



Georgia LINKING STUDY

A Study of the Alignment of the NWEA RIT Scale
with the Criterion-Referenced Competency Tests (CRCT)

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A STUDY OF THE ALIGNMENT OF THE NWEA RIT SCALE WITH THE GEORGIA CRCT

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Recently, NWEA completed a project to connect the scale of CRCT used for Georgia 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 approximately 14,000 Georgia students from 36 schools who completed both exams in the spring of 2011. The Georgia 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.

Tables 1 through 4 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.

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 and also for identifying target RIT-score objectives likely to correspond to a student's successful level of performance on the state test.

Table 9 shows the correlation coefficients between MAP and the state test for reading and mathematics 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 10 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 Criterion-Referenced Competency Tests.

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

MATH-Current Season					
Cut Scores and Percentiles for each State Performance					
Grade	Below Proficient	Proficient		Advanced	
	Cut Score	Cut Score	Perce- tile	Cut Score	Perce- tile
2	<178	178	15	203	86
3	<194	194	24	209	72
4	<204	204	29	221	76
5	<209	209	25	229	74
6	<211	211	21	236	78
7	<211	211	16	236	66
8	<223	223	27	245	75

*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. Italics represent extrapolated data.

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

READING-Current Season					
Cut Scores and Percentiles for each State Performance					
Grade	Below Proficient	Proficient		Advanced	
	Cut Score	Cut Score	Perce- tile	Cut Score	Perce- tile
2	<173	173	12	196	68
3	<182	182	12	205	66
4	<189	189	12	215	75
5	<195	195	12	224	84
6	<193	193	7	221	66
7	<200	200	11	232	85
8	<199	199	7	232	78

*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. Italics represent extrapolated data.

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

MATH-Prior Season					
Cut Scores and Percentiles for each State Performance					
Grade	Below Proficient	Proficient		Advanced	
	Cut Score	Cut Score	Perce- tile	Cut Score	Perce- tile
2	<169	169	16	191	86
3	<184	184	26	199	73
4	<197	197	31	211	76
5	<203	203	26	221	75
6	<207	207	22	230	79
7	<208	208	16	231	66
8	<220	220	28	241	75

* 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. Italics represent extrapolated data.

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

READING-Prior Season					
Cut Scores and Percentiles for each State Performance					
Grade	Below Proficient	Proficient		Advanced	
	Cut Score	Cut Score	Perce- tile	Cut Score	Perce- tile
2	<164	164	13	186	69
3	<175	175	12	198	68
4	<184	184	13	210	77
5	<190	190	12	220	85
6	<189	189	7	218	67
7	<198	198	11	230	86
8	<197	197	7	230	78

* 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. Italics represent extrapolated data.

TABLE 5 –ESTIMATED PROBABILITY OF SCORING AS PROFICIENT OR HIGHER ON THE STATE MATHEMATICS TEST IN SAME SEASON (SPRING), 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	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	2%	0%	0%	0%	0%	0%	0%
145	4%	1%	0%	0%	0%	0%	0%
150	6%	1%	0%	0%	0%	0%	0%
155	9%	2%	1%	0%	0%	0%	0%
160	14%	3%	1%	1%	1%	1%	0%
165	21%	5%	2%	1%	1%	1%	0%
170	31%	8%	3%	2%	2%	2%	0%
175	43%	13%	5%	3%	3%	3%	1%
180	55%	20%	8%	5%	4%	4%	1%
185	67%	29%	13%	8%	7%	7%	2%
190	77%	40%	20%	13%	11%	11%	4%
195	85%	52%	29%	20%	17%	17%	6%
200	90%	65%	40%	29%	25%	25%	9%
205	94%	75%	52%	40%	35%	35%	14%
210	96%	83%	65%	52%	48%	48%	21%
215	98%	89%	75%	65%	60%	60%	31%
220	99%	93%	83%	75%	71%	71%	43%
225	99%	96%	89%	83%	80%	80%	55%
230	99%	97%	93%	89%	87%	87%	67%
235	100%	98%	96%	93%	92%	92%	77%
240	100%	99%	97%	96%	95%	95%	85%
245	100%	99%	98%	97%	97%	97%	90%
250	100%	100%	99%	98%	98%	98%	94%
255	100%	100%	99%	99%	99%	99%	96%
260	100%	100%	100%	99%	99%	99%	98%
265	100%	100%	100%	100%	100%	100%	99%
270	100%	100%	100%	100%	100%	100%	99%
275	100%	100%	100%	100%	100%	100%	99%
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 29%.

Italics represent extrapolated data.

TABLE 6 –ESTIMATED PROBABILITY OF SCORING AS PROFICIENT OR HIGHER ON THE STATE READING TEST IN SAME SEASON (SPRING), 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	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%	1%	0%	0%	0%	0%	0%
135	2%	1%	0%	0%	0%	0%	0%
140	4%	1%	1%	0%	0%	0%	0%
145	6%	2%	1%	1%	1%	0%	0%
150	9%	4%	2%	1%	1%	1%	1%
155	14%	6%	3%	2%	2%	1%	1%
160	21%	10%	5%	3%	4%	2%	2%
165	31%	15%	8%	5%	6%	3%	3%
170	43%	23%	13%	8%	9%	5%	5%
175	55%	33%	20%	12%	14%	8%	8%
180	67%	45%	29%	18%	21%	12%	13%
185	77%	57%	40%	27%	31%	18%	20%
190	85%	69%	52%	38%	43%	27%	29%
195	90%	79%	65%	50%	55%	38%	40%
200	94%	86%	75%	62%	67%	50%	52%
205	96%	91%	83%	73%	77%	62%	65%
210	98%	94%	89%	82%	85%	73%	75%
215	99%	96%	93%	88%	90%	82%	83%
220	99%	98%	96%	92%	94%	88%	89%
225	99%	99%	97%	95%	96%	92%	93%
230	100%	99%	98%	97%	98%	95%	96%
235	100%	100%	99%	98%	99%	97%	97%
240	100%	100%	99%	99%	99%	98%	98%
245	100%	100%	100%	99%	99%	99%	99%
250	100%	100%	100%	100%	100%	99%	99%
255	100%	100%	100%	100%	100%	100%	100%
260	100%	100%	100%	100%	100%	100%	100%
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 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 62%.

Italics represent extrapolated data.

TABLE 7 –ESTIMATED PROBABILITY OF SCORING AS PROFICIENT OR HIGHER ON THE STATE MATHEMATICS TEST IN PRIOR SEASON (FALL), 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	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	3%	1%	0%	0%	0%	0%	0%
140	5%	1%	0%	0%	0%	0%	0%
145	8%	2%	1%	0%	0%	0%	0%
150	13%	3%	1%	0%	0%	0%	0%
155	20%	5%	1%	1%	1%	0%	0%
160	29%	8%	2%	1%	1%	1%	0%
165	40%	13%	4%	2%	1%	1%	0%
170	52%	20%	6%	4%	2%	2%	1%
175	65%	29%	10%	6%	4%	4%	1%
180	75%	40%	15%	9%	6%	6%	2%
185	83%	52%	23%	14%	10%	9%	3%
190	89%	65%	33%	21%	15%	14%	5%
195	93%	75%	45%	31%	23%	21%	8%
200	96%	83%	57%	43%	33%	31%	12%
205	97%	89%	69%	55%	45%	43%	18%
210	98%	93%	79%	67%	57%	55%	27%
215	99%	96%	86%	77%	69%	67%	38%
220	99%	97%	91%	85%	79%	77%	50%
225	100%	98%	94%	90%	86%	85%	62%
230	100%	99%	96%	94%	91%	90%	73%
235	100%	99%	98%	96%	94%	94%	82%
240	100%	100%	99%	98%	96%	96%	88%
245	100%	100%	99%	99%	98%	98%	92%
250	100%	100%	100%	99%	99%	99%	95%
255	100%	100%	100%	99%	99%	99%	97%
260	100%	100%	100%	100%	100%	99%	98%
265	100%	100%	100%	100%	100%	100%	99%
270	100%	100%	100%	100%	100%	100%	99%
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 43%. Italics represent extrapolated data.

TABLE 8 –ESTIMATED PROBABILITY OF SCORING AS PROFICIENT OR HIGHER ON THE STATE READING TEST IN PRIOR SEASON (FALL), 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	2	3	4	5	6	7	8
120	1%	0%	0%	0%	0%	0%	0%
125	2%	1%	0%	0%	0%	0%	0%
130	3%	1%	0%	0%	0%	0%	0%
135	5%	2%	1%	0%	0%	0%	0%
140	8%	3%	1%	1%	1%	0%	0%
145	13%	5%	2%	1%	1%	0%	1%
150	20%	8%	3%	2%	2%	1%	1%
155	29%	12%	5%	3%	3%	1%	1%
160	40%	18%	8%	5%	5%	2%	2%
165	52%	27%	13%	8%	8%	4%	4%
170	65%	38%	20%	12%	13%	6%	6%
175	75%	50%	29%	18%	20%	9%	10%
180	83%	62%	40%	27%	29%	14%	15%
185	89%	73%	52%	38%	40%	21%	23%
190	93%	82%	65%	50%	52%	31%	33%
195	96%	88%	75%	62%	65%	43%	45%
200	97%	92%	83%	73%	75%	55%	57%
205	98%	95%	89%	82%	83%	67%	69%
210	99%	97%	93%	88%	89%	77%	79%
215	99%	98%	96%	92%	93%	85%	86%
220	100%	99%	97%	95%	96%	90%	91%
225	100%	99%	98%	97%	97%	94%	94%
230	100%	100%	99%	98%	98%	96%	96%
235	100%	100%	99%	99%	99%	98%	98%
240	100%	100%	100%	99%	99%	99%	99%
245	100%	100%	100%	100%	100%	99%	99%
250	100%	100%	100%	100%	100%	99%	100%
255	100%	100%	100%	100%	100%	100%	100%
260	100%	100%	100%	100%	100%	100%	100%
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 the 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 73%.

Italics represent extrapolated data.

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

Grade	Math Correlation Pearson's <i>r</i>	Reading Correlation Pearson's <i>r</i>
2	0.818	0.733
3	0.804	0.749
4	0.803	0.738
5	0.790	0.744
6	0.778	0.716
7	0.786	0.703
8	0.767	0.682

* 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				
2	1129	91.1%	4.2%	4.7%
3	2249	86.6%	6.8%	6.6%
4	2108	85.2%	7.6%	7.2%
5	2242	83.9%	7.6%	8.5%
6	2166	84.4%	7.4%	8.2%
7	2009	88.5%	5.4%	6.2%
8	2040	81.7%	8.8%	9.5%
Reading				
2	1131	89.9%	7.2%	2.9%
3	2247	91.1%	4.9%	4.1%
4	2093	91.5%	4.3%	4.2%
5	2255	91.5%	4.4%	4.1%
6	2167	92.0%	4.0%	4.0%
7	2010	90.5%	4.4%	5.1%
8	2041	93.6%	3.5%	2.9%

*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%.