



Rigby READS Test Development¹

How the Tests Were Developed

The content of the *Rigby READS* assessment series is based on the sixth edition of the *Metropolitan Achievement Tests* (MAT). The MAT has been one of the most respected and widely used achievement tests chosen by the nation's schools since 1930.

The Foundation of *Rigby READS*

Rigby READS focuses on three perceived needs of educators in today's schools:

- First, there is a need on the part of classroom teachers for accurate but quick assessment of each students' current level of reading comprehension, preferably on a group basis. This information is critical to assigning reading tasks that are on the correct level – i.e., challenging, but not so difficult as to be frustrating or to require constant teacher intervention.
- Second, there is a need for diagnostic information, especially for students whose current level of achievement is low.
- Finally, administrators seek the results of the above sets of information in an easily summarized and interpretable form that could result in effective leadership of a sound reading program.

These requests for reading levels, diagnostic information, and instructionally useful summaries in an efficient and technically superior form led to the development of *Rigby READS*, which consists of a series of Diagnostic Tests that assess a student's achievement in each of the major skill areas of reading.

Many instruments provide a reading diagnosis for students; however, almost all such instruments are individually administered, thus requiring both a trained administrator and a large amount of time to collect information for large groups. *Rigby READS* provides this information concurrently for *groups* of students. Thus all of the *READS* tests (with the exception of the Phonemic Awareness Test and an optional Fluency Test) are group-administered. Teachers can focus on the accuracy of test scores and the *importance* and *representativeness* of test content, or its *reliability* and *validity*.

Content and Structure of *Rigby READS*

All reading selections and tests items on *Rigby READS*, including corresponding artwork, were reviewed by highly experienced reading professionals for such issues as

¹ Information included in this document was excerpted from the *Rigby READS* Teacher Manual (Farr, Beck & Munroe (2005).

appropriateness, timeliness, and potential bias. Approximately 93% of the test items included in *Rigby READS* were drawn from the *Metropolitan Achievement Tests, Sixth Edition (MAT6)*. This is a critical aspect of the technical superiority of the *READS* product, as the MAT6 series was developed over a period of six years. Its development involved more than three years of content development by trained, experienced reading and assessment professionals.

Test Item Construction and Try Out

As part of the development of the MAT6 series, all test items were field tested nationally using a sample of approximately 22,000 students. Schools included in this research activity were selected to represent the national school population in terms of geographic region, school system enrollment, and socioeconomic status. The item analysis field-test research program provided data on the empirical difficulty level of each item (both traditional *p*-value and Rasch item difficulties), the percent of students choosing each option as the answer to the item, and the relationship between item response and total score on the tests (point-biserial discrimination indices). Data in this program were collected for the grade at which the test item was ultimately intended, as well as for one grade above and one grade below. This design permitted the movement of items to adjacent grades if student performance indicated a more appropriate fit to a grade other than that originally intended. It also permitted an inspection of all test items for their appropriateness for assessing growth over time.

National Standardization Research

The MAT6 Diagnostic tests were standardized nationally using a sample of approximately 70,000 students in grades K through 8; the Reading Comprehension tests were also standardized using a separate sample of more than 300,000 students. Schools participating in the national standardization program were selected to represent the nation's school population with respect to geographic region, school system enrollment, public vs. private affiliation, and, most critically, socioeconomic status.

Because the *Instructional Reading Level* scores are so integral to the *Rigby READS* series and its interpretation, several validation studies were conducted to confirm the accuracy of these scores. The results are summarized below:

1. Teachers judged the grade level of each MAT reading passage during the national standardization program. No indications were available to them of the designated levels of the passages. Teacher ratings closely followed the assigned grade levels both within and across test levels.
2. When *Instructional Reading Levels* assigned to students on the basis of their MAT scores were studied relative to other reading level estimates (tests in the students' basal reader, cloze tests, or informal reading inventories), the estimates of *Instructional Reading Levels* were all highly intercorrelated. MAT-based *Instructional Reading Levels* estimates had a higher correlation with each of the

- other methods than did any of the other methods with one another. This information is presented more fully in an article by Smith and Beck (1980).
3. Extensive analysis of both the standardization data and the final versions of *Rigby READS* indicates anticipated relationships between grade levels of reading passages and the difficulty of questions based on these passages. The higher the level of the passage, the lower the student performance. This is a critical element of the validation of the *Rigby READS Instructional Reading Levels*. It is possible to write very difficult test items for rather easy reading selections and vice versa. However, in order for *Rigby READS* to provide valid estimates of Instructional Reading Levels, the difficulty of test items must match the difficulty of the passages.

Test Reliability

The reliability of any test is one indication of the confidence that may be placed in the scores resulting from the test. The test data presented for *Rigby READS* are Kuder-Richardson reliability estimates, which provide a measure of the instrument's internal consistency.

Reliability coefficients (r_{tt}) and standard errors of measurement (SE_M) are presented in Tables 1-8 at the end of this document. The standard error of measurement is a statistical estimate of how closely a student's obtained raw score is to his or her theoretical true score. It indicates the range of raw scores within which a student, if tested multiple times using parallel forms of the same test, would likely score. Kuder-Richardson reliability coefficients presented in Table 1-8 are based on the on-level sample of students in the MAT6 standardization, adjusted as appropriate because of changes in the test content of *Rigby READS*. Reliability data are presented for both the Reading Comprehension Test and for all components of the *Diagnostic Test*.

Test Validity

A test is content valid if the underlying measured objectives and test items adequately cover the curricular areas the test is intended to measure. Since each school district's curriculum differs, each potential user must determine the content validity of *Rigby READS*. To assist schools in judging the content validity of *Rigby READS*, a Compendium of Objectives Across All Test Levels (Tables 9-10) presented at the end of this document.

The content coverage of *Rigby READS* was validated at four states in its development.

- First, the authors based the test blueprints on an extensive analysis of textbooks and other curricular materials in wide use nationally. Special attention during this phase was paid to the report and recommendations of the National Reading Panel (National Institute of Child Health and Human Development, 2000).

- Second, content editors, all former teachers holding advanced degrees in education or an English-language area, verified the selection and grade placement of the proposed objectives to be assessed.
- Third, curriculum experts from around the nation confirmed the match of the objectives to current school syllabi. Thousands of students throughout the nation demonstrated the appropriateness of the items and objectives by their performances on the tests during the various large-scale research programs.
- Finally, teachers participating in the standardization programs affirmed that these were the instructional objectives currently being taught at the tested grade level.

References

Farr, R., Beck, M.D., & Munroe, K. (2005). *Rigby READS Reading Evaluation and Diagnostic System: Teacher's Manual*. Austin, TX: Harcourt Achieve.

National Institute of Child Health and Human Development. (2000). *Report of the National Reading Panel. Teaching children to read: an evidence-based assessment of the scientific research literature on reading and its implications for reading instruction: Reports of the subgroups (NIH Publication No. 00-4754)*. Washington, DC: U.S. Government Printing Office.

Smith, W.E., & Beck, M.D. (1980). Determining instructional reading level with 1978 Metropolitan Achievement Tests. *The Reading Teacher*, 34, 313-319.

Appendix

Table 1

Kuder-Richardson 20 Internal-Consistency Reliability Estimates and Raw Score Standard Errors of Measurement for End of Grade 1: Grade 1 Test

Test Name	Number of Items	Form A		Form B	
		KR 20	Se _m	KR 20	Se _m
Visual Discrimination	24	.81	1.2	.77	1.0
Auditory Discrimination	24	.84	1.9	.83	1.5
Letter Recognition	26	.88	.8	.82	0.7
Sounds-Letters: Consonants	30	.89	2.0	.86	1.5
Vocabulary in Context	15	.78	1.6	.72	1.5
Reading Comprehension	44	.88	2.6	.88	2.6

Table 2

Kuder-Richardson 20 Internal-Consistency Reliability Estimates and Raw Score
Standard Errors of Measurement for End of Grade 2: Grade 2 Test

Test Name	Number of Items	Form A		Form B	
		KR 20	Se _m	KR 20	Se _m
Auditory Discrimination	20	.79	1.6	.79	1.4
Visual Discrimination	12	.73	0.4	.64	0.5
Letter Recognition	26	.75	1.3	.72	0.8
Sounds-Letters: Consonants	27	.87	1.8	.82	1.5
Sounds-Letters: Vowels	30	.91	2.3	.86	2.2
Vocabulary in Context	22	.92	1.6	.84	1.4
Word Part Clues	21	.88	1.8	.81	1.6
Reading Comprehension	49	.89	2.8	.89	2.8

Table 3

Kuder-Richardson 20 Internal-Consistency Reliability Estimates and Raw Score
Standard Errors of Measurement for End of Grade 3: Grade 3 Test

Test Name	Number of Items	Form A		Form B	
		KR 20	Se _m	KR 20	Se _m
Sounds-Letters: Consonants	27	.84	1.6	.85	1.3
Sounds-Letters: Vowels	36	.94	2.3	.90	2.3
Vocabulary in Context	22	.89	1.5	.81	1.2
Word Part Clues	24	.88	1.8	.83	1.6
Reading Comprehension	45	.88	2.5	.88	2.6

Table 4

Kuder-Richardson 20 Internal-Consistency Reliability Estimates and Raw Score
Standard Errors of Measurement for End of Grade 4: Grade 4 Test

Test Name	Number of Items	Form A		Form B	
		KR 20	Se _m	KR 20	Se _m
Sounds-Letters: Consonants	24	.80	1.7	.83	1.7
Sounds-Letters: Vowels	42	.94	2.4	.90	2.6
Vocabulary in Context	22	.89	1.5	.84	1.5
Word Part Clues	24	.85	1.9	.83	1.8
Reading Comprehension	48	.89	2.8	.89	2.7

Table 5

Kuder-Richardson 20 Internal-Consistency Reliability Estimates and Raw Score
Standard Errors of Measurement for End of Grade 5: Grade 5 Test

Test Name	Number of Items	Form A		Form B	
		KR 20	Se _m	KR20	Se _m
Sounds-Letters: Consonants	24	.86	1.7	.83	1.7
Sounds-Letters: Vowels	42	.94	2.3	.90	2.5
Vocabulary in Context	24	.85	1.7	.83	1.9
Word Part Clues	18	.82	1.6	.79	1.7
Reading Comprehension	48	.89	2.8	.89	2.8

Table 6

Kuder-Richardson 20 Internal-Consistency Reliability Estimates and Raw Score
Standard Errors of Measurement for End of Grade 6: Grade 6 Test

Test Name	Number of Items	Form A		Form B	
		KR 20	Se _m	KR 20	Se _m
Vocabulary in Context	24	.86	1.7	.83	1.7
Word Part Clues	18	.81	1.6	.77	1.6
Skimming and Scanning	20	.74*	2.1	.74*	2.3
Reading Comprehension	48	.89	1.6	.89	2.9

*Because the Skimming and Scanning Test is speeded, alternate-form reliability coefficients are reported for this test.

Table 7

Kuder-Richardson 20 Internal-Consistency Reliability Estimates and Raw Score
Standard Errors of Measurement for End of Grade 7: Grade 7 Test

Test Name	Number of Items	Form A		Form B	
		KR 20	Se _m	KR 20	Se _m
Vocabulary in Context	24	.84	1.6	.83	1.7
Skimming and Scanning	20	.74*	2.3	.74*	2.3
Reading Comprehension	48	.89	2.8	.89	2.8

*Because the Skimming and Scanning Test is speeded, alternate-form reliability coefficients are reported for this test.

Table 8

Kuder-Richardson 20 Internal-Consistency Reliability Estimates and Raw Score
Standard Errors of Measurement for End of Grade 8: Grade 8 Test

Test Name	Number of Items	Form A		Form B	
		KR 20	Se _m	KR 20	Se _m
Vocabulary in Context	24	.85	1.7	.83	1.6
Skimming and Scanning	20	.74*	2.2	.74*	2.2
Reading Comprehension	48	.88	2.8	.88	2.8

*Because the Skimming and Scanning Test is speeded, alternate-form reliability coefficients are reported for this test.

Table 9

Rigby READS Compendium of Objectives Across All Test Levels Form A

Reading Skills and Strategies		Beginning Reader	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7	Grade 8
Phonemic Awareness (Optional Test)		1-40	1-40	1-40						
Visual Discrimination		1-10	1-24	1-12						
	Single Letters		1-12	1-6						
	Letter Combinations		13-24	7-12						
Auditory Discrimination		1-10	1-24	1-20						
Initial Position	Single Consonants		1-8	1-4						
	Consonant Blends		9-12	5-8						
Final Position	Single Consonants		13-20	9-14						
	Consonant Blends		21-24	15-20						
Letter Recognition		1-10	1-26	1-26						
Sounds-Letters Consonants		1-10	1-30	1-27	1-27	1-24	1-24			
Initial Position	Single Consonants		1-12	1-3	1-3	1-3	1-3			
	Consonant Clusters		13-18	4-9	4-6	4-6	4-6			
	Consonant Digraphs				7-9	7-9	7-9			
Final Position	Single Consonants		19-24	10-18	10-15	10-12	10-12			
	Consonant Clusters			19-27	16-21	13-15	13-15			
	Consonant Digraphs				22-27	16-18	16-18			
Rhyming			25-30							
Silent Letters						19-24	19-24			
Sounds-Letters Vowels				1-30	1-36	1-42	1-42			
	Short Vowel a, e, i, o, u		1,3,5,6,8,10,11,13,15,17,19,22,24,27,29	1,3,6,7,9,12,13,15,18,20,22,26,28,32,34	1,3,5,7,9,11,13,15,17,19,21,25,27,31,33	1,3,5,7,9,11,13,15,17,19,21,25,27,31,33				
	Long Vowel, a, e, i, o, u		2,4,7,9,12,14,16,18,20,21,23,25,26,28,30	2,4,8,10,14,16,19,21,24,25,27,30,31,33,36	2,4,6,8,10,12,14,16,18,20,23,26,29,32,35	2,4,6,8,10,12,14,16,18,20,23,26,29,32,35				
	Digraph			23,29,35	24,30,36,38,39,40	22,28,36,37,39,41				
	Diphthong			5,11,17	22,28,34,37,41,42	22,28,34,37,39,41				
Vocabulary in Context			1-15	1-22	1-22	1-22	1-24	1-24	1-24	1-24
Word Part Clues				1-21	1-24	1-24	1-18	1-18		
Affixes	Prefixes			10-15	10-15	10-15	2,4,6,8,10,12,14,16,18	2,4,6,8,10,12,14,16,18		
	Suffixes			1-6	5-9	7-9	1,3,5,7,9,11,13,15,17	1,3,5,7,9,11,13,15,17		
	Inflection Endings			7-9	1-4	1-6				
Compound Words	Compound Words			16-21	16-24	16-24				

Table 9 continued

Rigby READS Compendium of Objectives Across All Test Levels Form A

Reading Skills and Strategies		Beginning Reader	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7	Grade 8
Skimming and Scanning								1-20	1-20	1-20
	Specific Details							1,3,4,5,6,7,8,10,11,13,15,16,18,20	1,2,4,5,6,7,9,10,12,14,16,18,20	3,5,6,7,11,12,14,15,16,17,18,19,20
	Inference							15,16,17,18,19	9,12,16,19,20	2,5,8,9,11,12,13,14,18
	Use of Tables and Graphs							2,9,12,14	3,8,11,13,15,17	2,4,8,13
	Overview							14,17,19	14,17,19	1,4,10
Reading Fluency (Optional Test)										
Reading Comprehension		1-5	1-44	1-49	1-45	1-48	1-48	1-48	1-48	1-45
Word Reading		5	10							
Sentence Reading			4	4						
Literal Comprehension			16	21	17	13	15	12	9	10
	Identify Details		1,2,3,6,7,8,10,11,12,13,14,16,23,26,28,29	1,2,3,4,7,8,9,13,16,17,18,19,24,28,31,33,41	11,14,15,18,19,22,24,33,34,36,38,41,42	1,2,3,6,7,11,12,17,28,30,40,46	1,2,4,7,12,17,24,26,29,30,40,44	1,2,3,8,11,19,24,39,41,44,45	1,7,9,18,21,26,43	1,8,14,16,28,29,34,36
	Recognize Sequence			15,26,27,30	3,17,29,37	23	33,35,38	12	8,37	7,20
Inferential Comprehension			7	14	11	18	19	10	14	13
	Infer Meaning		15,20,22,30	10,35,40,45	5,10,30,40,45	5,10,15,21,32,37,43	5,10,16,21,37,42,43,48	9,16,21,27,43,48	11,23,30,36,42,48	6,12,26,32,45
	Identify Main Idea			25,34,39,44	9,25,44	20,31,42,47	22,32,41	26,42	10,17,35	5,11,13,38,40
	Identify Cause and Effect		4,5,9	12,14,29,32,36,42	1,8,26	4,16,24,25,29,33,45	9,11,18,19,27,28,36,45	35,36	2,5,31,38,40	2,18,30
Critical Comprehension			7	10	17	17	14	26	25	22
	Draw Conclusions		18,19,21,24,25,27	5,20,21,22,23,37,43	2,6,13,16,20,23,39,43	9,18,19,34,35,36,38,39,41,44	3,6,25,31,34,47	4,10,15,17,18,20,23,25,30,33,40,46	4,14,16,19,20,22,27,29,32,34,41,46,47	3,4,9,10,22,25,27,31,37,44
	Summarize		17	18	12,21	13	8	5,13,14	13,28	15,19,21,33,39
	Analyze Story Elements			6,11	4,7,27	8,22,26	13,14,20	6,7,29,31,34,37	3,6,15,24,33,39	
	Interpret Figurative Language				28	14,48	46		12,25	23,24,35
	Identify Author's Purpose/Audience				31,32,35		15,23	38		
	Identify Genres/Types of Passages					27		22,32,47		17
	Identify Facts and Opinions						39	28	44,45	41,42,43

Table 10

Rigby READS Compendium of Objectives Across All Test Levels Form B

Reading Skills and Strategies		Beginning Reader	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7	Grade 8
Phonemic Awareness (Optional Test)		1-40	1-40	1-40						
Visual Discrimination		1-10	1-24	1-12						
	Single Letters		1-12	1-6						
	Letter Combinations		13-24	7-12						
Auditory Discrimination		1-10	1-24	1-20						
Initial Position	Single Consonants		1-8	1-4						
	Consonant Blends		9-12	5-8						
Final Position	Single Consonants		13-20	9-14						
	Consonant Blends		21-24	15-20						
Letter Recognition		1-10	1-26	1-26						
Sounds-Letters Consonants		1-10	1-30	1-27	1-27	1-24	1-24			
Initial Position	Single Consonants		1-12	1-3	1-3	1-3	1-3			
	Consonant Clusters		13-18	4-9	4-6	4-6	4-6			
	Consonant Digraphs				7-9	7-9	7-9			
Final Position	Single Consonants		19-24	10-18	10-15	10-12	10-12			
	Consonant Clusters			19-27	16-21	13-15	13-15			
	Consonant Digraphs				22-27	16-18	16-18			
Rhyming			25-30							
Silent Letters						19-24	19-24			
Sounds-Letters Vowels				1-30	1-36	1-42	1-42			
	Short Vowel a, e, i, o, u		1,3,5,6,8,10,11,13,15,17,19,22,24,27,29	1,3,6,7,9,12,13,15,18,20,22,26,28,32,34	1,3,5,7,9,11,13,15,17,19,21,25,27,31,33	1,3,5,7,9,11,13,15,17,19,21,25,27,31,33				
	Long Vowel, a, e, i, o, u		2,4,7,9,12,14,16,18,20,21,23,25,26,28,30	2,4,8,10,14,16,19,21,24,25,27,30,31,33,36	2,4,6,8,10,12,14,16,18,20,23,26,29,32,35	2,4,6,8,10,12,14,16,18,20,23,26,29,32,35				
	Digraph			23,29,35	24,30,36,38,39,40	22,28,36,37,39,41				
	Diphthong			5,11,17	22,28,34,37,41,42	22,28,34,37,39,41				
Vocabulary in Context			1-15	1-22	1-22	1-22	1-24	1-24	1-24	1-24
Word Part Clues				1-21	1-24	1-24	1-18	1-18		
Affixes	Prefixes			10-15	10-15	10-15	2,4,6,8,10,12,14,16,18	2,4,6,8,10,12,14,16,18		
	Suffixes			1-6	5-9	7-9	1,3,5,7,9,11,13,15,17	1,3,5,7,9,11,13,15,17		
	Inflection Endings			7-9	1-4	1-6				
Compound Words	Compound Words			16-21	16-24	16-24				

Table 10 continued

Rigby READS Compendium of Objectives Across All Test Levels Form B

Reading Skills and Strategies		Beginning Reader	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7	Grade 8
Skimming and Scanning								1-20	1-20	1-20
	Specific Details							1,3,4,5,6,7,8,10,11,13,15,16,18,20	1,2,4,5,6,7,9,10,12,14,16,18,20	3,5,6,7,11,12,14,15,16,17,18,19,20
	Inference							15,16,17,18,19	9,12,16,19,20	2,5,8,9,11,12,13,14,18
	Use of Tables and Graphs							2,9,12,14	3,8,11,13,15,17	2,4,8,13
	Overview							14,17,19	14,17,19	1,4,10
Reading Fluency (Optional Test)										
Reading Comprehension		1-5	1-44	1-49	1-45	1-48	1-48	1-48	1-48	1-45
Word Reading		5	10							
Sentence Reading			4	4						
Literal Comprehension			16	21	17	13	15	12	9	10
	Identify Details		1,3,4,5,6,12,16,17,18,19,21,22,23	1,2,3,4,5,8,9,12,16,17,23,31,32,33,38,41	3,7,12,13,17,18,19,21,22,26,27,29,37	2,3,6,8,16,22,23,24,31,41,47	3,4,7,8,9,19,23,29,31,33,35,40,45	2,19,20,24,26,28,29,30,31	7,10,14,15,38,39,40	10,16,34,35,38,40,41,42
	Recognize Sequence			22,27,36,37	1,11,31,32	18,27	1,12	6,40	2,31	1,3
Inferential Comprehension			7	14	11	18	19	10	14	13
	Infer Meaning		25	15,20,35,40,45	5,10,20,25,30,35	5,19,20,36,37,42,48	5,27,37,42,43	27,32,43,48	4,11,21,23,29,42	39,44,45
	Identify Main Idea		10,20,24	6,11,30	15	12,26,32,35	6,22,26,32,36,44,48	17,33,38	17,28,30	5,7,14,21,27
	Identify Cause and Effect		7,8,11	7,13,19,21,34,42	23,38,39	1,11,13,17,25,28,33	2,13,17,18,20,28,30,38	11,23,45	3,8,12,32,37	2,17,18,30,36
Critical Comprehension			7	10	17	17	14	26	25	22
	Draw Conclusions		2,13,14,15,30	10,14,29,39,44	2,4,9,14,16,24,28,40,41,42	4,10,21,29,30,34,39,44,45,46	25,34,39,46	8,9,18,21,22,25,42,48	1,9,18,19,22,24,25,27,34,41,45,46	4,12,19,32,37
	Summarize		9	28	34	40	15	7,34	5,33,47	23,24,31
	Analyze Story Elements			18,25,26	6,8,33	7,9,15	11,24	1,12,14,39	13,16,26	8,22
	Interpret Figurative Language			24	43	14	14	3,13,36	20,35,48	9,11,25,33
	Identify Author's Purpose/Audience				44	38	10,47	4,10,15	6,36	13,43
	Identify Genres/Types of Passages				45		16	5,16,37		6,26
	Identify Facts and Opinions					43	21,41	41	43,44	15,20,28,29