



LOUISIANA LINKING STUDY

A Study of the Alignment of the NWEA RIT Scale
with the Louisiana Educational Assessment Program (LEAP)

November 2011

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A STUDY OF THE ALIGNMENT OF THE NWEA RIT SCALE WITH THE LOUISIANA STANDARDS BASED ASSESSMENT (LEAP)

NOVEMBER 2011

Recently, NWEA completed a project to connect the scale of the Louisiana Educational Assessment Program (LEAP) used for Louisiana’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 5,191 Louisiana students from at least 30 schools who completed both exams in the spring of 2011. The Louisiana 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 LEAP.

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	Unsatisfactory	Approaching Basic		Basic		Mastery		Advanced	
	Cut Score	Cut Score	Perce- tile	Cut Score	Perce- tile	Cut Score	Perce- tile	Cut Score	Perce- tile
2	<172	172	6	180	18	193	58	203	82
3	<184	184	6	192	18	206	58	215	82
4	<192	192	7	201	20	217	63	227	85
5	<204	204	14	210	24	230	73	235	82
6	<205	205	9	214	23	235	71	241	83
7	<207	207	8	220	26	240	70	252	89
8	<214	214	13	227	34	254	86	257	89

READING-Current Season									
Cut Scores and Percentiles for each State Performance Level									
Grade	Unsatisfactory	Approaching Basic		Basic		Mastery		Advanced	
	Cut Score	Cut Score	Perce- tile	Cut Score	Perce- tile	Cut Score	Perce- tile	Cut Score	Perce- tile
2	<165	165	5	178	22	196	68	208	89
3	<175	175	5	188	22	206	68	217	89
4	<179	179	3	193	18	210	60	221	85
5	<192	192	7	204	28	220	71	230	89
6	<193	193	5	211	36	225	73	236	92
7	<194	194	4	209	23	226	67	236	87
8	<195	195	3	212	24	228	64	238	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 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	Unsatisfactory	Approaching Basic		Basic		Mastery		Advanced	
	Cut Score	Cut Score	Perce- tile	Cut Score	Perce- tile	Cut Score	Perce- tile	Cut Score	Perce- tile
2	<158	158	5	166	16	180	54	190	81
3	<173	173	6	180	16	194	55	203	81
4	<184	184	7	192	19	208	63	217	85
5	<197	197	14	203	25	221	72	226	82
6	<199	199	8	208	21	228	70	234	82
7	<202	202	7	215	26	234	69	246	89
8	<211	211	14	223	34	248	85	251	89

READING-Prior Season									
Cut Scores and Percentiles for each State Performance Level									
Grade	Unsatisfactory	Approaching Basic		Basic		Mastery		Advanced	
	Cut Score	Cut Score	Perce- tile	Cut Score	Perce- tile	Cut Score	Perce- tile	Cut Score	Perce- tile
2	<151	151	5	164	22	183	68	195	89
3	<165	165	5	178	21	197	67	208	88
4	<173	173	3	186	17	203	59	214	84
5	<186	186	7	199	28	215	71	224	89
6	<189	189	5	207	35	221	73	233	93
7	<192	192	4	206	23	222	65	232	86
8	<192	192	3	209	24	224	62	235	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 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	0%	0%	0%	0%	0%	0%	0%
135	0%	0%	0%	0%	0%	0%	0%
140	0%	0%	0%	0%	0%	0%	0%
145	1%	0%	0%	0%	0%	0%	0%
150	1%	0%	0%	0%	0%	0%	0%
155	2%	1%	0%	0%	0%	0%	0%
160	4%	1%	0%	0%	0%	0%	0%
165	6%	2%	1%	0%	0%	0%	0%
170	9%	3%	1%	0%	0%	0%	0%
175	14%	4%	1%	0%	0%	0%	0%
180	21%	7%	2%	1%	0%	0%	0%
185	31%	11%	4%	1%	1%	0%	0%
190	43%	17%	6%	2%	1%	1%	0%
195	55%	25%	10%	3%	2%	1%	0%
200	67%	35%	15%	5%	3%	2%	0%
205	77%	48%	23%	8%	5%	3%	1%
210	85%	60%	33%	12%	8%	5%	1%
215	90%	71%	45%	18%	12%	8%	2%
220	94%	80%	57%	27%	18%	12%	3%
225	96%	87%	69%	38%	27%	18%	5%
230	98%	92%	79%	50%	38%	27%	8%
235	99%	95%	86%	62%	50%	38%	13%
240	99%	97%	91%	73%	62%	50%	20%
245	99%	98%	94%	82%	73%	62%	29%
250	100%	99%	96%	88%	82%	73%	40%
255	100%	99%	98%	92%	88%	82%	52%
260	100%	100%	99%	95%	92%	88%	65%
265	100%	100%	99%	97%	95%	92%	75%
270	100%	100%	100%	98%	97%	95%	83%
275	100%	100%	100%	99%	98%	97%	89%
280	100%	100%	100%	99%	99%	98%	93%
285	100%	100%	100%	100%	99%	99%	96%
290	100%	100%	100%	100%	100%	99%	97%
295	100%	100%	100%	100%	100%	100%	98%
300	100%	100%	100%	100%	100%	100%	99%

*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 5%. 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	0%	0%	0%	0%	0%	0%	0%
140	0%	0%	0%	0%	0%	0%	0%
145	1%	0%	0%	0%	0%	0%	0%
150	1%	0%	0%	0%	0%	0%	0%
155	2%	1%	0%	0%	0%	0%	0%
160	3%	1%	1%	0%	0%	0%	0%
165	4%	2%	1%	0%	0%	0%	0%
170	7%	3%	2%	1%	0%	0%	0%
175	11%	4%	3%	1%	1%	1%	0%
180	17%	7%	5%	2%	1%	1%	1%
185	25%	11%	8%	3%	2%	2%	1%
190	35%	17%	12%	5%	3%	3%	2%
195	48%	25%	18%	8%	5%	4%	4%
200	60%	35%	27%	12%	8%	7%	6%
205	71%	48%	38%	18%	12%	11%	9%
210	80%	60%	50%	27%	18%	17%	14%
215	87%	71%	62%	38%	27%	25%	21%
220	92%	80%	73%	50%	38%	35%	31%
225	95%	87%	82%	62%	50%	48%	43%
230	97%	92%	88%	73%	62%	60%	55%
235	98%	95%	92%	82%	73%	71%	67%
240	99%	97%	95%	88%	82%	80%	77%
245	99%	98%	97%	92%	88%	87%	85%
250	100%	99%	98%	95%	92%	92%	90%
255	100%	99%	99%	97%	95%	95%	94%
260	100%	100%	99%	98%	97%	97%	96%
265	100%	100%	100%	99%	98%	98%	98%
270	100%	100%	100%	99%	99%	99%	99%
275	100%	100%	100%	100%	99%	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 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 12%.

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	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	3%	1%	0%	0%	0%	0%	0%
150	5%	1%	0%	0%	0%	0%	0%
155	8%	2%	0%	0%	0%	0%	0%
160	12%	3%	1%	0%	0%	0%	0%
165	18%	5%	1%	0%	0%	0%	0%
170	27%	8%	2%	1%	0%	0%	0%
175	38%	13%	4%	1%	0%	0%	0%
180	50%	20%	6%	2%	1%	0%	0%
185	62%	29%	9%	3%	1%	1%	0%
190	73%	40%	14%	4%	2%	1%	0%
195	82%	52%	21%	7%	4%	2%	0%
200	88%	65%	31%	11%	6%	3%	1%
205	92%	75%	43%	17%	9%	5%	1%
210	95%	83%	55%	25%	14%	8%	2%
215	97%	89%	67%	35%	21%	13%	4%
220	98%	93%	77%	48%	31%	20%	6%
225	99%	96%	85%	60%	43%	29%	9%
230	99%	97%	90%	71%	55%	40%	14%
235	100%	98%	94%	80%	67%	52%	21%
240	100%	99%	96%	87%	77%	65%	31%
245	100%	99%	98%	92%	85%	75%	43%
250	100%	100%	99%	95%	90%	83%	55%
255	100%	100%	99%	97%	94%	89%	67%
260	100%	100%	99%	98%	96%	93%	77%
265	100%	100%	100%	99%	98%	96%	85%
270	100%	100%	100%	99%	99%	97%	90%
275	100%	100%	100%	100%	99%	98%	94%
280	100%	100%	100%	100%	99%	99%	96%
285	100%	100%	100%	100%	100%	99%	98%
290	100%	100%	100%	100%	100%	100%	99%
295	100%	100%	100%	100%	100%	100%	99%
300	100%	100%	100%	100%	100%	100%	99%

* 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 11%. 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	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	2%	1%	0%	0%	0%	0%	0%
150	4%	1%	0%	0%	0%	0%	0%
155	6%	1%	1%	0%	0%	0%	0%
160	9%	2%	1%	0%	0%	0%	0%
165	14%	4%	2%	1%	0%	0%	0%
170	21%	6%	4%	1%	1%	1%	0%
175	31%	10%	6%	2%	1%	1%	1%
180	43%	15%	9%	3%	2%	1%	1%
185	55%	23%	14%	5%	3%	2%	2%
190	67%	33%	21%	8%	4%	4%	3%
195	77%	45%	31%	12%	7%	6%	5%
200	85%	57%	43%	18%	11%	10%	8%
205	90%	69%	55%	27%	17%	15%	13%
210	94%	79%	67%	38%	25%	23%	20%
215	96%	86%	77%	50%	35%	33%	29%
220	98%	91%	85%	62%	48%	45%	40%
225	99%	94%	90%	73%	60%	57%	52%
230	99%	96%	94%	82%	71%	69%	65%
235	99%	98%	96%	88%	80%	79%	75%
240	100%	99%	98%	92%	87%	86%	83%
245	100%	99%	99%	95%	92%	91%	89%
250	100%	100%	99%	97%	95%	94%	93%
255	100%	100%	99%	98%	97%	96%	96%
260	100%	100%	100%	99%	98%	98%	97%
265	100%	100%	100%	99%	99%	99%	98%
270	100%	100%	100%	100%	99%	99%	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 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 18%.

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	.841	.827
4	.817	.795
5	.797	.779
6	.848	.843
7	.847	.842
8	.848	.789

* 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	745	87.9%	5.2%	6.8%
4	914	90.6%	4.7%	4.7%
5	887	92.8%	4.4%	2.8%
6	751	90.7%	4.8%	4.5%
7	664	92.8%	4.1%	3.2%
8	735	92.5%	3.8%	3.7%
Reading				
3	742	88.7%	6.1%	5.3%
4	968	88.4%	5.6%	6.0%
5	885	91.2%	5.0%	3.8%
6	800	90.3%	5.4%	4.4%
7	695	90.5%	4.6%	4.9%
8	732	85.5%	7.0%	7.5%

*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%.