

A Study of the Alignment of the NWEA
RIT Scale with the Pennsylvania System
of School Assessment

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Recently, NWEA completed a project to connect the scale of Pennsylvania System of School Assessments (PSSA) used for Pennsylvania mathematics and reading assessments with NWEA's RIT scale. Information from the PSSA 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 individual students' state test results with their corresponding NWEA test results for about 6000 students in 15 Pennsylvania schools who took both tests during the spring 2008 testing season. For the spring 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 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.

More complete 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 PSSA 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, 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 1 - Minimum Estimated Same-Season (Spring) RIT Cut Scores Corresponding to PSSA Performance Levels - Mathematics

Grade	Below Basic	Basic	Proficient		Advanced		
	Cut score	Cut score	Percentile	Cut score	Percentile	Cut score	Percentile
2	<174	174	7	182	24	196	66
3	<183	183	7	194	24	207	66
4	<196	196	13	203	27	216	64
5	<204	204	16	215	39	226	66
6	<210	210	19	218	34	230	63
7	<210	210	15	222	34	233	59
8	<217	217	18	226	33	237	57
9	<220	220	21	232	42	242	66
10	<225	225	23	239	51	250	75
11	<229	229	26	245	59	257	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 Tables 5-8 to determine the appropriate "target" scores for a desired level of certainty.

Note: *bolded, italicized text denotes "extrapolated" cut score*

Table 2 - Minimum Estimated Same-Season (Spring) RIT Cut Scores Corresponding to PSSA Performance Levels - Reading

Grade	Below Basic	Basic	Proficient		Advanced		
	Cut score	Cut score	Percentile	Cut score	Percentile	Cut score	Percentile
2	<175	175	14	182	29	204	86
3	<184	184	14	192	29	213	86
4	<192	192	15	201	34	216	78
5	<204	204	27	212	50	224	84
6	<201	201	15	211	36	225	77
7	<207	207	20	215	38	228	76
8	<208	208	16	214	27	225	58
9	<210	210	17	218	33	230	66
10	<213	213	18	223	39	236	74
11	<214	214	19	226	45	238	81

*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.

Note: *bolded, italicized text denotes extrapolated cut score.*

Table 3 – Minimum Estimated Prior-Season (Fall) RIT Cut Scores Corresponding to PSSA Performance Levels – Mathematics

Grade	Below Basic	Basic	Proficient		Advanced		
	Cut score	Cut score	Percentile	Cut score	Percentile	Cut score	Percentile
2	<165	165	7	172	24	183	66
3	<175	175	7	184	24	197	66
4	<189	189	13	196	27	207	64
5	<198	198	16	208	39	217	66
6	<206	206	19	213	34	224	63
7	<207	207	15	218	34	229	59
8	<214	214	18	223	33	233	57
9	<218	218	21	229	40	240	65
10	<223	223	24	237	50	248	75
11	<226	226	26	243	59	255	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 Tables 5-8 to determine the appropriate "target" scores for a desired level of certainty.

Note: *bolded, italicized text denotes extrapolated cut score*

Table 4 - Minimum Estimated Prior-Season (Fall) RIT Cut Scores Corresponding to PSSA Performance Levels - Reading

Grade	Below Basic	Basic	Proficient		Advanced		
	Cut score	Cut score	Percentile	Cut score	Percentile	Cut score	Percentile
2	<165	165	14	171	29	195	86
3	<177	177	14	184	29	206	86
4	<186	186	15	196	34	211	78
5	<200	200	27	208	50	220	84
6	<198	198	15	208	36	222	77
7	<205	205	20	213	38	226	76
8	<206	206	16	212	27	223	58
9	<208	208	17	216	33	228	66
10	<212	212	18	222	39	234	74
11	<213	213	19	225	45	238	81

*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.

Note: *bolded, italicized text denotes extrapolated cut score*

Table 5 –Estimated Probability of scoring as Proficient or Higher on the PSSA Mathematics Test in Same Season (Spring), by Student Grade and RIT Score Range on MAP Mathematics

Estimated Probability of Passing State Test Based on Observed MAP Score										
RIT Range	2	3	4	5	6	7	8	9	10	11
140	2%	1%	0%	0%	0%	0%	0%	0%	0%	0%
145	3%	1%	0%	0%	0%	0%	0%	0%	0%	0%
150	5%	1%	1%	0%	0%	0%	0%	0%	0%	0%
155	8%	2%	1%	0%	0%	0%	0%	0%	0%	0%
160	12%	4%	2%	1%	0%	0%	0%	0%	0%	0%
165	18%	6%	3%	1%	1%	0%	0%	0%	0%	0%
170	27%	10%	4%	1%	1%	1%	0%	0%	0%	0%
175	38%	16%	7%	2%	2%	1%	1%	0%	0%	0%
180	50%	23%	11%	4%	3%	2%	1%	1%	0%	0%
185	62%	33%	17%	6%	4%	3%	2%	1%	1%	0%
190	73%	45%	25%	9%	7%	5%	3%	2%	1%	1%
195	82%	57%	36%	14%	11%	8%	5%	3%	1%	1%
200	88%	69%	48%	22%	17%	12%	8%	5%	2%	1%
205	92%	78%	60%	31%	25%	18%	13%	8%	4%	2%
210	95%	86%	71%	43%	36%	27%	20%	12%	6%	4%
215	97%	91%	80%	55%	48%	38%	29%	18%	10%	6%
220	98%	94%	87%	67%	60%	50%	40%	27%	16%	9%
225	99%	96%	92%	77%	71%	62%	52%	38%	23%	14%
230	99%	98%	95%	84%	80%	73%	64%	50%	33%	22%
235	100%	99%	97%	90%	87%	82%	75%	62%	45%	31%
240	100%	99%	98%	94%	92%	88%	83%	73%	57%	43%
245	100%	99%	99%	96%	95%	92%	89%	82%	69%	55%
250	100%	100%	99%	98%	97%	95%	93%	88%	78%	67%
255	100%	100%	100%	99%	98%	97%	96%	92%	86%	77%
260	100%	100%	100%	99%	99%	98%	97%	95%	91%	84%
265	100%	100%	100%	99%	99%	99%	98%	97%	94%	90%
270	100%	100%	100%	100%	100%	99%	99%	98%	96%	94%
275	100%	100%	100%	100%	100%	100%	99%	99%	98%	96%
280	100%	100%	100%	100%	100%	100%	100%	99%	99%	98%
285	100%	100%	100%	100%	100%	100%	100%	100%	99%	99%
290	100%	100%	100%	100%	100%	100%	100%	100%	99%	99%
295	100%	100%	100%	100%	100%	100%	100%	100%	100%	99%
300	100%	100%	100%	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 third grade student scored 170 on a MAP test taken during the spring season, her/his estimated probability of passing the state test is 10%.

Table 6 -Probability of scoring as Proficient or Higher on the PSSA Reading Test in Same Season (Spring), by Student Grade and RIT Score Range on MAP Reading

Estimated Probability of Passing State Test Based on Observed MAP Score										
RIT Range	2	3	4	5	6	7	8	9	10	11
140	2%	1%	0%	0%	0%	0%	0%	0%	0%	0%
145	3%	1%	0%	0%	0%	0%	0%	0%	0%	0%
150	5%	2%	1%	0%	0%	0%	0%	0%	0%	0%
155	8%	3%	1%	0%	0%	0%	0%	0%	0%	0%
160	12%	5%	2%	1%	1%	1%	1%	0%	0%	0%
165	18%	8%	3%	1%	1%	1%	1%	1%	0%	0%
170	27%	12%	5%	2%	2%	1%	1%	1%	1%	0%
175	38%	18%	8%	3%	3%	2%	2%	2%	1%	1%
180	50%	27%	13%	5%	5%	4%	4%	3%	2%	1%
185	62%	38%	20%	8%	8%	6%	6%	4%	3%	2%
190	73%	50%	29%	12%	13%	9%	10%	7%	4%	3%
195	82%	62%	40%	18%	20%	14%	16%	11%	7%	5%
200	88%	73%	52%	27%	29%	22%	23%	17%	11%	8%
205	92%	82%	64%	38%	40%	31%	33%	25%	17%	13%
210	95%	88%	75%	50%	52%	43%	45%	36%	25%	20%
215	97%	92%	83%	62%	64%	55%	57%	48%	36%	29%
220	98%	95%	89%	73%	75%	67%	69%	60%	48%	40%
225	99%	97%	93%	82%	83%	77%	78%	71%	60%	52%
230	99%	98%	96%	88%	89%	84%	86%	80%	71%	64%
235	100%	99%	97%	92%	93%	90%	91%	87%	80%	75%
240	100%	99%	98%	95%	96%	94%	94%	92%	87%	83%
245	100%	100%	99%	97%	97%	96%	96%	95%	92%	89%
250	100%	100%	99%	98%	98%	98%	98%	97%	95%	93%
255	100%	100%	100%	99%	99%	99%	99%	98%	97%	96%
260	100%	100%	100%	99%	99%	99%	99%	99%	98%	97%
265	100%	100%	100%	100%	100%	99%	99%	99%	99%	98%
270	100%	100%	100%	100%	100%	100%	100%	100%	99%	99%
275	100%	100%	100%	100%	100%	100%	100%	100%	100%	99%
280	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
285	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
290	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
295	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
300	100%	100%	100%	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 third grade student scored 190 on a MAP test taken during the spring season, her/his estimated probability of passing the state test is 50%.

Table 7 - Estimated Probability of scoring as Proficient or Higher on the PSSA Mathematics Test Based on Prior Season (Fall) MAP Score, by Student Grade and RIT Score Range on MAP Mathematics

Estimated Probability of Passing State Test Based on Observed MAP Score										
RIT Range	2	3	4	5	6	7	8	9	10	11
140	5%	1%	0%	0%	0%	0%	0%	0%	0%	0%
145	8%	2%	1%	0%	0%	0%	0%	0%	0%	0%
150	12%	4%	1%	0%	0%	0%	0%	0%	0%	0%
155	18%	6%	2%	1%	0%	0%	0%	0%	0%	0%
160	27%	10%	3%	1%	1%	0%	0%	0%	0%	0%
165	38%	16%	5%	2%	1%	1%	0%	0%	0%	0%
170	50%	23%	8%	3%	2%	1%	1%	0%	0%	0%
175	62%	33%	13%	4%	3%	2%	1%	1%	0%	0%
180	73%	45%	20%	7%	4%	3%	2%	1%	0%	0%
185	82%	57%	29%	11%	7%	4%	3%	1%	1%	0%
190	88%	69%	40%	17%	11%	7%	4%	2%	1%	1%
195	92%	78%	52%	25%	17%	11%	7%	4%	2%	1%
200	95%	86%	64%	36%	25%	17%	11%	6%	3%	2%
205	97%	91%	75%	48%	36%	25%	17%	10%	5%	3%
210	98%	94%	83%	60%	48%	36%	25%	16%	8%	4%
215	99%	96%	89%	71%	60%	48%	36%	23%	12%	7%
220	99%	98%	93%	80%	71%	60%	48%	33%	18%	11%
225	100%	99%	96%	87%	80%	71%	60%	45%	27%	17%
230	100%	99%	97%	92%	87%	80%	71%	57%	38%	25%
235	100%	99%	98%	95%	92%	87%	80%	69%	50%	36%
240	100%	100%	99%	97%	95%	92%	87%	78%	62%	48%
245	100%	100%	99%	98%	97%	95%	92%	86%	73%	60%
250	100%	100%	100%	99%	98%	97%	95%	91%	82%	71%
255	100%	100%	100%	99%	99%	98%	97%	94%	88%	80%
260	100%	100%	100%	100%	99%	99%	98%	96%	92%	87%
265	100%	100%	100%	100%	100%	99%	99%	98%	95%	92%
270	100%	100%	100%	100%	100%	100%	99%	99%	97%	95%
275	100%	100%	100%	100%	100%	100%	100%	99%	98%	97%
280	100%	100%	100%	100%	100%	100%	100%	99%	99%	98%
285	100%	100%	100%	100%	100%	100%	100%	100%	99%	99%
290	100%	100%	100%	100%	100%	100%	100%	100%	100%	99%
295	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
300	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

*Note: This table provides the estimated probability of passing the state test in spring, based on a MAP test score taken during the previous (fall) season. Example: if a third grade student scored 170 on a MAP test taken during the fall season, her/his estimated probability of passing the state test in spring is 23%.

Table 8 - Estimated Probability of scoring as Proficient or Higher on the PSSA Reading Test Based on Prior Season (Fall) MAP Score, by Student Grade and RIT Score Range on MAP Reading

Estimated Probability of Passing State Test Based on Observed MAP Score										
RIT Range	2	3	4	5	6	7	8	9	10	11
140	5%	1%	0%	0%	0%	0%	0%	0%	0%	0%
145	8%	2%	1%	0%	0%	0%	0%	0%	0%	0%
150	13%	4%	1%	0%	0%	0%	0%	0%	0%	0%
155	20%	6%	2%	1%	1%	0%	0%	0%	0%	0%
160	29%	10%	3%	1%	1%	1%	1%	0%	0%	0%
165	40%	16%	5%	2%	2%	1%	1%	1%	0%	0%
170	52%	23%	8%	3%	3%	2%	2%	1%	1%	1%
175	64%	33%	13%	4%	4%	3%	3%	2%	1%	1%
180	75%	45%	20%	7%	7%	4%	5%	3%	2%	1%
185	83%	57%	29%	11%	11%	7%	8%	5%	3%	2%
190	89%	69%	40%	17%	17%	11%	12%	8%	5%	4%
195	93%	78%	52%	25%	25%	17%	18%	13%	8%	6%
200	96%	86%	64%	36%	36%	25%	27%	20%	12%	9%
205	97%	91%	75%	48%	48%	36%	38%	29%	18%	14%
210	98%	94%	83%	60%	60%	48%	50%	40%	27%	22%
215	99%	96%	89%	71%	71%	60%	62%	52%	38%	31%
220	99%	98%	93%	80%	80%	71%	73%	64%	50%	43%
225	100%	99%	96%	87%	87%	80%	82%	75%	62%	55%
230	100%	99%	97%	92%	92%	87%	88%	83%	73%	67%
235	100%	99%	98%	95%	95%	92%	92%	89%	82%	77%
240	100%	100%	99%	97%	97%	95%	95%	93%	88%	84%
245	100%	100%	99%	98%	98%	97%	97%	96%	92%	90%
250	100%	100%	100%	99%	99%	98%	98%	97%	95%	94%
255	100%	100%	100%	99%	99%	99%	99%	98%	97%	96%
260	100%	100%	100%	100%	100%	99%	99%	99%	98%	98%
265	100%	100%	100%	100%	100%	100%	100%	99%	99%	99%
270	100%	100%	100%	100%	100%	100%	100%	100%	99%	99%
275	100%	100%	100%	100%	100%	100%	100%	100%	100%	99%
280	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
285	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
290	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
295	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
300	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

*Note: This table provides the estimated probability of passing the state test in spring, based on a MAP test score taken during the previous (fall) season. Example: if a third grade student scored a 190 on a MAP test taken during the fall season, her/his estimated probability of passing the state test in spring is 69%.