A Study of the Alignment of the NWEA RIT Scale with the Ohio Achievement Tests

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Recently, NWEA completed a project to connect the scale of the tests used for Ohio mathematics and reading assessments with NWEA's RIT scale. Information from the Ohio 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 aggregate state test results with NWEA test results for all schools whose NWEA test count for a grade and subject was between 95% and 105% of the count tested on the state assessment. This provided assurance that only schools that had tested a very similar population on both tests were included.

The Ohio state test is administered in spring. 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 40^{th} percentile for the study population (this would not be the same as the 40^{th} 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 Ohio 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 should also be used 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 Ohio Performance Levels – Mathematics

Grade	Limited	Basic		Proficient		Accelerated		Advanced	
	Cut score	Cut score	Percentile	Cut score	Percentile	Cut score	Percentile	Cut score	Percentile
2	<173	173	7	181	20	194	61	202	84
3	<182	182	7	192	20	205	61	213	84
4	<195	195	12	204	31	218	72	225	87
5	<207	207	22	215	40	227	72	233	85
6	<207	207	16	217	33	228	60	236	78
7	<205	205	10	221	32	243	80	253	93
8	<205	205	7	225	31	246	75	258	93
9	<205	205	7	230	31	250	75	261	93

*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 2: Blue font denotes an estimated cut score due to insufficient data.

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

Grade	Limited	Basic		Proficient		Accelerated		Advanced	
	Cut score	Cut score	Percentile	Cut score	Percentile	Cut score	Percentile	Cut score	Percentile
2	<168	168	10	177	21	185	37	195	64
3	<178	178	10	187	21	195	37	204	64
4	<188	188	12	195	21	210	61	222	91
5	<193	193	10	201	21	218	70	227	91
6	<198	198	12	207	25	223	71	232	91
7	<196	196	8	209	23	224	64	233	86
8	<198	198	6	212	22	226	59	236	87
9	<193	193	4	210	15	227	55	239	88
10	<188	188	2	203	7	228	51	240	88

*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 2: Blue font denotes an estimated cut score due to insufficient data.

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

Grade	Limited	Basic		Proficient		Accelerated		Advanced	
	Cut score	Cut score	Percentile	Cut score	Percentile	Cut score	Percentile	Cut score	Percentile
2	<163	163	7	170	20	182	61	190	85
3	<174	174	7	182	20	196	61	204	85
4	<188	188	12	198	32	210	74	216	88
5	<202	202	23	208	40	219	73	225	86
6	<203	203	16	212	34	222	61	229	79
7	<202	202	10	217	32	237	81	246	93
8	<202	202	7	222	32	240	75	251	93
9	<205	205	7	225	32	245	75	255	93

*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 2: Blue font denotes an estimated cut score due to insufficient data.

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

Grade	Limited	Basic		Proficient		Accelerated		Advanced	
	Cut score	Cut score	Percentile	Cut score	Percentile	Cut score	Percentile	Cut score	Percentile
2	<157	157	10	163	22	172	38	184	65
3	<170	170	10	179	22	187	38	197	65
4	<182	182	12	189	22	205	63	216	91
5	<187	187	10	196	21	214	71	223	92
6	<194	194	12	203	25	219	71	228	91
7	<194	194	8	206	23	221	65	229	86
8	<194	194	6	209	22	223	60	233	87
9	<191	191	4	207	15	225	57	236	88
10	<185	185	2	202	7	227	53	239	89

*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 2: Blue font denotes an estimated cut score due to insufficient data.

Table 5 –Estimated Probability of Passing State Mathematics Test in Same Season (Spring), by Student Grade and RIT Score Range on MAP Mathematics

Estimated Probability of Passing State Test for Student with Given RIT Score								
RIT Range	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7	Grade 8	Grade 9
130	1%	0%	0%	0%	0%	0%	0%	0%
135	1%	0%	0%	0%	0%	0%	0%	0%
140	2%	1%	0%	0%	0%	0%	0%	0%
145	3%	1%	0%	0%	0%	0%	0%	0%
150	5%	2%	1%	0%	0%	0%	0%	0%
155	8%	3%	1%	0%	0%	0%	0%	0%
160	13%	5%	1%	1%	0%	0%	0%	0%
165	20%	8%	2%	1%	1%	0%	0%	0%
170	29%	12%	4%	1%	1%	1%	1%	0%
175	40%	18%	6%	2%	2%	1%	1%	1%
180	52%	27%	10%	4%	3%	2%	1%	1%
185	64%	38%	16%	6%	5%	3%	2%	1%
190	75%	50%	23%	9%	8%	5%	4%	2%
195	83%	62%	33%	14%	12%	8%	6%	4%
200	89%	73%	45%	22%	18%	13%	9%	6%
205	93%	82%	57%	31%	27%	20%	14%	9%
210	96%	88%	69%	43%	38%	29%	22%	14%
215	97%	92%	78%	55%	50%	40%	31%	22%
220	98%	95%	86%	67%	62%	52%	43%	31%
225	99%	97%	91%	77%	73%	64%	55%	43%
230	99%	98%	94%	84%	82%	75%	67%	55%
235	100%	99%	96%	90%	88%	83%	77%	67%
240	100%	99%	98%	94%	92%	89%	84%	77%
245	100%	100%	99%	96%	95%	93%	90%	84%
250	100%	100%	99%	98%	97%	96%	94%	90%
255	100%	100%	99%	99%	98%	97%	96%	94%
260	100%	100%	100%	99%	99%	98%	98%	96%
265	100%	100%	100%	99%	99%	99%	99%	98%
270	100%	100%	100%	100%	100%	99%	99%	99%
275	100%	100%	100%	100%	100%	100%	99%	99%
280	100%	100%	100%	100%	100%	100%	100%	99%
285	100%	100%	100%	100%	100%	100%	100%	100%
290	100%	100%	100%	100%	100%	100%	100%	100%
295	100%	100%	100%	100%	100%	100%	100%	100%
300	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 12%.

Table 6 – Estimated Probability of Passing State Reading Test in Same Season (Spring), by Student Grade and RIT Score Range on MAP Reading

Estimated Probability of Passing State Test for Student with Given RIT Score									
RIT Range	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7	Grade 8	Grade 9	Grade 10
130	1%	0%	0%	0%	0%	0%	0%	0%	0%
135	2%	1%	0%	0%	0%	0%	0%	0%	0%
140	3%	1%	1%	0%	0%	0%	0%	0%	0%
145	5%	2%	1%	0%	0%	0%	0%	0%	0%
150	8%	3%	1%	1%	0%	0%	0%	0%	1%
155	12%	5%	2%	1%	1%	1%	0%	1%	1%
160	18%	8%	4%	2%	1%	1%	1%	1%	2%
165	27%	12%	6%	3%	2%	1%	1%	1%	3%
170	38%	18%	9%	5%	3%	2%	2%	2%	4%
175	50%	27%	14%	8%	5%	4%	3%	4%	7%
180	62%	38%	22%	13%	8%	6%	5%	6%	11%
185	73%	50%	31%	20%	12%	10%	8%	9%	17%
190	82%	62%	43%	29%	18%	16%	12%	14%	25%
195	88%	73%	55%	40%	27%	23%	18%	22%	36%
200	92%	82%	67%	52%	38%	33%	27%	31%	48%
205	95%	88%	77%	64%	50%	45%	38%	43%	60%
210	97%	92%	84%	75%	62%	57%	50%	55%	71%
215	98%	95%	90%	83%	73%	69%	62%	67%	80%
220	99%	97%	94%	89%	82%	78%	73%	77%	87%
225	99%	98%	96%	93%	88%	86%	82%	84%	92%
230	100%	99%	98%	96%	92%	91%	88%	90%	95%
235	100%	99%	99%	97%	95%	94%	92%	94%	97%
240	100%	100%	99%	98%	97%	96%	95%	96%	98%
245	100%	100%	99%	99%	98%	98%	97%	98%	99%
250	100%	100%	100%	99%	99%	99%	98%	99%	99%
255	100%	100%	100%	100%	99%	99%	99%	99%	100%
260	100%	100%	100%	100%	100%	99%	99%	99%	100%
265	100%	100%	100%	100%	100%	100%	100%	100%	100%
270	100%	100%	100%	100%	100%	100%	100%	100%	100%
275	100%	100%	100%	100%	100%	100%	100%	100%	100%
280	100%	100%	100%	100%	100%	100%	100%	100%	100%
285	100%	100%	100%	100%	100%	100%	100%	100%	100%
290	100%	100%	100%	100%	100%	100%	100%	100%	100%
295	100%	100%	100%	100%	100%	100%	100%	100%	100%
300	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 62%.

Table 7 – Estimated Probability of Passing State 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 for Student with Given RIT Score								
RIT Range	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7	Grade 8	Grade 9
130	2%	1%	0%	0%	0%	0%	0%	0%
135	4%	1%	0%	0%	0%	0%	0%	0%
140	6%	2%	0%	0%	0%	0%	0%	0%
145	9%	3%	1%	0%	0%	0%	0%	0%
150	14%	5%	1%	0%	0%	0%	0%	0%
155	22%	8%	2%	1%	0%	0%	0%	0%
160	31%	12%	3%	1%	1%	0%	0%	0%
165	43%	18%	4%	2%	1%	1%	0%	0%
170	55%	27%	7%	3%	2%	1%	1%	1%
175	67%	38%	11%	4%	3%	2%	1%	1%
180	77%	50%	17%	7%	5%	3%	2%	1%
185	84%	62%	25%	11%	8%	5%	3%	2%
190	90%	73%	36%	17%	12%	8%	5%	4%
195	94%	82%	48%	25%	18%	12%	8%	6%
200	96%	88%	60%	36%	27%	18%	12%	9%
205	98%	92%	71%	48%	38%	27%	18%	14%
210	99%	95%	80%	60%	50%	38%	27%	22%
215	99%	97%	87%	71%	62%	50%	38%	31%
220	99%	98%	92%	80%	73%	62%	50%	43%
225	100%	99%	95%	87%	82%	73%	62%	55%
230	100%	99%	97%	92%	88%	82%	73%	67%
235	100%	100%	98%	95%	92%	88%	82%	77%
240	100%	100%	99%	97%	95%	92%	88%	84%
245	100%	100%	99%	98%	97%	95%	92%	90%
250	100%	100%	100%	99%	98%	97%	95%	94%
255	100%	100%	100%	99%	99%	98%	97%	96%
260	100%	100%	100%	100%	99%	99%	98%	98%
265	100%	100%	100%	100%	100%	99%	99%	99%
270	100%	100%	100%	100%	100%	100%	99%	99%
275	100%	100%	100%	100%	100%	100%	100%	99%
280	100%	100%	100%	100%	100%	100%	100%	100%
285	100%	100%	100%	100%	100%	100%	100%	100%
290	100%	100%	100%	100%	100%	100%	100%	100%
295	100%	100%	100%	100%	100%	100%	100%	100%
300	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 27%.

Table 8 – Estimated Probability of Passing State 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 for Student with Given RIT Score									
RIT Range	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7	Grade 8	Grade 9	Grade 10
130	4%	1%	0%	0%	0%	0%	0%	0%	0%
135	7%	1%	1%	0%	0%	0%	0%	0%	0%
140	11%	2%	1%	0%	0%	0%	0%	0%	0%
145	17%	4%	1%	1%	0%	0%	0%	0%	0%
150	25%	6%	2%	1%	1%	0%	0%	0%	1%
155	36%	10%	4%	2%	1%	1%	1%	1%	1%
160	48%	16%	6%	3%	2%	1%	1%	1%	2%
165	60%	23%	10%	5%	3%	2%	1%	2%	3%
170	71%	33%	16%	8%	4%	3%	2%	3%	5%
175	80%	45%	23%	13%	7%	5%	4%	5%	8%
180	87%	57%	33%	20%	11%	8%	6%	8%	12%
185	92%	69%	45%	29%	17%	13%	10%	12%	18%
190	95%	78%	57%	40%	25%	20%	16%	18%	27%
195	97%	86%	69%	52%	36%	29%	23%	27%	38%
200	98%	91%	78%	64%	48%	40%	33%	38%	50%
205	99%	94%	86%	75%	60%	52%	45%	50%	62%
210	99%	96%	91%	83%	71%	64%	57%	62%	73%
215	100%	98%	94%	89%	80%	75%	69%	73%	82%
220	100%	99%	96%	93%	87%	83%	78%	82%	88%
225	100%	99%	98%	96%	92%	89%	86%	88%	92%
230	100%	99%	99%	97%	95%	93%	91%	92%	95%
235	100%	100%	99%	98%	97%	96%	94%	95%	97%
240	100%	100%	99%	99%	98%	97%	96%	97%	98%
245	100%	100%	100%	99%	99%	98%	98%	98%	99%
250	100%	100%	100%	100%	99%	99%	99%	99%	99%
255	100%	100%	100%	100%	100%	99%	99%	99%	100%
260	100%	100%	100%	100%	100%	100%	99%	100%	100%
265	100%	100%	100%	100%	100%	100%	100%	100%	100%
270	100%	100%	100%	100%	100%	100%	100%	100%	100%
275	100%	100%	100%	100%	100%	100%	100%	100%	100%
280	100%	100%	100%	100%	100%	100%	100%	100%	100%
285	100%	100%	100%	100%	100%	100%	100%	100%	100%
290	100%	100%	100%	100%	100%	100%	100%	100%	100%
295	100%	100%	100%	100%	100%	100%	100%	100%	100%
300	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 78%.