

North Dakota LINKING STUDY

A Study of the Alignment of the NWEA RIT Scale
with the 11th Grade North Dakota State Assessments (NDSA)

July 2010

The Kingsbury Center at Northwest Evaluation Association



KINGSBURY
CENTER AT NWEA

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A STUDY OF THE ALIGNMENT OF THE NWEA RIT SCALE WITH THE 11TH GRADE NORTH DAKOTA STATE ASSESSMENTS (NDSA)

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Recently, NWEA completed a project to connect the scale of North Dakota State Assessments (NDSA) mathematics and reading assessments for 11th grade students with NWEA's RIT scale. Information from the state assessments was used in a study to establish performance-level scores on the RIT scale that would indicate a good chance of success on these tests.

To perform the analysis, we linked together state test and NWEA test results for a sample of 549 North Dakota 11th grade students from 16 schools who completed both exams in the Fall of 2007. The North Dakota state tests are administered in the Fall. For the fall season, an equipercentile method was used to estimate the RIT score equivalent to each state performance level. For spring, we determined the percentage of the population within the selected study group that performed at each level on the state test and found the equivalent percentile ranges within the NWEA dataset to estimate the cut scores for 10th graders. For example, if 40% of the study group population in grade 11 mathematics performed below the proficient level on the state test, we would find the RIT score that would be equivalent to the 40th percentile for the study population (this would not be the same as the 40th percentile in the NWEA norms). This RIT score would be the estimated point on the NWEA RIT scale that would be equivalent to the minimum score for proficiency on the state test. Documentation about this method can be found on our website.

Tables 1 through 4 show the best estimate of the minimum RIT equivalent to each state performance level for same-season (fall) and prior-season (spring of the prior year) RIT scores. These tables can be used to identify students who may need additional help to perform well on these tests.

Tables 5 through 8 show the estimated probability of a student receiving a proficient score on the state assessment, based on that student's RIT score. These tables can be used to assist in identifying students who are not likely to pass these assessments, thereby increasing the probability that intervention strategies will be planned and implemented. These tables can also be useful for identifying target RIT-score objectives likely to correspond to successful or "proficient" performance on the state test.

Table 9 shows the correlation coefficients between MAP and the state test for reading and mathematics in the 11th grade. These statistics show the degree to which MAP and the state test are linearly related, with values at or near 1.0 suggesting a perfect linear relationship, and values near 0.0 indicating no linear relationship. Table 10 shows the percentages of students within each subject whose status on the state test (i.e., whether or not the student "met standards") was accurately predicted by their MAP performance and using the estimated cut scores within the current study. This table can be used to understand the predictive validity of MAP with respect to the NDSA.

TABLE 1 – MINIMUM ESTIMATED SAME-SEASON (FALL) RIT CUT SCORES CORRESPONDING TO STATE PERFORMANCE LEVELS – MATHEMATICS

MATH-Current Season								
Cut Scores and Percentiles for each State Performance Level								
Grade	Novice		Partially Proficient		Proficient		Advanced	
	Cut Score	Cut Score	Perce- tile	Cut Score	Perce- tile	Cut Score	Perce- tile	
11	<223	223	18	244	56	259	86	

* Note: the cut scores shown in this table are the **minimum** estimated scores. Meeting the minimum MAP cut score corresponds to a 50% probability of achieving that performance level. Use the probabilities in Tables 5-8 to determine the appropriate ‘target’ scores for a desired level of certainty.

TABLE 2 – MINIMUM ESTIMATED SAME-SEASON (FALL) RIT CUT SCORES CORRESPONDING TO STATE PERFORMANCE LEVELS – READING

READING-Current Season								
Cut Scores and Percentiles for each State Performance Level								
Grade	Novice		Partially Proficient		Proficient		Advanced	
	Cut Score	Cut Score	Perce- tile	Cut Score	Perce- tile	Cut Score	Perce- tile	
11	<212	212	17	225	43	240	86	

* Note: the cut scores shown in this table are the **minimum** estimated scores. Meeting the minimum MAP cut score corresponds to a 50% probability of achieving that performance level. Use the probabilities in Tables 5-8 to determine the appropriate ‘target’ scores for a desired level of certainty.

TABLE 3 – MINIMUM ESTIMATED PRIOR-SEASON (SPRING OF PRIOR YEAR) RIT CUT SCORES CORRESPONDING TO STATE PERFORMANCE LEVELS – MATHEMATICS

MATH-Prior Season							
Cut Scores and Percentiles for each State Performance Level							
Grade	Novice	Partially Proficient		Proficient		Advanced	
	Cut Score	Cut Score	Perce- tile	Cut Score	Perce- tile	Cut Score	Perce- tile
11	<221	221	18	242	56	257	86

*Note: the cut scores shown in this table are the **minimum** estimated scores. Meeting the minimum MAP cut score corresponds to a 50% probability of achieving that performance level. Use the probabilities in Tables 5-8 to determine the appropriate ‘target’ scores for a desired level of certainty.

TABLE 4 – MINIMUM ESTIMATED PRIOR-SEASON (SPRING OF PRIOR YEAR) RIT CUT SCORES CORRESPONDING TO STATE PERFORMANCE LEVELS – READING

READING-Prior Season							
Cut Scores and Percentiles for each State Performance Level							
Grade	Novice	Partially Proficient		Proficient		Advanced	
	Cut Score	Cut Score	Perce- tile	Cut Score	Perce- tile	Cut Score	Perce- tile
11	<212	212	16	224	40	240	85

*Note: the cut scores shown in this table are the **minimum** estimated scores. Meeting the minimum MAP cut score corresponds to a 50% probability of achieving that performance level. Use the probabilities in Tables 5-8 to determine the appropriate ‘target’ scores for a desired level of certainty.

TABLE 5 –ESTIMATED PROBABILITY OF SCORING AS PROFICIENT OR HIGHER ON THE STATE MATHEMATICS TEST IN SAME SEASON (FALL), BY STUDENT GRADE AND RIT SCORE RANGE ON MAP MATHEMATICS

MATH-Current Season	
Estimated Probability of Passing State Test Based on Observed MAP Score	
RIT Range	11
140	0%
145	0%
150	0%
155	0%
160	0%
165	0%
170	0%
175	0%
180	0%
185	0%
190	0%
195	1%
200	1%
205	2%
210	3%
215	5%
220	8%
225	13%
230	20%
235	29%
240	40%
245	52%
250	65%
255	75%
260	83%
265	89%
270	93%
275	96%
280	97%
285	98%
290	99%
295	99%
300	100%

*Note: This table provides the estimated probability of passing the state test based on a MAP test score taken during that same (fall) season. Example: if an 11th grade student scored 230 on a MAP test taken during the spring season, her/his estimated probability of passing the state test is 20%.

TABLE 6 –ESTIMATED PROBABILITY OF SCORING AS PROFICIENT OR HIGHER ON THE STATE READING TEST IN SAME SEASON (FALL), BY STUDENT GRADE AND RIT SCORE RANGE ON MAP READING

READING-Current Season	
Estimated Probability of Passing State Test Based on Observed MAP Score	
RIT Range	11
140	0%
145	0%
150	0%
155	0%
160	0%
165	0%
170	0%
175	1%
180	1%
185	2%
190	3%
195	5%
200	8%
205	12%
210	18%
215	27%
220	38%
225	50%
230	62%
235	73%
240	82%
245	88%
250	92%
255	95%
260	97%
265	98%
270	99%
275	99%
280	100%
285	100%
290	100%
295	100%
300	100%

* Note: This table provides the estimated probability of passing the state test based on a MAP test score taken during that same (fall) season. Example: if an 11th grade student scored 230 on a MAP test taken during the fall season, her/his estimated probability of passing the state test is 62%.

TABLE 7 –ESTIMATED PROBABILITY OF SCORING AS PROFICIENT OR HIGHER ON THE STATE MATHEMATICS TEST IN PRIOR SEASON (SPRING OF PRIOR YEAR), BY STUDENT GRADE AND RIT SCORE RANGE ON MAP MATHEMATICS

MATH-Prior Season	
Estimated Probability of Passing State Test Based on Observed MAP Score	
RIT Range	11
140	0%
145	0%
150	0%
155	0%
160	0%
165	0%
170	0%
175	0%
180	0%
185	0%
190	1%
195	1%
200	1%
205	2%
210	4%
215	6%
220	10%
225	15%
230	23%
235	33%
240	45%
245	57%
250	69%
255	79%
260	86%
265	91%
270	94%
275	96%
280	98%
285	99%
290	99%
295	100%
300	100%

* Note: This table provides the estimated probability of passing the state test based on a MAP test score taken during that prior season, Spring of the year before. Example: if an 10th grade student scored 230 on a MAP test taken during the spring season, her/his estimated probability of passing the state test in the Fall of 11th grade is 23%.

TABLE 8 –ESTIMATED PROBABILITY OF SCORING AS PROFICIENT OR HIGHER ON THE STATE READING TEST IN PRIOR SEASON (SPRING OF PRIOR YEAR), BY STUDENT GRADE AND RIT SCORE RANGE ON MAP READING

READING-Prior Season	
Estimated Probability of Passing State Test Based on Observed MAP Score	
RIT Range	11
140	0%
145	0%
150	0%
155	0%
160	0%
165	0%
170	0%
175	1%
180	1%
185	2%
190	3%
195	5%
200	8%
205	13%
210	20%
215	29%
220	40%
225	52%
230	65%
235	75%
240	83%
245	89%
250	93%
255	96%
260	97%
265	98%
270	99%
275	99%
280	100%
285	100%
290	100%
295	100%
300	100%

* Note: This table provides the estimated probability of passing the state test based on a MAP test score taken during that prior season, Spring of the year before. Example: if an 10th grade student scored 230 on a MAP test taken during the spring season, her/his estimated probability of passing the 11th grade state test in the Fall is 65%.

TABLE 9 – CORRELATION COEFFICIENTS BETWEEN MAP AND STATE TEST FOR EACH TEST SUBJECT

Grade	Math Correlation Pearson's <i>r</i>	Reading Correlation Pearson's <i>r</i>
11	0.711	0.753

* Note: Correlations range from 0 (indicating no correlation between the state test score and the NWEA test score) to 1 (indicating complete correlation between the state test score and the NWEA test score).

TABLE 10 – PERCENTAGE OF STUDENTS WHOSE PASS STATUS WAS ACCURATELY PREDICTED BY THEIR MAP PERFORMANCE USING REPORTED CUT SCORES

Grade	Sample Size	MAP Accurately Predicted State Performance	MAP Underestimated State Performance	MAP Overestimated State Performance
Mathematics				
11	549	79.89%	10.80%	9.31%
Reading				
11	549	77.33%	10.08%	12.60%

* Note: The third column of this table shows the percentage of students whose Pass/NotPass status was predicted accurately when their state test score was linked to their MAP score based on this linking study. The fourth column shows the percentage of students whose MAP score predicted they would not pass the state benchmark but they did pass. The last column shows the percentage of students whose MAP score predicted they would pass the state benchmark but they did not pass.

Due to rounding, percentages may not add to 100%.



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