

NEW JERSEY LINKING STUDY

A Study of the Alignment of the NWEA RIT Scale
with the New Jersey Assessment of Student Knowledge (NJASK)

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A STUDY OF THE ALIGNMENT OF THE NWEA RIT SCALE WITH THE NEW JERSEY ASSESSMENT OF STUDENT KNOWLEDGE (NJASK)

NOVEMBER 2011

Recently, NWEA completed a project to connect the scale of the New Jersey Assessment of Student Knowledge (NJASK) used for New Jersey’s mathematics and reading assessments 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 12,800 New Jersey students from at least 31 schools who completed both exams in the spring of 2011. The New Jersey state test is administered in the spring. For the spring season (labeled “current season”), an Equipercentile method was used to estimate the RIT score equivalent to each state performance level. For fall (labeled “prior season”), 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 example, if 40% of the study group population in grade 3 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.

Table Sets 1 and 2 show the best estimate of the minimum RIT equivalent to each state performance level for same-season (spring) and prior-season (fall) RIT scores. These tables can be used to identify students who may need additional help to perform well on these tests.

Table Sets 3 and 4 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 and also for identifying target RIT-score objectives likely to correspond to successful or “proficient” performance on the state test.

Table 5 shows the correlation coefficients between MAP and the state test in each 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 6 shows the percentages of students at each grade and 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 NJASK.

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

MATH-Current Season					
Cut Scores and Percentiles for each State Performance Level					
Grade	Partially Proficient	Proficient		Advanced	
	Cut Score	Cut Score	Perce- tile	Cut Score	Perce- tile
2	<182	182	23	196	67
3	<194	194	23	209	67
4	<203	203	25	221	73
5	<210	210	24	230	73
6	<220	220	35	239	79
7	<229	229	46	246	81
8	<232	232	45	252	83

READING-Current Season					
Cut Scores and Percentiles for each State Performance Level					
Grade	Partially Proficient	Proficient		Advanced	
	Cut Score	Cut Score	Perce- tile	Cut Score	Perce- tile
2	<187	187	44	208	89
3	<197	197	44	217	89
4	<205	205	46	223	88
5	<211	211	46	231	91
6	<213	213	41	235	91
7	<216	216	40	233	82
8	<213	213	26	237	83

*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 Table Set 3 to determine the appropriate ‘target’ scores for a desired level of certainty. Italics represent extrapolated data.

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

MATH-Prior Season					
Cut Scores and Percentiles for each State Performance Level					
Grade	Partially Proficient	Proficient		Advanced	
	Cut Score	Cut Score	Perce- tile	Cut Score	Perce- tile
2	<168	168	20	184	66
3	<183	183	23	197	65
4	<195	195	26	212	74
5	<203	203	25	221	72
6	<213	213	32	232	78
7	<224	224	46	240	81
8	<228	228	45	246	82

READING-Prior Season					
Cut Scores and Percentiles for each State Performance Level					
Grade	Partially Proficient	Proficient		Advanced	
	Cut Score	Cut Score	Perce- tile	Cut Score	Perce- tile
2	<173	173	42	195	89
3	<187	187	42	208	88
4	<198	198	46	216	87
5	<205	205	44	226	91
6	<209	209	40	232	92
7	<212	212	37	229	81
8	<209	209	24	233	82

* 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 Table Set 4 to determine the appropriate ‘target’ scores for a desired level of certainty. Italics represent extrapolated data.

TABLE SET 3 –ESTIMATED PROBABILITY OF SCORING AS PROFICIENT OR HIGHER ON THE STATE TEST IN SAME SEASON (SPRING), BY STUDENT GRADE AND RIT SCORE RANGE ON MAP ASSESSMENT

MATH-Current Season							
Estimated Probability of Passing State Test Based on Observed MAP Score							
RIT Range	2	3	4	5	6	7	8
120	0%	0%	0%	0%	0%	0%	0%
125	0%	0%	0%	0%	0%	0%	0%
130	1%	0%	0%	0%	0%	0%	0%
135	1%	0%	0%	0%	0%	0%	0%
140	1%	0%	0%	0%	0%	0%	0%
145	2%	1%	0%	0%	0%	0%	0%
150	4%	1%	0%	0%	0%	0%	0%
155	6%	2%	1%	0%	0%	0%	0%
160	10%	3%	1%	1%	0%	0%	0%
165	15%	5%	2%	1%	0%	0%	0%
170	23%	8%	4%	2%	1%	0%	0%
175	33%	13%	6%	3%	1%	0%	0%
180	45%	20%	9%	5%	2%	1%	1%
185	57%	29%	14%	8%	3%	1%	1%
190	69%	40%	21%	12%	5%	2%	1%
195	79%	52%	31%	18%	8%	3%	2%
200	86%	65%	43%	27%	12%	5%	4%
205	91%	75%	55%	38%	18%	8%	6%
210	94%	83%	67%	50%	27%	13%	10%
215	96%	89%	77%	62%	38%	20%	15%
220	98%	93%	85%	73%	50%	29%	23%
225	99%	96%	90%	82%	62%	40%	33%
230	99%	97%	94%	88%	73%	52%	45%
235	100%	98%	96%	92%	82%	65%	57%
240	100%	99%	98%	95%	88%	75%	69%
245	100%	99%	99%	97%	92%	83%	79%
250	100%	100%	99%	98%	95%	89%	86%
255	100%	100%	99%	99%	97%	93%	91%
260	100%	100%	100%	99%	98%	96%	94%
265	100%	100%	100%	100%	99%	97%	96%
270	100%	100%	100%	100%	99%	98%	98%
275	100%	100%	100%	100%	100%	99%	99%
280	100%	100%	100%	100%	100%	99%	99%
285	100%	100%	100%	100%	100%	100%	100%
290	100%	100%	100%	100%	100%	100%	100%
295	100%	100%	100%	100%	100%	100%	100%
300	100%	100%	100%	100%	100%	100%	100%

*Note: This table provides the estimated probability of passing the state test based on a MAP test score taken during that same (spring) season. Example: if a fifth grade student scored 200 on a MAP test taken during the spring season, her/his estimated probability of passing the state test is 27%.

Italics represent extrapolated data.

Note: RIT scores greater than 300 have a 100% probability.

READING-Current Season							
Estimated Probability of Passing State Test Based on Observed MAP Score							
RIT Range	2	3	4	5	6	7	8
120	0%	0%	0%	0%	0%	0%	0%
125	0%	0%	0%	0%	0%	0%	0%
130	0%	0%	0%	0%	0%	0%	0%
135	1%	0%	0%	0%	0%	0%	0%
140	1%	0%	0%	0%	0%	0%	0%
145	1%	1%	0%	0%	0%	0%	0%
150	2%	1%	0%	0%	0%	0%	0%
155	4%	1%	1%	0%	0%	0%	0%
160	6%	2%	1%	1%	0%	0%	0%
165	10%	4%	2%	1%	1%	1%	1%
170	15%	6%	3%	2%	1%	1%	1%
175	23%	10%	5%	3%	2%	2%	2%
180	33%	15%	8%	4%	4%	3%	4%
185	45%	23%	12%	7%	6%	4%	6%
190	57%	33%	18%	11%	9%	7%	9%
195	69%	45%	27%	17%	14%	11%	14%
200	79%	57%	38%	25%	21%	17%	21%
205	86%	69%	50%	35%	31%	25%	31%
210	91%	79%	62%	48%	43%	35%	43%
215	94%	86%	73%	60%	55%	48%	55%
220	96%	91%	82%	71%	67%	60%	67%
225	98%	94%	88%	80%	77%	71%	77%
230	99%	96%	92%	87%	85%	80%	85%
235	99%	98%	95%	92%	90%	87%	90%
240	100%	99%	97%	95%	94%	92%	94%
245	100%	99%	98%	97%	96%	95%	96%
250	100%	100%	99%	98%	98%	97%	98%
255	100%	100%	99%	99%	99%	98%	99%
260	100%	100%	100%	99%	99%	99%	99%
265	100%	100%	100%	100%	99%	99%	99%
270	100%	100%	100%	100%	100%	100%	100%
275	100%	100%	100%	100%	100%	100%	100%
280	100%	100%	100%	100%	100%	100%	100%
285	100%	100%	100%	100%	100%	100%	100%
290	100%	100%	100%	100%	100%	100%	100%
295	100%	100%	100%	100%	100%	100%	100%
300	100%	100%	100%	100%	100%	100%	100%

Note: This table provides the estimated probability of passing the state test based on a MAP test score taken during that same (spring) season. Example: if a fifth grade student scored 200 on a MAP test taken during the spring season, her/his estimated probability of passing the state test is 25%.

Italics represent extrapolated data.

Note: RIT scores greater than 300 have a 100% probability.

TABLE SET 4 –ESTIMATED PROBABILITY OF SCORING AS PROFICIENT OR HIGHER ON THE STATE TEST IN PRIOR SEASON (FALL), BY STUDENT GRADE AND RIT SCORE RANGE ON MAP

MATH-Prior Season							
Estimated Probability of Passing State Test Based on Observed MAP Score							
RIT Range	2	3	4	5	6	7	8
120	1%	0%	0%	0%	0%	0%	0%
125	1%	0%	0%	0%	0%	0%	0%
130	2%	0%	0%	0%	0%	0%	0%
135	4%	1%	0%	0%	0%	0%	0%
140	6%	1%	0%	0%	0%	0%	0%
145	9%	2%	1%	0%	0%	0%	0%
150	14%	4%	1%	0%	0%	0%	0%
155	21%	6%	2%	1%	0%	0%	0%
160	31%	9%	3%	1%	0%	0%	0%
165	43%	14%	5%	2%	1%	0%	0%
170	55%	21%	8%	4%	1%	0%	0%
175	67%	31%	12%	6%	2%	1%	0%
180	77%	43%	18%	9%	4%	1%	1%
185	85%	55%	27%	14%	6%	2%	1%
190	90%	67%	38%	21%	9%	3%	2%
195	94%	77%	50%	31%	14%	5%	4%
200	96%	85%	62%	43%	21%	8%	6%
205	98%	90%	73%	55%	31%	13%	9%
210	99%	94%	82%	67%	43%	20%	14%
215	99%	96%	88%	77%	55%	29%	21%
220	99%	98%	92%	85%	67%	40%	31%
225	100%	99%	95%	90%	77%	52%	43%
230	100%	99%	97%	94%	85%	65%	55%
235	100%	99%	98%	96%	90%	75%	67%
240	100%	100%	99%	98%	94%	83%	77%
245	100%	100%	99%	99%	96%	89%	85%
250	100%	100%	100%	99%	98%	93%	90%
255	100%	100%	100%	99%	99%	96%	94%
260	100%	100%	100%	100%	99%	97%	96%
265	100%	100%	100%	100%	99%	98%	98%
270	100%	100%	100%	100%	100%	99%	99%
275	100%	100%	100%	100%	100%	99%	99%
280	100%	100%	100%	100%	100%	100%	99%
285	100%	100%	100%	100%	100%	100%	100%
290	100%	100%	100%	100%	100%	100%	100%
295	100%	100%	100%	100%	100%	100%	100%
300	100%	100%	100%	100%	100%	100%	100%

* Note: This table provides the estimated probability of passing the state test based on a MAP test score taken during that prior (fall) season. Example: if a fifth grade student scored 200 on a MAP test taken during the fall season, her/his estimated probability of passing the state test is 43%.

Italics represent extrapolated data.

Note: RIT scores greater than 300 have a 100% probability.

READING-Prior Season							
Estimated Probability of Passing State Test Based on Observed MAP Score							
RIT Range	2	3	4	5	6	7	8
120	0%	0%	0%	0%	0%	0%	0%
125	1%	0%	0%	0%	0%	0%	0%
130	1%	0%	0%	0%	0%	0%	0%
135	2%	1%	0%	0%	0%	0%	0%
140	4%	1%	0%	0%	0%	0%	0%
145	6%	1%	0%	0%	0%	0%	0%
150	9%	2%	1%	0%	0%	0%	0%
155	14%	4%	1%	1%	0%	0%	0%
160	21%	6%	2%	1%	1%	1%	1%
165	31%	10%	4%	2%	1%	1%	1%
170	43%	15%	6%	3%	2%	1%	2%
175	55%	23%	9%	5%	3%	2%	3%
180	67%	33%	14%	8%	5%	4%	5%
185	77%	45%	21%	12%	8%	6%	8%
190	85%	57%	31%	18%	13%	10%	13%
195	90%	69%	43%	27%	20%	15%	20%
200	94%	79%	55%	38%	29%	23%	29%
205	96%	86%	67%	50%	40%	33%	40%
210	98%	91%	77%	62%	52%	45%	52%
215	99%	94%	85%	73%	65%	57%	65%
220	99%	96%	90%	82%	75%	69%	75%
225	99%	98%	94%	88%	83%	79%	83%
230	100%	99%	96%	92%	89%	86%	89%
235	100%	99%	98%	95%	93%	91%	93%
240	100%	100%	99%	97%	96%	94%	96%
245	100%	100%	99%	98%	97%	96%	97%
250	100%	100%	99%	99%	98%	98%	98%
255	100%	100%	100%	99%	99%	99%	99%
260	100%	100%	100%	100%	99%	99%	99%
265	100%	100%	100%	100%	100%	100%	100%
270	100%	100%	100%	100%	100%	100%	100%
275	100%	100%	100%	100%	100%	100%	100%
280	100%	100%	100%	100%	100%	100%	100%
285	100%	100%	100%	100%	100%	100%	100%
290	100%	100%	100%	100%	100%	100%	100%
295	100%	100%	100%	100%	100%	100%	100%
300	100%	100%	100%	100%	100%	100%	100%

* Note: This table provides the estimated probability of passing the state test based on a MAP test score taken during that prior (fall) season. Example: if a fifth grade student scored 200 on a MAP test taken during the fall season, her/his estimated probability of passing the state test is 38%.

Italics represent extrapolated data.

Note: RIT scores greater than 300 have a 100% probability.

TABLE 5 – CORRELATION COEFFICIENTS BETWEEN MAP AND STATE TEST FOR EACH GRADE AND TEST SUBJECT

Grade	Math Correlation Pearson's r	Reading Correlation Pearson's r
3	.771	.699
4	.802	.733
5	.831	.743
6	.844	.795
7	.870	.805
8	.891	.801

* 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 6 – 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				
3	3339	89.6%	5.2%	5.2%
4	3426	91.8%	4.0%	4.1%
5	4315	93.3%	3.4%	3.3%
6	4241	90.9%	4.8%	4.3%
7	4513	87.7%	6.1%	6.2%
8	1142	89.2%	5.3%	5.4%
Reading				
3	3345	81.3%	8.6%	10.1%
4	3419	82.6%	8.3%	9.1%
5	3679	82.2%	8.8%	9.0%
6	3907	85.6%	6.7%	7.7%
7	3777	84.4%	7.8%	7.8%
8	785	91.6%	4.6%	3.8%

* Note: The third column of this table shows the percentage of students whose Pass/Not Pass 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%.