MAP and MCAP, concordance tables were established to enable converting the spring MAP RIT scores to overall MCAP scale scores across the assessments in reading and mathematics.
- Given the CCR benchmark score of 750 for performance level 3 or higher on MCAP, one will be able to identify its corresponding RIT score on the spring MAP for a specific grade level in a specific content area.
- The concordance tables may also provide school administrators and teachers with guidance for instructional planning; the earlier a student reaches the spring MAP RIT threshold score during the year (e.g., in fall or winter), the more likely the student will be college and career ready.
- The concordance tables allow MCPS to use MAP and MCAP scores interchangeably for its accountability system, particularly when students have scores only on one of the assessments.



References



Dorans, N. J., Moses, T. P. & Eignor, D. R. (2010). *Principles and practices of test score equating*. Educational Testing Service, Princeton: New Jersey.

Holland, P. W. & Dorans, N. J. (2006). Linking and equating. *Educational Measurement* (4th edition) edited by Robert Brennan. Praeger Publisher, Westport: CT.

Messic, S. (1993). *Foundations of Validity: Meaning and Consequences in Psychological Assessment*. Educational Testing Service, Princeton: New Jersey.

Northwest Evaluation Association. (2015a). *Proficiency Guidance on New State Summative Assessments from NWEA*.

https://www.nwea.org/content/uploads/2014/10/Proficiency-Guidance-on-New-State-Summative-Assessments_JAN15.pdf

Appendix A: Prediction Accuracy for College and Career Readiness

Table A1

Accuracy for Fall MAP-R Predicting College and Career Readiness (Performance Levels 3 or Higher on MCAP ELA) by Student Group

MCAP ELA	Student group	# Students	Accurate estimation		Readiness accurately estimated		Non-readiness accurately estimated		Under-estimation		Over-estimation	
			<i>N</i>	%	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%
ELA 3	All	10,891	9,215	84.6	5,072	46.6	4,143	38.0	1,361	12.5	315	2.9
	Asian	1,485	1,294	87.1	1,043	70.2	251	16.9	164	11.0	27	1.8
	Black/AfAm	2,327	1,933	83.1	930	40.0	1,003	43.1	302	13.0	92	4.0
	Hisp/Latino	3,713	3,130	84.3	827	22.3	2,303	62.0	483	13.0	100	2.7
	Two+ Races	595	504	84.7	371	62.4	133	22.4	69	11.6	22	3.7
	White	2,722	2,317	85.1	1,884	69.2	433	15.9	333	12.2	72	2.6
	EML/ReEML	3,080	2,585	83.9	526	17.1	2,059	66.9	431	14.0	64	2.1
	FARMS	4,586	3,854	84.0	1,006	21.9	2,848	62.1	593	12.9	139	3.0
	Special Ed.	1,317	1,144	86.9	206	15.6	938	71.2	142	10.8	31	2.4
ELA 4	All	10,837	8,956	82.6	4,510	41.6	4,446	41.0	1,477	13.6	404	3.7
	Asian	1,576	1,322	83.9	1,024	65.0	298	18.9	198	12.6	56	3.6
	Black/AfAm	2,227	1,803	81.0	745	33.5	1,058	47.5	337	15.1	87	3.9
	Hisp/Latino	3,671	3,059	83.3	679	18.5	2,380	64.8	485	13.2	127	3.5
	Two+ Races	654	553	84.6	405	61.9	148	22.6	77	11.8	24	3.7
	White	2,681	2,196	81.9	1,646	61.4	550	20.5	375	14.0	110	4.1
	EML/ReEML	3,102	2,603	83.9	378	12.2	2,225	71.7	416	13.4	83	2.7
	FARMS	4,506	3,732	82.8	804	17.8	2,928	65.0	619	13.7	155	3.4
	Special Ed.	1,409	1,239	87.9	168	11.9	1,071	76.0	113	8.0	57	4.0
ELA 5	All	11,099	8,981	80.9	3,835	34.6	5,146	46.4	1,775	16.0	343	3.1
	Asian	1,596	1,264	79.2	892	55.9	372	23.3	296	18.5	36	2.3
	Black/AfAm	2,314	1,844	79.7	531	22.9	1,313	56.7	371	16.0	99	4.3

Continued

Table A1
Accuracy for Fall MAP-R Predicting College and Career Readiness (Performance Levels 3 or Higher on MCAP ELA) by Student Group

MCAP ELA	Student group	# Students	Accurate estimation		Readiness accurately estimated		Non-readiness accurately estimated		Under-estimation		Over-estimation	
			<i>N</i>	%	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%
		Total	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%
	Hisp/Latino	3,685	3,081	83.6	497	13.5	2,584	70.1	516	14.0	88	2.4
	Two+ Races	616	488	79.2	293	47.6	195	31.7	107	17.4	21	3.4
	White	2,857	2,279	79.8	1,614	56.5	665	23.3	480	16.8	98	3.4
	EML/ReEML	2,999	2,590	86.4	186	6.2	2,404	80.2	370	12.3	39	1.3
	FARMS	4,531	3,794	83.7	520	11.5	3,274	72.3	613	13.5	124	2.7
	Special Ed.	1,348	1,235	91.6	116	8.6	1,119	83.0	76	5.6	37	2.7
ELA 6	All	10,646	8,626	81.0	4,093	38.4	4,533	42.6	1,615	15.2	405	3.8
	Asian	1,555	1,240	79.7	948	61.0	292	18.8	273	17.6	42	2.7
	Black/AfAm	2,237	1,783	79.7	595	26.6	1,188	53.1	353	15.8	101	4.5
	Hisp/Latino	3,401	2,858	84.0	538	15.8	2,320	68.2	444	13.1	99	2.9
	Two+ Races	646	519	80.3	353	54.6	166	25.7	93	14.4	34	5.3
	White	2,773	2,198	79.3	1,650	59.5	548	19.8	448	16.2	127	4.6
	EML/ReEML	2,571	2,249	87.5	137	5.3	2,112	82.1	275	10.7	47	1.8
	FARMS	4,254	3,564	83.8	638	15.0	2,926	68.8	552	13.0	138	3.2
	Special Ed.	1,268	1,138	89.7	138	10.9	1,000	78.9	83	6.5	47	3.7
ELA 7	All	11,054	8,543	77.3	3,498	31.6	5,045	45.6	2,082	18.8	429	3.9
	Asian	1,541	1,140	74.0	815	52.9	325	21.1	363	23.6	38	2.5
	Black/AfAm	2,368	1,820	76.9	490	20.7	1,330	56.2	450	19.0	98	4.1
	Hisp/Latino	3,579	2,913	81.4	416	11.6	2,497	69.8	554	15.5	112	3.1
	Two+ Races	601	476	79.2	309	51.4	167	27.8	96	16.0	29	4.8
	White	2,941	2,175	74.0	1,460	49.6	715	24.3	614	20.9	152	5.2
	EML/ReEML	1,755	1,607	91.6	12	0.7	1,595	90.9	136	7.7	12	0.7
	FARMS	4,352	3,569	82.0	439	10.1	3,130	71.9	657	15.1	126	2.9
	Special Ed.	1,148	1,019	88.8	79	6.9	940	81.9	89	7.8	40	3.5

Continued

Table A1
Accuracy for Fall MAP-R Predicting College and Career Readiness (Performance Levels 3 or Higher on MCAP ELA) by Student Group

MCAP ELA	Student group	# Students	Accurate estimation		Readiness accurately estimated		Non-readiness accurately estimated		Under-estimation		Over-estimation	
			<i>N</i>	%	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%
		Total										
ELA 8	All	11,404	8,826	77.4	4,013	35.2	4,813	42.2	2,136	18.7	442	3.9
	Asian	1,798	1,372	76.3	1,079	60.0	293	16.3	384	21.4	42	2.3
	Black/AfAm	2,379	1,828	76.8	487	20.5	1,341	56.4	449	18.9	102	4.3
	Hisp/Latino	3,590	2,890	80.5	520	14.5	2,370	66.0	595	16.6	105	2.9
	Two+ Races	579	442	76.3	275	47.5	167	28.8	112	19.3	25	4.3
	White	3,028	2,270	75.0	1,644	54.3	626	20.7	590	19.5	168	5.5
	EML/ReEML	1,312	1,237	94.3	25	1.9	1,212	92.4	68	5.2	7	0.5
	FARMS	4,311	3,500	81.2	544	12.6	2,956	68.6	686	15.9	125	2.9
	Special Ed.	1,117	998	89.3	102	9.1	896	80.2	82	7.3	37	3.3

Notes. Including students with both the fall MAP-R RIT scores and MCAP ELA scale scores in school year 2021–2022. Accurate estimation means a student met or did not meet performance level 3 or higher on MCAP ELA as predicted by the fall MAP-R. Underestimation means a student met the benchmark while scoring below the fall MAP-R RIT cut score. Overestimation means a student failed to meet the benchmark while scoring at or above the fall MAP-R RIT cut score. Black/AfAm=Black or African American; Hisp/Latino=Hispanic/Latino; Two+ Races=Two or More Races; EML=Emergent Multilingual Learners; ReEML=Recently Exited Emergent Multilingual Learners; and FARMS=Free and Reduced-price Meals System.

Table A2
Accuracy for Fall MAP-M Predicting College and Career Readiness (Performance Levels 3 or Higher on MCAP MATH) by Student Subgroup

MCAP MATH	Student group	# Students	Accurate estimation		Readiness accurately estimated		Non-readiness accurately estimated		Under-estimation		Over-estimation	
			N	%	N	%	N	%	N	%	N	%
MATH 3	All	10,903	9,127	83.7	4,243	38.9	4,884	44.8	1,468	13.5	308	2.8
	Asian	1,495	1,288	86.2	1,003	67.1	285	19.1	167	11.2	40	2.7
	Black/AfAm	2,333	1,914	82.0	637	27.3	1,277	54.7	335	14.4	84	3.6
	Hisp/Latino	3,707	3,162	85.3	581	15.7	2,581	69.6	454	12.2	91	2.5
	Two+ Races	595	497	83.5	335	56.3	162	27.2	80	13.4	18	3.0
	White	2,723	2,221	81.6	1,667	61.2	554	20.3	427	15.7	75	2.8
	EML/ReEML	3,087	2,662	86.2	455	14.7	2,207	71.5	366	11.9	59	1.9
	FARMS	4,585	3,910	85.3	668	14.6	3,242	70.7	552	12.0	123	2.7
	Special Ed.	1,323	1,174	88.7	188	14.2	986	74.5	110	8.3	39	2.9
MATH 4	All	10,890	9,322	85.6	2,940	27.0	6,382	58.6	1,280	11.8	288	2.6
	Asian	1,587	1,313	82.7	855	53.9	458	28.9	225	14.2	49	3.1
	Black/AfAm	2,233	1,933	86.6	359	16.1	1,574	70.5	235	10.5	65	2.9
	Hisp/Latino	3,689	3,351	90.8	294	8.0	3,057	82.9	286	7.8	52	1.4
	Two+ Races	656	532	81.1	254	38.7	278	42.4	98	14.9	26	4.0
	White	2,697	2,171	80.5	1,174	43.5	997	37.0	431	16.0	95	3.5
	EML/ReEML	3,142	2,873	91.4	221	7.0	2,652	84.4	223	7.1	46	1.5
	FARMS	4,527	4,134	91.3	337	7.4	3,797	83.9	321	7.1	72	1.6
	Special Ed.	1,415	1,332	94.1	129	9.1	1,203	85.0	74	5.2	9	0.6
MATH 5	All	11,144	9,614	86.3	2,886	25.9	6,728	60.4	1,323	11.9	207	1.9
	Asian	1,594	1,351	84.8	876	55.0	475	29.8	208	13.0	35	2.2
	Black/AfAm	2,342	2,058	87.9	284	12.1	1,774	75.7	239	10.2	45	1.9
	Hisp/Latino	3,702	3,387	91.5	293	7.9	3,094	83.6	270	7.3	45	1.2
	Two+ Races	614	502	81.8	232	37.8	270	44.0	103	16.8	9	1.5
	White	2,861	2,289	80.0	1,198	41.9	1,091	38.1	499	17.4	73	2.6

Continued

Table A2
Accuracy for Fall MAP-M Predicting College and Career Readiness (Performance Levels 3 or Higher on MCAP MATH) by Student Subgroup

MCAP MATH	Student group	# Students	Accurate estimation		Readiness accurately estimated		Non-readiness accurately estimated		Under-estimation		Over-estimation	
			<i>N</i>	%	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%
		Total										
	EML/ReEML	3,017	2,821	93.5	157	5.2	2,664	88.3	166	5.5	30	1.0
	FARMS	4,545	4,172	91.8	286	6.3	3,886	85.5	321	7.1	52	1.1
	Special Ed.	1,363	1,289	94.6	100	7.3	1,189	87.2	64	4.7	10	0.7
MATH 6	All	10,686	9,445	88.4	1,795	16.8	7,650	71.6	1,076	10.1	165	1.5
	Asian	1,539	1,275	82.8	609	39.6	666	43.3	236	15.3	28	1.8
	Black/AfAm	2,256	2,066	91.6	157	7.0	1,909	84.6	161	7.1	29	1.3
	Hisp/Latino	3,436	3,283	95.5	130	3.8	3,153	91.8	136	4.0	17	0.5
	Two+ Races	640	549	85.8	172	26.9	377	58.9	77	12.0	14	2.2
	White	2,782	2,240	80.5	723	26.0	1,517	54.5	465	16.7	77	2.8
	EML/ReEML	2,591	2,526	97.5	41	1.6	2,485	95.9	63	2.4	2	0.1
	FARMS	4,306	4,106	95.4	148	3.4	3,958	91.9	177	4.1	23	0.5
	Special Ed.	1,254	1,204	96.0	63	5.0	1,141	91.0	43	3.4	7	0.6
MATH 7	All	7,120	6,662	93.6	108	1.5	6,554	92.1	431	6.1	27	0.4
	Asian	564	483	85.6	46	8.2	437	77.5	75	13.3	6	1.1
	Black/AfAm	1,812	1,756	96.9	7	0.4	1,749	96.5	50	2.8	6	0.3
	Hisp/Latino	3,014	2,933	97.3	12	0.4	2,921	96.9	77	2.6	4	0.1
	Two+ Races	284	257	90.5	8	2.8	249	87.7	25	8.8	2	0.7
	White	1,428	1,217	85.2	35	2.5	1,182	82.8	202	14.1	9	0.6
	EML/ReEML	1,729	1,689	97.7	6	0.3	1,683	97.3	36	2.1	4	0.2
	FARMS	3,745	3,660	97.7	11	0.3	3,649	97.4	81	2.2	4	0.1
	Special Ed.	1,081	1,052	97.3	3	0.3	1,049	97.0	26	2.4	3	0.3

Continued

Table A2
Accuracy for Fall MAP-M Predicting College and Career Readiness (Performance Levels 3 or Higher on MCAP MATH) by Student Subgroup

MCAP MATH	Student group	# Students	Accurate estimation		Readiness accurately estimated		Non-readiness accurately estimated		Under-estimation		Over-estimation	
			N	%	N	%	N	%	N	%	N	%
MATH 8	All	3,748	3,643	97.2	6	0.2	3,637	97.0	103	2.7	2	0.1
	Asian	151	143	94.7	2	1.3	141	93.4	8	5.3	0	0.0
	Black/AfAm	1,035	1,013	97.9	1	0.1	1,012	97.8	22	2.1	0	0.0
	Hisp/Latino	1,994	1,962	98.4	1	0.1	1,961	98.3	32	1.6	0	0.0
	Two+ Races	130	124	95.4	0	0.0	124	95.4	5	3.8	1	0.8
	White	427	390	91.3	2	0.5	388	90.9	36	8.4	1	0.2
	EML/ReEML	1,071	1,063	99.3	1	0.1	1,062	99.2	7	0.7	1	0.1
	FARMS	2,434	2,396	98.4	1	0.0	2,395	98.4	38	1.6	0	0.0
	Special Ed.	781	763	97.7	0	0.0	763	97.7	18	2.3	0	0.0
Algebra 1	All	9,977	8,489	85.1	1,084	10.9	7,405	74.2	1,329	13.3	159	1.6
	Asian	1,507	1,178	78.2	427	28.3	751	49.8	275	18.2	54	3.6
	Black/AfAm	2,074	1,917	92.4	59	2.8	1,858	89.6	140	6.8	17	0.8
	Hisp/Latino	2,967	2,771	93.4	65	2.2	2,706	91.2	174	5.9	22	0.7
	Two+ Races	567	443	78.1	101	17.8	342	60.3	114	20.1	10	1.8
	White	2,838	2,160	76.1	429	15.1	1,731	61.0	622	21.9	56	2.0
	EML/ReEML	1,088	1,059	97.3	19	1.7	1,040	95.6	27	2.5	2	0.2
	FARMS	3,440	3,268	95.0	46	1.3	3,222	93.7	149	4.3	23	0.7
	Special Ed.	911	868	95.3	29	3.2	839	92.1	38	4.2	5	0.5

Notes. Including students with both the fall MAP-M RIT scores and MCAP MATH scale scores in school year 2021–2022. Students taking MCAP Algebra 1 or Algebra 2 in Grades 6–8 were excluded for the related grades. Accurate estimation means a student met or did not meet the college readiness benchmark of performance level 3 or higher on MCAP MATH as predicted by the fall MAP-M. Underestimation means a student met the benchmark while scoring below the fall MAP-M RIT cut score. Overestimation means a student failed to meet the benchmark while scoring at or above the fall MAP-M RIT cut score. Black/AfAm=Black or African American; Hisp/Latino=Hispanic/Latino; Two+ Races=Two or More Races; EML=Emergent Multilingual Learners; ReEML=Recently Exited Emergent Multilingual Learners; and FARMS=Free and Reduced-price Meals System.

Appendix B: Concordance Tables for Spring MAP and MCAP

Table B1

Concordance Table for Spring MAP-R RIT Scores and MCAP ELA Scale Scores

Spring MAP-R RIT score	MCAP ELA scale score					
	ELA 3	ELA 4	ELA 5	ELA 6	ELA 7	ELA 8
141	650					
142	694	693	683			
143	698	697	683			
144	702	699	689			
145	705	701	690			
146	707	702	697			
147	709	703	697			
148	711	704	698			
149	712	705	700	666		
150	713	707	700	667		
151	715	708	701	669		
152	716	709	703	670		650
153	717	710	704	671	650	650
154	718	711	705	680	650	650
155	719	711	706	682	666	650
156	720	712	706	687	674	650
157	721	713	707	691	676	655
158	721	714	707	695	679	664
159	722	715	708	698	680	666
160	723	715	709	700	681	674
161	723	716	709	702	690	679
162	724	716	710	704	692	684
163	724	717	710	705	698	689
164	725	717	711	707	699	690
165	725	718	711	708	701	692
166	726	718	711	710	703	695
167	726	718	712	711	704	697
168	727	719	712	711	707	698
169	727	719	712	712	708	699
170	727	720	713	713	709	699
171	728	720	713	714	710	700
172	728	721	714	715	711	701
173	729	721	714	715	712	702
174	729	722	715	715	712	703

Continued

Table B1
 Concordance Table for Spring MAP-R RIT Scores and MCAP ELA Scale Scores

Spring MAP-R RIT score	MCAP ELA scale score					
	ELA 3	ELA 4	ELA 5	ELA 6	ELA 7	ELA 8
175	730	723	715	716	713	703
176	730	723	716	716	714	704
177	731	724	716	717	714	705
178	732	724	717	717	715	706
179	732	725	717	718	716	706
180	733	725	718	718	716	707
181	733	726	718	719	716	707
182	734	727	719	719	717	708
183	735	727	719	720	718	709
184	736	728	720	720	718	709
185	736	729	720	721	719	710
186	737	729	721	721	719	711
187	738	730	722	721	720	712
188	739	731	722	722	720	712
189	740	732	723	723	721	713
190	741	732	724	723	722	713
191	742	734	725	724	722	714
192	744	735	725	725	723	715
193	745	735	726	725	723	716
194	746	736	727	726	724	716
195	747	738	728	727	724	717
196	748	738	729	727	725	718
197	750	740	730	728	726	718
198	751	740	731	729	726	719
199	752	741	732	730	727	720
200	754	742	733	731	728	721
201	755	743	734	732	729	721
202	757	745	735	733	729	722
203	758	746	736	733	730	723
204	760	747	737	734	731	724
205	761	748	738	735	732	725
206	763	749	739	736	733	726
207	764	750	740	737	733	727
208	766	751	741	739	734	728
209	767	752	742	740	735	729
210	769	754	744	741	736	730

Continued

Table B1
 Concordance Table for Spring MAP-R RIT Scores and MCAP ELA Scale Scores

Spring MAP-R RIT score	MCAP ELA scale score					
	ELA 3	ELA 4	ELA 5	ELA 6	ELA 7	ELA 8
211	771	755	745	742	737	731
212	772	756	746	743	738	732
213	774	757	747	744	739	734
214	776	758	748	745	740	735
215	777	760	749	746	741	736
216	779	761	750	747	742	737
217	781	762	752	749	743	739
218	782	764	753	750	744	740
219	784	765	755	751	745	741
220	786	766	756	752	746	742
221	787	768	757	753	747	744
222	789	769	759	754	748	745
223	791	771	760	755	750	746
224	793	772	762	756	751	748
225	795	773	763	758	752	749
226	797	775	764	759	753	750
227	800	776	766	760	755	752
228	802	778	767	761	756	754
229	804	780	768	762	757	755
230	806	782	770	763	758	757
231	808	784	772	764	759	758
232	812	786	774	766	760	759
233	815	787	775	767	761	760
234	819	789	777	768	762	761
235	821	791	778	769	763	762
236	823	793	780	770	764	764
237	824	795	781	772	765	765
238	826	796	783	773	767	767
239	828	799	785	774	768	768
240	830	801	786	776	769	770
241	832	802	787	777	770	771
242	839	803	789	778	771	773
243	841	804	791	779	772	774
244	842	805	792	780	773	776
245	842	806	794	782	774	777

Continued

Table B1
Concordance Table for Spring MAP-R RIT Scores and MCAP ELA Scale Scores

Spring MAP-R RIT score	MCAP ELA scale score					
	ELA 3	ELA 4	ELA 5	ELA 6	ELA 7	ELA 8
246	843	806	795	784	775	778
247	843	807	797	785	776	780
248	843	807	798	787	778	780
249		808	798	788	779	782
250		809	800	790	780	783
251		812	802	790	782	784
252		816	802	792	783	786
253		818	803	793	784	788
254		819	804	794	785	789
255		820	805	796	786	790
256		822	805	797	788	792
257		825	807	799	788	794
258			809	801	789	796
259			810	801	791	798
260			810	802	793	800
261			811	802	794	802
262			811	803	796	803
263			811	804	797	805
264			811	805	798	806
265			813	807	798	807
266			817	807	799	810
267			821	808	799	811
268			823	808	799	811
269				808	800	812
270					801	813
271					801	814
272					802	815
273					803	850
274					805	
275					806	
276					806	
277					806	
278					807	
279					808	
280					808	

Notes. Data are presented based on students with both the spring MAP-R RIT scores and MCAP ELA scale scores. Scores highlighted in yellow are associated with MCAP performance level 3.

Table B2
 Concordance Table for Spring MAP-M RIT Scores and MCAP MATH Scale Scores

Spring MAP-M RIT score	MCAP MATH scale score						
	MATH 3	MATH 4	MATH 5	MATH 6	MATH 7	MATH 8	Algebra 1
125	650		650				
126	650		650				
127	650	650	650				
128	650	650	650				
129	651	650	650				
130	653	652	650				
131	658	653	650				
132	667	655	650				
133	676	656	650				
134	676	658	650				
135	676	659	650				
136	676	675	650				
137	677	680	650				
138	678	682	650				
139	678	684	650				
140	679	684	650				
141	680	685	650				
142	681	685	650				
143	682	686	676				
144	683	686	678				
145	684	686	679				
146	685	686	680				
147	688	690	681				
148	689	691	681				
149	689	692	681				
150	691	692	681				
151	692	693	682				
152	694	696	682				
153	695	698	683	650		650	
154	696	698	684	650		650	
155	697	699	688	650		650	650
156	698	700	692	650		650	650
157	699	700	692	651		650	650
158	700	701	693	651		650	650
159	701	702	694	655	650	650	650
160	702	703	696	657	650	650	650
161	703	704	700	658	650	650	650
162	704	704	701	662	650	650	650
163	704	705	701	665	650	650	650

Table B2
Concordance Table for Spring MAP-M RIT Scores and MCAP MATH Scale Scores

Spring MAP-M RIT score	MCAP MATH scale score						
	MATH 3	MATH 4	MATH 5	MATH 6	MATH 7	MATH 8	Algebra 1
164	705	705	701	673	650	650	650
165	706	706	702	677	650	650	650
166	707	706	703	683	650	650	650
167	708	707	703	685	650	650	650
168	709	707	705	686	650	650	650
169	709	708	706	688	650	650	650
170	710	709	707	689	658	650	650
171	711	709	707	693	660	650	661
172	712	710	707	694	664	650	672
173	713	711	708	695	668	650	672
174	714	712	709	697	670	650	672
175	715	712	709	698	672	653	673
176	716	713	710	699	675	654	673
177	716	713	711	700	676	658	674
178	717	714	711	701	678	663	674
179	718	715	712	701	680	666	675
180	719	715	713	702	681	669	677
181	721	716	713	703	683	670	678
182	722	717	714	704	685	672	679
183	723	717	714	705	687	674	683
184	724	718	715	705	688	677	688
185	725	719	716	706	689	679	690
186	726	720	716	707	690	680	692
187	727	720	717	707	691	683	693
188	728	721	717	708	693	685	694
189	729	721	718	709	694	687	697
190	730	722	718	710	695	689	699
191	731	723	719	711	696	691	700
192	732	724	720	712	697	693	701
193	734	724	720	712	698	694	702
194	735	725	721	713	699	696	704
195	737	726	721	714	700	697	704
196	738	727	722	714	701	699	705
197	740	728	723	715	702	701	706
198	741	729	723	716	704	702	707
199	743	730	724	717	705	703	709

Continued

Table B2
Concordance Table for Spring MAP-M RIT Scores and MCAP MATH Scale Scores

Spring MAP-M RIT score	MCAP MATH scale score						
	MATH 3	MATH 4	MATH 5	MATH 6	MATH 7	MATH 8	Algebra 1
200	745	731	725	717	706	705	709
201	747	732	726	718	707	706	710
202	749	733	726	719	707	708	711
203	750	734	727	719	708	709	712
204	752	735	728	720	709	711	713
205	755	736	729	721	710	712	713
206	757	737	729	721	711	713	714
207	759	738	730	722	712	715	714
208	761	740	731	723	713	716	715
209	763	741	731	724	714	717	716
210	766	742	732	725	715	718	717
211	768	743	733	726	716	719	717
212	770	745	734	726	717	720	718
213	772	746	735	727	719	721	719
214	774	747	736	728	720	723	719
215	776	749	737	729	721	724	720
216	778	750	737	730	722	725	721
217	780	752	738	730	723	726	722
218	782	753	740	731	724	727	723
219	784	754	741	732	725	728	723
220	786	756	742	733	726	730	724
221	787	757	743	734	727	731	725
222	789	758	743	736	729	732	726
223	790	760	744	737	730	733	727
224	792	761	746	738	731	734	728
225	793	763	747	739	733	736	729
226	795	764	748	740	734	737	730
227	796	765	749	741	735	738	731
228	798	767	750	742	737	740	732
229	799	768	751	743	738	741	733
230	801	770	752	744	739	742	734
231	802	771	753	745	741	743	735
232	804	773	754	747	742	745	736
233	805	775	755	748	743	747	737
234	807	777	756	748	745	748	738
235	808	778	757	750	746	749	739
236	809	780	758	751	747	750	740

Continued

Table B2
Concordance Table for Spring MAP-M RIT Scores and MCAP MATH Scale Scores

Spring MAP-M RIT score	MCAP MATH scale score						
	MATH 3	MATH 4	MATH 5	MATH 6	MATH 7	MATH 8	Algebra 1
237	811	781	759	752	748	750	741
238	813	783	760	753	750	751	742
239	815	784	761	754	751	752	743
240	815	786	762	755	752	753	744
241	816	788	763	756	753	755	745
242	819	790	764	757	754	756	746
243	820	791	765	758	755	759	747
244	822	792	766	760	757	761	748
245	824	795	767	761	758	761	749
246	825	796	768	762	760	762	750
247	830	799	768	763	761	764	752
248	831	801	769	764	763	765	753
249	831	802	770	765	764	766	754
250	835	803	771	766	765	767	754
251	836	804	772	768	766	767	756
252	836	807	773	769	767	768	757
253	842	809	774	771	768	769	758
254	842	810	775	772	769	769	759
255	843	815	776	774	770	770	760
256	844	818	777	775	771	770	761
257	844	819	778	777	772	771	762
258	845	820	779	778	773	772	763
259	846	820	780	779	775	774	764
260	846	820	781	780	776	775	765
261	846	826	782	782	777	776	766
262	846	830	784	784	777	780	767
263	846	833	785	785	777	781	769
264	846	837	787	787	779	784	770
265	847	843	788	789	779	787	770
266	847	846	790	791	780	790	771
267	847	847	791	794	780	793	773
268	848	847	792	796	780	796	774
269	848	847	794	798	781	799	776
270	848	848	795	798	781		777
271	848	848	797	799	781		779
272	849	848	798	800	782		780
273	849	848	799	804	782		781

Continued

Table B2
 Concordance Table for Spring MAP-M RIT Scores and MCAP MATH Scale Scores

Spring MAP-M RIT score	MCAP MATH scale score						Algebra 1
	MATH 3	MATH 4	MATH 5	MATH 6	MATH 7	MATH 8	
274	849	849	803	807	782		783
275	849	849	806	808	782		784
276	849	849	808	809	782		785
277	850	849	810	809	786		786
278	850	849	820	822	790		787
279		849	823	831			789
280		849	829	832			791
281		849	830	833			793
282		849	831	834			794
283		849	833	834			795
284		850	834	834			796
285		850	834	835			797
286		850	834	835			798
287		850	837	835			801
288		850	839	836			810
289		850	840	836			811
290		850	841	836			812
291		850	841	836			812
292		850	842				817
293		850	842				826
294		850	842				826
295		850	843				826
296		850	843				826
297		850					826
298							827
299							827
300							827
301							827
302							827
303							827
304							827
305							827
306							827
307							827
308							827
309							827
310							827
311							827
312							827
313							827

Table B2
 Concordance Table for Spring MAP-M RIT Scores and MCAP MATH Scale Scores

Spring MAP-M RIT score	MCAP MATH scale score						
	MATH 3	MATH 4	MATH 5	MATH 6	MATH 7	MATH 8	Algebra 1
314							827
315							827
316							827
317							827
318							827
319							827
320							827
321							827
322							827
323							827
324							827

Notes. Data presented are based on students with both the spring MAP-M RIT scores and MCAP MATH scale scores. Students taking MCAP Algebra 1 or Algebra 2 in Grades 6–8 were excluded for the related grades. Scores highlighted in yellow are associated with MCAP performance level 3.