

INDIANA READING ASSESSMENT – GRADE 2

TECHNICAL REPORT

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Executive Summary

Reliability and Validity Results

A simplistic explanation of validity is that an assessment evaluates what it claims to assess. For the *Indiana Reading Assessment – Grade 2*, research was conducted to evaluate how well it assesses various reading skills of grade two students. Multiple analyses were conducted to establish the validity of the *Indiana Reading Assessment – Grade 2*. While the results of all the analyses were encouraging, the results derived from the concurrent validity study were most impressive. Correlations were either significant beyond the .05 level or, in the case in which a ceiling effect compromised correlations, the percentages of agreements were high. Thus, the *Indiana Reading Assessment – Grade 2* is a valid instrument for assessing phonics, vocabulary, reading comprehension, and phonemic awareness skills. The validity of the *Indiana Reading Assessment – Grade 2* at assessing overall reading ability is also established by the Cronbach's alpha of .911.

Establishing reliability is important in showing that an assessment obtains the same results when given under the same or similar circumstances. Three types of analysis were performed in order to evaluate whether the *Indiana Reading Assessment – Grade 2* was reliable—test-retest reliability, split-half reliability, and inter-rater reliability. In all three analyses, the resulting correlations were adequate, with the split-half reliability most robust.

Strengths of the *Indiana Reading Assessment – Grade 2*

The *Indiana Reading Assessment – Grade 2* was designed specifically for Indiana teachers to use in assessing students' reading abilities as determined by Indiana's Academic Standards for Reading. The completed research shows that the *Indiana Reading Assessment – Grade 2* is a valuable tool for assessing a student's phonics, vocabulary, reading comprehension, phonemic awareness, and overall reading abilities.

Research Needs

To date, no research has been conducted on the *Indiana Reading Assessment – Grade 2* that disaggregates data across demographic groups. Studies of this kind are important in determining whether there are any biases in assessments. Conducting this type of research is done by simply collecting the demographic information of a sample group of students and comparing the disaggregated data to national or state averages. With the introduction of the No Child Left Behind legislation, reporting progress among all groups is necessary.

With the increased focus on scientifically-based reading research, experimental research is being used more to establish the effectiveness of assessments, curricula, and programs. While this Technical Report contains results establishing the *Indiana Reading Assessment – Grade 2* as an effective assessment, the goal of the assessment goes beyond simply assessing. The goal is that teachers will identify

students at-risk and in need of intervention, and to provide intervention to enable students to realize reading success. Further experimental research is necessary to determine whether educators are effectively using the *Indiana Reading Assessment – Grade 2* to identify at-risk students and provide intervention. There are a variety of ways this research could be conducted. By using the data provided for the predictive validity study and comparing similar data to that of a control group, important information can be gathered about the effectiveness of the assessment in prompting intervention.

While the *Indiana Reading Assessment – Grade 2* has been established as reliable and valid in this report, the ROAR system uses a different form of measurement to create student and class reports. Analyses are necessary to establish those reports as reliable and can be done with data currently collected.

Conclusion

The data in this report show the *Indiana Reading Assessment – Grade 2* as both reliable and valid. Educators can be confident that the assessment can be used to effectively measure students' reading abilities and that the results are indicative of their students' reading skill levels.

Technical Report ***Indiana Reading Assessment – Grade 2***

The Indiana Department of Education, working with Indiana University’s Center for Innovation in Assessment, developed the *Indiana Reading Assessment – Grade 2* to serve as a tool for second grade teachers to use in gaining information about the developing reading skills of each of their students. The assessment is administered and scored by teachers three times during the academic year (i.e., October, January, and April/May).

To maximize instructional time and minimize testing time, all portions of the assessment are designed for full-class administration. Teacher scoring of the assessment makes it possible for teachers to immediately determine students’ developing reading strengths and areas of weakness. Training in how to administer, score, and interpret student results is provided through both a CD-ROM presentation as well as optional face-to-face professional development sessions.

Broad Coverage of Indiana Academic Standards for Reading and Writing:

Tasks and items of the *Indiana Reading Assessment – Grade 2* and associated checklists and supplemental resource activities are designed to provide a broad view of student literacy progress that reflects Indiana’s Academic Standards for Reading at grade two. This coverage is broader than that of commercially available tests and therefore more useful to Indiana classroom teachers. The clear link to Indiana’s Academic Standards allows easy access to curriculum support materials also matched to those standards.

*An overview of this broad coverage can be seen in **Appendix A: Standards Coverage Charts**.*

Match to Reading Skills Categories of the National Reading Panel Study:

The National Institute of Child Health and Human Development, the National Institute for Literacy, and the U. S. Department of Education convened the National Reading Panel (NRP) in 1997. Panel members were drawn from several disciplines including reading research, medicine, psychology, economics, and classroom teaching. The NRP was “charged with reviewing research in reading instruction and identifying methods that consistently relate to reading success.” The NRP identified and summarized research relating to the acquisition of beginning reading skills under the five headings: Phonemic Awareness, Phonics, Fluency, Vocabulary, and Text Comprehension. The reading skills organization of the NRP report has become an accepted way to describe and report reading skills. Therefore, this report interprets reliability and validity based on this set of reading skills.

Indiana Reading Assessment – Grade 2

Indiana’s Academic Standards and skills indicators for reading in grade two are comprehensive. It is not possible to assess all these indicators in a single administration that could be completed in a reasonable time by a second-grade student. The *Indiana Reading Assessment – Grade 2* progressively introduces increasingly difficult reading skills in the three administrations of the assessment while

dropping simpler skills likely to be mastered by nearly all students. This progression allows comprehensive coverage of Indiana’s Academic Standards for Reading while maintaining reasonable time limitations for a single reading assessment. A presentation of how the Grade 2 Assessment items reflect National Reading Panel reporting categories follow. Also included in the *Indiana Reading Assessment – Grade 2* is an optional Phonemic Awareness assessment that can be used with students who have below-level reading skills. Because grade two students are expected to have developed phonemic awareness skills, the Phonemic Awareness portion of the *Indiana Reading Assessment – Grade 2* is optional. The Phonemic Awareness portion is administered individually and its structure is the same for each administration.

Table 1: Indiana Reading Assessment – Grade 2

Administration 1 (October)		
Phonics (24 items; 24 points)		
Initial Consonant Recognition	6 items	6 points
Final Consonant Recognition	6 items	6 points
Long & Short Vowel Recognition	12 items	12 points
Vocabulary (24 items; 24 points)		
Vocabulary in Context	12 items	12 points
Compound Words	6 items	6 points
Synonyms	6 items	6 points
Text Comprehension		
Reading Comprehension (3 stories; mix of open-ended and multiple-choice items)	13 items	14 points

Administration 2 (January)		
Phonics (24 items; 24 points)		
Initial & Final Digraphs & Blends	12 items	12 points
Vowel Digraphs	6 items	6 points
r-Controlled Vowels	6 items	6 points
Vocabulary (24 items; 24 points)		
Vocabulary in Context	12 items	12 points
Compound Words	6 items	6 points
Antonyms	6 items	6 points
Text Comprehension		
Reading Comprehension (3 stories; mix of open-ended and multiple-choice items)	13 items	14 points

Administration 3 (April/May)		
Phonics (24 items; 24 points)		
Initial Blends & Clusters	6 items	6 points
Final Blends	6 items	6 points
Initial & Final Digraphs	6 items	6 points
Long Vowel Recognition	6 items	6 points
Vocabulary (24 items; 24 points)		
Vocabulary in Context	12 items	12 points
Prefixes & Suffixes	12 items	12 points
Text Comprehension		
Reading Comprehension (3 stories; mix of open-ended and multiple-choice items)	13 items	14 points

ROAR System for Generating Class and Student Reports:

The Reading Online Assessment Reports (ROAR) System is a resource available to *Indiana Reading Assessment – Grade 2* participants. It is an online score entry system for generating student and class progress reports. Teachers enter student *Indiana Reading Assessment – Grade 2* scores and immediately have access to the following reports:

Class Reports

Class Scores Report: This report shows the scores of all students in your class. The report is designed to look similar to the Score Recording Form.

Class Skills Reports: This report displays skills developed in Phonics, Vocabulary, and Comprehension. It displays the data in a bar graph form that lists each administration and creates an “at-a-glance” report that shows the class’ progress throughout the year.

Class Re-test Report: This report lists all students that did not reach the expected cut-score for each section within each Administration. The report can be printed to provide a list of those needing a re-test.

Class Re-test Summary: This report displays a bar graph that represents the percentage of students in the class that should have been re-tested because they did not reach the recommended cut-score. The report also provides a chart listing each individual student and indicates whether that student should participate in a re-test.

Student Reports

Student Score Report: This report shows the scores of an individual student.

Student Skills Reports: This report shows the skill areas of Phonics, Vocabulary, and Comprehension in a bar graph form. It also displays the expected level of performance for each of these skills for easy comparison of how individual students are performing.

Establishing and Documenting the Validity of the Indiana Grade 2 Assessment

Several types of validity have been established for the *Indiana Reading Assessment – Grade 2*. These include:

- 1) *Content Validity* (i.e., the test items address the full range of skills appropriate for reading at grade two);
- 2) *Face Validity* (i.e., the tests look like the type of reading material that students encounter in grade two);
- 3) *Construct Validity* (i.e., item scores for constructs such as overall reading plus sub-constructs such as beginning reading skills or reading comprehension correlate with each other at an acceptable level);
- 4) *Predictive Validity* (i.e., performance on the *Indiana Reading Assessment – Grade 2* correlates positively with later scores on standardized reading assessments such as the third grade ISTEP+ reading assessment; and
- 5) *Concurrent Validity* (i.e., scores on sections of the *Indiana Reading Assessment – Grade 2* provide information consistent with information provided by other valid and reliable reading assessments).

1) Content Validity: Content validity was obtained by matching items on the *Indiana Reading Assessment – Grade 2* to Indiana’s Academic Standards for Reading in grade two. Teacher surveys during the field tests gathered teachers’ opinions whether items matched academic standards and indicators and whether items were at an appropriate difficulty level. Changes were made to a few passages, and changes were made to items judged to be overly confusing for some students.

Additional informal measures were developed for aspects of Indiana’s Academic Standards not directly addressed on the scored portion of the *Indiana Reading Assessment – Grade 2*. These informal measures were incorporated into a Resource Guide and take the form of teacher checklists and rating rubrics designed for use in conjunction with student learning activities (e.g., rhyming exercises, monitoring oral reading fluency, and recognizing elements of fiction during discussions).

A second form of content validity is demonstrated through the match of *Indiana Reading Assessment – Grade 2* items to reporting categories of the National Reading Panel (see earlier discussion on page 4). The scored portion of the assessments relate to four reporting categories: Phonics, Vocabulary, Phonemic Awareness, and Text Comprehension. These reporting areas are further reinforced with the optional teacher checklists and rating rubrics that expand the detail with which teachers can monitor skills in phonemic awareness, phonics, vocabulary, phonemic awareness, and reading comprehension. There are additional rating scales in the reporting category of Reading Fluency.

2) Face Validity: Because young students (i.e., second graders) have limited familiarity with testing, the *Indiana Reading Assessment – Grade 2* was designed to look as much like actual reading and classroom learning activities as possible. For example, long and short vowel recognition assessments are in a format similar to learning activity pages used in many classrooms. Text comprehension is assessed using a variety of text forms similar to those students encounter on class bookshelves, in beginning commercial reading materials, and in everyday life. Corresponding to Indiana’s Academic Standards, comprehension of informational texts, graphs, diagrams, and charts as well as short stories is assessed.

In addition to multiple-choice items assessing reading comprehension, some of the reading comprehension items parallel classroom learning activities by asking students to write a short answer and an extended response answer over what they have read. This sort of writing activity approximates learning activities in many elementary classrooms and can be scored with a high degree of inter-rater agreement (see reliability discussion that follows).

Samples of the Indiana Reading Assessment – Grade 2 can be found in Appendix B.

3) Construct Validity: To demonstrate construct validity of assessments, test items that measure particular constructs or aspects of reading (e.g., beginning reading skills such as phonemic awareness and phonics) should correlate highly with each other. Cronbach’s alpha is used to determine the consistency of item scores. Cronbach’s alpha is essentially a function of the number of items and the average inter-correlation among the items. The coefficient indicates how well a set of items measures a single unidimensional latent construct. In the case of the *Indiana Reading Assessment – Grade 2*, an analysis was performed on the entire assessment to determine the consistency of items designed to measure overall reading ability. A coefficient of .70 or higher is considered acceptable.

The resulting Cronbach’s alpha coefficient of .911 is well above the acceptable level of .70. This indicates that the items of the *Indiana Reading Assessment – Grade 2* relate to a single construct (i.e., overall reading ability).

4) Predictive Validity: In Indiana, all third grade students are required to take ISTEP+ (Indiana Statewide Testing for Educational Progress Plus) assessments of reading. The ISTEP+ reading measure is a standardized reading test matched to Indiana’s second-grade academic standards. The test was developed and validated by CTB McGraw-Hill and meets all the technical requirements for a standardized reading measure. One form of validity for a classroom reading assessment such as the *Indiana Reading Assessment – Grade 2* is the degree to which scores correlate with later more extensive assessments such as the ISTEP+ assessment.

Interpreting predictive validity correlations for diagnostic tests is not a simple or straightforward process. One expects diagnostic tests to correlate positively with later assessments, but not to an extremely high degree. This is because classroom diagnostic and monitoring tests are designed for the main purpose of helping

classroom teachers make a difference—especially with students experiencing difficulty. If the test and teachers are successful, many students who were low-level readers in grade two will no longer be at the bottom by grade three. On the other hand, it is expected that there will be a moderately positive correlation between early and later tests because the differentials between top, middle, and lower level students are not expected to disappear entirely. Zero order correlations and negative correlations would be cause for suspicion that the correlated measures were not assessing the same construct. Because of the relatively short time frame between the students taking the *Indiana Reading Assessment – Grade 2* and the ISTEP+ assessment (less than one year), a somewhat higher predictive validity correlation might be expected.

In 2002, over 30,000 second-grade students from across Indiana participated in the *Indiana Reading Assessment – Grade 2*. Scores, from a randomly selected sample of 2,118 of these students, were correlated with their later third-grade ISTEP+ reading test scores. Data analysis performed comparing the total scores of the two measures resulted in a Spearman's rho correlation coefficient of $r = .73$, establishing predictive validity of the assessment. A Spearman's rho analysis is appropriate when one of the measures used has score data following a normal distribution while the other measure's score data is skewed. Because the *Indiana Reading Assessment – Grade 2* is developed as a mastery test, it is expected that student scores will not follow a normal distribution pattern. Analysis of the data used for the inter-rater research confirms that the *Indiana Reading Assessment – Grade 2* are skewed while ISTEP+ scores for the same set of students follow a normal distribution pattern.

Refer to Appendix G: Descriptive Statistics/Score Distributions (Predictive Validity Analysis) to compare distribution patterns.

5) Concurrent Validity: In order to document the concurrent validity of the *Indiana Reading Assessment – Grade 2*, student scores on portions of the *Indiana Reading Assessment – Grade 2* were compared with those same students' scores on appropriate portions and sub-tests of five other reading assessment measures, measures with known validity and reliability. The portions and sub-tests were chosen based on their similarities in assessing the same skills as the matching *Indiana Reading Assessment – Grade 2* sub-test. When possible, sub-tests requiring similar tasks were chosen. The five measures are:

- 1) *Metropolitan Achievement Test 6th Edition (MAT6)*;
- 2) *Texas Primary Reading Indicators (TPRI)*;
- 3) *Woodcock-Johnson III Tests of Reading Achievement (W-JIII)*;
- 4) *Stanford Achievement Test (Reading) 9th edition (SAT-9)*; and
- 5) *The Iowa Test of Basic Skills (Word Analysis) (ITBS)*.

Four of these five measures were among twenty-eight early reading assessment measures analyzed by the Reading Assessment Committee of the University of Oregon's Institute for the Development of Educational Achievement (<http://idea.uoregon.edu/assessment/index.html>). In its final report, the committee judged all of the four measures to be technically sound and to provide sufficient evidence for making educational decisions about the early reading of children. The U.S. Department of Education refers to this study when discussing "scientifically" acceptable ways to evaluate children's reading gains.

While the MAT6 was not included in the Oregon study, its reliability and validity has been established as outlined in the MAT6 Technical Manual¹.

In order to determine the concurrent validity between the *Indiana Reading Assessment – Grade 2* and the above measures, trained examiners administered to children portions of the *Indiana Reading Assessment – Grade 2* and portions of one or more other reading assessments on the same day. The grade two participants in the concurrent validity studies included 643 students from 38 classrooms in 10 Indiana elementary schools selected by the Indiana Department of Education. These provided a range of schools that represented Indiana students both demographically and geographically. The classifications from which schools were drawn included rural, small town, large town, mid-sized city, and urban area. Elementary school enrollments ranged from 221 students to 591 students. School percentages for student eligibility for free or reduced price lunch ranged from 6% to 91%, and minority enrollment percentages ranged from 5% to 66%.

New reading assessments, such as the *Indiana Reading Assessment – Grade 2*, should correlate positively with established, validated reading measures. Pearson product-moment correlations were calculated to determine relationships among the *Indiana Reading Assessment – Grade 2* and established reading skill measures used in this study (i.e., *TPRI*, *W-JIII*, *SAT-9*, *ITBS*, and *MAT6*). The majority of the correlations between *Indiana Reading Assessment – Grade 2* and these established measures range from $r = .4$ to $r = .7$ and are statistically significant at or beyond the $p < .01$ level. The correlation between three of the *Indiana Reading Assessment – Grade 2* sub-tests (First and Third Administrations—Phonics and Third Administration—Vocabulary) and their comparable established measure is positive, with two being statistically significant at the $p < .05$ level. Other analysis were performed on these sub-test comparisons to confirm the validity of this portion of the *Indiana Reading Assessment – Grade 2* assessment. Details and the results of this analysis can be found below Table 2, in the Mastery Agreement Analysis discussion. Refer to the table below for correlation results.

Table 2: Indiana Reading Assessment – Grade 2

Administration 1 (October)	
Phonics	
<i>Indiana Grade 2 (Initial and Final consonants, vowels) & TPRI (Initial & Final consonants, Vowels)</i>	$r = .224^*$
Vocabulary	
<i>Indiana Grade 2 (Vocab in context, Compounds, Synonyms) & SAT-9 (Word study skills, Compounds)</i>	$r = .369^{**}$
<i>Indiana Grade 2 (Vocab in context, compounds, Synonyms) & W-JIII (Synonyms)</i>	$r = .445^{**}$
Reading Comprehension	
<i>Indiana Grade 2 Text and Story Comprehension & TPRI Reading Comprehension</i>	$r = .526^{**}$

¹ Balow, I.H., Farr, R.C., Hogart, T.P., and Prescott, G. A. (1988) *MAT6 Technical Manual*. USA: Harcourt Brace Jovanovich, Inc.

* Correlation is significant at the .05 level

** Correlation is significant at the .01 level

Administration 2 (January)	
Phonics	
<i>Indiana Grade 2 (Vowel digraphs and r-controlled vowels) & Iowa Test of Basic Skills (Vowels and Digraphs)</i>	r = .590**
<i>Indiana Grade 2 (Digraphs, r-controlled vowels) & SAT-9 Vowels</i>	r = .420**
Vocabulary	
<i>Indiana Grade 2 Vocabulary (Vocab in context, Antonyms, Compound words) & SAT-9 (Compounds, Vocabulary in context)</i>	r = .516**
<i>Indiana Grade 2 Vocabulary (Vocab in context, Antonyms, Compound words) & W-JIII (Antonyms)</i>	r = .732**
Reading Comprehension	
<i>Indiana Grade 2 Text and Story Comprehension & SAT-9 Reading Comprehension</i>	r = .526**

Administration 3 (April/May)	
Phonics	
<i>Indiana Reading Assessment – Grade 2 (Blends, Clusters, Digraphs, Long vowels) & TPRI (Initial and Final Blends)</i>	r = .232*
<i>Indiana Reading Assessment – Grade 2 (Blends, Clusters, Digraphs, Long vowels) & ITBS (Initial and Final Digraphs)</i>	r = .416**
<i>Indiana Reading Assessment – Grade 2 (Blends, Clusters, Digraphs, Long vowels) & SAT-9 (Word Study vowels)</i>	r = .365**
Vocabulary	
<i>Indiana Reading Assessment – Grade 2 (Vocabulary in context) & SAT-9 (Vocabulary in context)</i>	r = .117
<i>Indiana Reading Assessment – Grade 2 (Prefix and Suffix) & MAT7 (Vocabulary)</i>	r = .480**
Reading Comprehension	
<i>Indiana Reading Assessment – Grade 2 (Text and Story Comp) & TPRI (Reading Comprehension)</i>	r = .368**

*Correlation is significant at the .05 level

**Correlation is significant at the .01 level

It is safe to conclude that the *Indiana Reading Assessment – Grade 2* demonstrates acceptable levels of concurrent validity with other reliable and valid measures of reading assessment designed to measure similar reading skills.

Mastery Agreement Analysis:

It is important for classroom teachers to identify early in the school year which students have mastered beginning reading skills (i.e., initial and final consonant recognition, vowel recognition) and those who still need attention in these areas. The level of agreement about skills mastery between the *Indiana Reading Assessment – Grade 2* and other validated reading assessments is one sort of concurrent validity. For purposes of this analysis, students were considered to have demonstrated mastery of beginning reading skills if they correctly responded to 80% or more of items dealing with beginning reading skills.

The *Indiana Reading Assessment – Grade 2* is designed as a criterion-referenced assessment in which students are expected to master the skills assessed by the end of the school year. It is also designed with simpler portions intended to identify students who are at risk of failing to master these skills and in need of intervention early in the year. Because of these two design characteristics, it is often the case that very large percentages (i.e., 50% to 90%) of students in second grade may “top out” on simpler portions of beginning reading assessments. This type of ceiling effect occurred during the concurrent validity study on portions of the assessment. In the case of this study, the ceiling effect also applies to those portions of the established assessments administered to students for concurrent validity purposes.

The computation of correlations between students’ scores on two different measures is typically built on the assumption of normal distributions of scores on both measures. When these assumptions are violated (i.e., when very high percentages of scores top out or bottom out on tests), reporting simple statistical correlations no longer presents a completely accurate picture of the concurrent validity existing between two assessments. A quantitative index of the degree of decision consistency can still be calculated, however, by comparing percent agreement (P_A)³ between the *Indiana Reading Assessment – Grade 2* and the measure to which it was compared. Table 3 contains the Percent Agreement results for portions of the *Indiana Reading Assessment – Grade 2* and the established assessments to which they were compared.

³ P_A is defined as the percent of students who were identified as masters on both forms or non-masters on both forms (thus, excluding those students who were identified as masters on one form, but as non-masters on the other form). It can be calculated by the following formula:

$$P_A = \left(\text{Percent consistent} \right) + \left(\text{Percent consistent} \right)$$

mastery decisions non-mastery decisions

**Table 3: Percent Agreement (P_A) of Indiana Reading Assessment –
Grade 2 and Established Assessments**

	Mastery Percentage	Percent Agreement (P_A)	Assessment Compared
<i>Indiana Reading Assessment – Grade 2 Phonics, Administration 1 (initial & final consonants, vowels)</i>	84.5%	84.5%	TPRI (initial & final consonants, vowels)
<i>Indiana Reading Assessment – Grade 2 Phonics, Administration 3 (initial & final blends)</i>	90.6%	87.2%	TPRI (initial & final blends)
<i>Indiana Reading Assessment – Grade 2 Vocabulary, Administration 3, (prefixes & suffixes, vocabulary in context)</i>	90.5%	87.9%	SAT9 (vocabulary in context)
<i>TPRI (initial & final consonants, vowels)</i>	100%		
<i>TPRI (initial & final blends)</i>	96.6%		
<i>SAT9 (vocabulary in context)</i>	95.7%		

The *Indiana Reading Assessment – Grade 2* demonstrates a high level of agreement with the established assessment portions. Percent agreement refers to the assessments' agreement at identifying students who have reached mastery levels along with those students who are below the mastery level (“non-masters”) for a particular skill (i.e., phonics) on each assessment. The Mastery Agreement Analysis also reveals that an even higher percentage of students mastered the established assessments than the *Indiana Reading Assessment – Grade 2*. This shows that the *Indiana Reading Assessment – Grade 2* is more effective at identifying students who need intervention than the established assessments used for comparison for the skills assessed.

Establishing and Documenting Reliability of the Indiana Reading Assessment – Grade 2:

Test-Retest Reliability

Indiana Reading Assessment – Grade 2 is designed with three forms, assessing progressively more difficult reading skills for each administration. Students (i.e., 320 students from 15 classrooms) participated in the study to determine test-retest reliability. For each form of the test, approximately 100 students took the assessment and then retok the same assessment within two weeks with no feedback provided about test results between test and retest administrations. Correlation analyses revealed the following high levels of test-retest reliability:

Table 4: Test-Retest Reliability Coefficients

<i>First Administration</i>	N = 129	r = .942
<i>Second Administration</i>	N = 99	r = .909
<i>Third Administration</i>	N = 92	r = .844

Split-half Reliability

The split-half reliability coefficients for the *Indiana Reading Assessment – Grade 2* were calculated using the Spearman-Brown split-half reliability procedure. This procedure is designed to measure the potential for measurement error due to fatigue, level of anxiety, and ordering effects of the items. Values of .75 – 1.0 are considered excellent. The Spearman-Brown split-half reliability coefficients for the *Indiana Reading Assessment – Grade 2* range from $r = .911$ to $r = .958$. This is considered excellent and indicative that fatigue, anxiety level, and ordering effects are not contributing to measurement error.

Table 5: Split-half Reliability across administrations

	<i>First Administration</i>	<i>Second Administration</i>	<i>Third Administration</i>
Split-half Reliability Coefficient	$r = .911$	$r = .958$	$r = .944$

Inter-rater Reliability/Agreement of Teacher Scoring

A sample group of students was randomly selected to participate in a longitudinal study. Trained scorers at the Center for Innovation in Assessment scored student responses to a set of open-ended items. Inter-rater agreement levels for the three administrations (i.e., October 2003, January 2004, and May 2004) of this assessment were determined by correlating teachers' scores for this same set of items to the scores provided by the trained scorers. The table that follows summarizes these correlations of agreement.

Table 6: Correlations for Inter-rater Agreement

	<i>First Administration</i>	<i>Second Administration</i>	<i>Third Administration</i>
Beginning Reading Skills*	N/A	N/A	N/A
Reading Comprehension	$r = .853^{**}$	$r = .750^{**}$	$r = .832^{**}$

* Only the open-ended items of the Assessment were subject to re-scoring. It is assumed that the teacher scoring of the multiple-choice items is correct.

** Correlation is significant at the 0.01 level.

Conclusion

The data in this report show the *Indiana Reading Assessment – Grade 2* as both reliable and valid. Educators can be confident that the assessment can be used to effectively measure students' reading abilities and that the results are indicative of their students' reading skill levels.

APPENDIX A: STANDARDS COVERAGE CHART

Standards Coverage Chart

Indiana Grade 2 Reading Assessment Coverage of Indiana Grade 2 English/Language Arts Standards

Grade 2: Standard 1: READING: Word Recognition, Fluency, and Vocabulary Development								
		Phonics	Vocabulary	Comprehension	Phonemic Awareness	Resource Guide	Classroom Assessments	Curriculum Frameworks
<i>Phonemic Awareness</i>								
2.1.1	Demonstrate an awareness of the sounds that are made by different letters by distinguishing beginning, middle, and ending sounds in words; rhyming words; and clearly pronouncing blends and vowel sounds.	✓			✓	✓	✓	✓
<i>Decoding and Word Recognition</i>								
2.1.2	Recognize and use knowledge of spelling patterns (such as cut/cutting, slide/sliding) when reading.		✓			✓	✓	
2.1.3	Decode (sound out) regular words with more than one syllable (dinosaur, vacation).		✓	✓		✓		
2.1.4	Recognize common abbreviations (Jan/Fri).			✓		✓	✓	✓
2.1.5	Identify and correctly use regular plural words (mountain/mountains) and irregular plural words (child/children, mouse/mice).		✓			✓	✓	✓
2.1.6	Read aloud fluently and accurately with appropriate changes in voice and expression.					✓		✓
<i>Vocabulary and Concept Development</i>								
2.1.7	Understand and explain common antonyms (words with opposite meanings) and synonyms (words with the same meanings).		✓	✓		✓	✓	✓
2.1.8	Use knowledge of individual words to predict the meaning of unknown compound words (lunchtime, lunchroom, daydream, raindrop).		✓			✓	✓	✓
2.1.9	Know the meaning of simple prefixes (word parts added at the beginning of words such as un-) and suffixes (word parts added at the ends of words such as -ful).		✓			✓	✓	✓
2.1.10	Identify simple multiple-meaning words (change/duck).			✓		✓	✓	✓
Grade 2: Standard 2: READING: Reading Comprehension								
<i>Structural Features of Informational and Technical Materials</i>								
2.2.1	Use titles, tables of contents, and chapter headings to locate information in text.			✓		✓	✓	✓

STANDARDS COVERAGE CHART (cont.)

		Phonics	Vocabulary	Comprehension	Phonemic Awareness	Resource Guide	Classroom Assessments	Curriculum Frameworks
<i>Comprehension and Analysis of Grade-Level-Appropriate Text</i>								
2.2.2	State the purpose for reading.			✓		✓		✓
2.2.3	Use knowledge of the author's purpose(s) to comprehend informational text.			✓		✓	✓	✓
2.2.4	Ask and respond to questions to aid comprehension about important elements of informational texts.			✓		✓	✓	
2.2.5	Restate facts and details in the text to clarify and organize ideas.			✓		✓	✓	✓
2.2.6	Recognize cause-and-effect relationships in text.			✓		✓	✓	✓
2.2.7	Interpret information from diagrams, charts, and graphs.			✓		✓	✓	✓
2.2.8	Follow two-step written instructions.			✓		✓	✓	✓
Grade 2: Standard 3: READING: Literary Response and Analysis								
<i>Comprehension and Analysis of Grade-Level-Appropriate Text</i>								
2.3.1	Compare plots, settings, or characters by different authors.			✓		✓		
2.3.2	Create different endings to stories and identify the reason and impact of the different ending.			✓		✓	✓	✓
2.3.3	Compare versions of same stories from different cultures.			✓		✓		✓
2.3.4	Identify the use of rhythm, rhyme, and alliteration (using words with repeating consonant sounds) in poetry.			✓		✓	✓	✓
Grade 2: Standard 4: WRITING: Writing Process								
<i>Organization and Focus</i>								
2.4.1	Create a list of ideas for writing.					✓	✓	✓
2.4.2	Organize related ideas together to maintain a consistent focus.					✓	✓	✓
<i>Research and Technology</i>								
2.4.3	Find ideas for writing stories and descriptions in pictures or books.					✓		✓
2.4.4	Understand the purposes of various reference materials (such as a dictionary, a thesaurus, and an atlas).					✓	✓	✓
2.4.5	Use a computer to draft, revise, and publish writing.							✓
<i>Evaluation and Revision</i>								
2.4.6	Review, evaluate, and revise writing for meaning and clarity.					✓	✓	
2.4.7	Proofread one's own writing, as well as that of others, using an editing checklist or list of rules.					✓	✓	✓
2.4.8	Revise original drafts to improve sequence (the order of events) or to provide more descriptive detail.					✓		✓

STANDARDS COVERAGE CHART (cont.)

Grade 2: Standard 5: WRITING: Writing Applications (Different Types of Writing and Their Characteristics)

		Phonics	Vocabulary	Comprehension	Phonemic Awareness	Resource Guide	Classroom Assessments	Curriculum Frameworks
2.5.1	Write brief narratives (stories) based on experiences that: <ul style="list-style-type: none"> • Move through a logical sequence of events. • Describe the setting, characters, objects, and events in detail. 					✓		✓
2.5.2	Write a brief description of a familiar object, person, place or event that: <ul style="list-style-type: none"> • Develops a main idea. • Uses details to support the main idea. 					✓	✓	
2.5.3	Write a friendly letter complete with the date, salutation (greeting, such as <i>Dear Mr. Smith</i>), body, closing, and signature.					✓		✓
2.5.4	Write rhymes and simple poems.					✓		✓
2.5.5	Use descriptive words when writing.					✓	✓	✓
2.5.6	Write for different purposes and to a specific audience or person.					✓	✓	✓

Grade 2: Standard 6: WRITING: Written English Language Conventions

Handwriting

2.6.1	Form letters correctly and space words and sentences properly so that writing can be read easily by another person.					✓		
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Sentence Structure

2.6.2	Distinguish between complete (When Tom hit the ball, he was proud.) and incomplete sentences (When Tom hit the ball).					✓	✓	✓
2.6.3	Use the correct word order in written sentences.					✓	✓	✓

Grammar

2.6.4	Identify and correctly write various parts of speech, including nouns (words that name people, places, or things) and verbs (words that express action or help make a statement).					✓		✓
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Punctuation

2.6.5	Use commas in the greeting (<i>Dear Sam,</i>) and closure of a letter (<i>Love, or Your friend,</i>) and with dates (<i>March 22, 2000</i>) and items in a series (<i>Tony, Steve, and Bill</i>).					✓	✓	✓
2.6.6	Use Quotations marks correctly to show that someone is speaking: <ul style="list-style-type: none"> • Correct: "You may go home now," she said. • Incorrect: "You may go home now she said." 					✓		

Capitalization

2.6.7	Capitalize all proper nouns (names of specific people or things, such as <i>Mike, Indiana, Jeep</i>) words at the beginning of sentences, and greetings, months and days of the week, and titles (<i>Dr., Mr., Mrs., Miss</i>) and initials of people.					✓	✓	✓
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STANDARDS COVERAGE CHART (cont.)

		Phonics	Vocabulary	Comprehension	Phonemic Awareness	Resource Guide	Classroom Assessments	Curriculum Frameworks
<i>Spelling</i>								
2.6.8	Spell correctly words like was, were, says, said, who, what, why, which are used frequently but do not fit common spelling patterns.					✓	✓	✓
2.6.9	Spell correctly words with short and long vowel sounds (<i>a, e, i, o, u</i>), r-controlled vowels (<i>ar, er, ir, or, ur</i>), and constant-blend patterns (<i>bl, dr, st</i>). <ul style="list-style-type: none"> • Short vowels: <u>a</u>ctor, <u>e</u>ffort, <u>i</u>nk, chop, <u>u</u>nless • Long vowels: <u>a</u>ce, <u>e</u>qual, <u>i</u>nd, h<u>o</u>e, <u>u</u>se • R-controlled: <u>pa</u>rk, <u>su</u>pper, <u>bi</u>rd, <u>co</u>rn, <u>fu</u>rther • Consonant blends: <u>bl</u>ue, <u>cr</u>ash, <u>de</u>sk, <u>sp</u>ea<u>k</u>, <u>co</u>ast 					✓	✓	✓
Grade 2: Standard 7: LISTENING AND SPEAKING: Listening and Speaking Skills, Strategies, and Applications								
<i>Comprehension</i>								
2.7.1	Determine the purpose or purposes of listening (such as to obtain information, to solve problems, or to enjoy).					✓		✓
2.7.2	Ask for clarification and explanation of stories and ideas.					✓		✓
2.7.3	Paraphrase (restate in own words) information that has been shared orally by others.					✓		✓
2.7.4	Give and follow three- and four-step oral directions.					✓		✓
<i>Organization and Delivery of Oral Communication</i>								
2.7.5	Organize presentations to maintain a clear focus.					✓		
2.7.6	Speak clearly and at an appropriate pace for the type of communication (such as an informal discussion or a report to class).					✓		
2.7.7	Tell experiences in a logical order.					✓		✓
2.7.8	Retell stories, including characters, setting, and plot.					✓		✓
2.7.9	Report on a topic with supportive facts and details.					✓		✓
<i>Speaking Applications</i>								
2.7.10	Recount experiences or present stories that: <ul style="list-style-type: none"> • Move through a logical sequence of events. • Describe story elements including characters, plot, and setting. 					✓		
2.7.11	Report on a topic with facts and details, drawing from several sources of information.					✓		

APPENDIX B: ASSESSMENT SAMPLES – PHONEMIC AWARENESS

Rhyming Words

from Indiana Grade 2 Reading Assessment,
Beginning Reading Skills – First Administration:

Directions:

Say, “I am going to say three more words that rhyme: g, rig, and dig.
Can you tell me another word (or even a make-believe word) that rhymes
with g, rig, and dig?”

Sound Read by the Teacher	Three Words Read by the Teacher	Student's Oral Response
1. /d/	Dad, lad, had	
2. /f/	Jake, fake, wake	
3. /k/	Joe, skip, dip	

Beginning Sounds

from Indiana Grade 2 Reading Assessment,
Beginning Reading Skills – First Administration:

Directions:

Say, “I am going to say three words. One of these words begins with the /k/ sound. Listen to the three words and tell me which word begins with the /k/ sound: king, sand, party. Which of these words begins with the /k/ sound?”

Sound Read by the Teacher	Three Words Read by the Teacher	Student's Response
1. /m/	toy, man, jet	
2. /th/	pie, thunder, baby	
3. /k/	king, small, hat	

Ending Sounds

from Indiana Grade 2 Reading Assessment,
Beginning Reading Skills – First Administration:

Directions:

Say, “I am going to say three words. One of these words ends with the /m/ sound. Listen to the three words and tell me which word ends with the /m/ sound: wall, room, boy. Which of these words ends with the /m/ sound?”

Sound Read by the Teacher	Three Words Read by the Teacher	Student's Response
1. /d/	face, hat, road	
2. /n/	hog, pet, day	
3. /m/	cup, sun, hook	

Phoneme Deletion

from Indiana Grade 2 Reading Assessment,
Beginning Reading Skills – First Administration:

Directions: The teacher says: “I am going to say a word. Then I am going to say a sound that is part of that word. I want you to say the word back to me without that sound. For example, if I say the word mat and then ask you to say the word without the /m/ sound, you would say at. At is the word mat without the /m/ sound.”

Word Read by the Teacher	Sound Read by the Teacher	Student's Response
pit	1. /p/	
sand	2. /s/	
cup	3. /k/	

ASSESSMENT SAMPLES – PHONEMIC AWARENESS (cont.)

Blending Phonemes

from Indiana Grade 2 Reading Assessment,
Beginning Reading Skills - First Administration:

Directions: The teacher says: “I am going to say parts of a word. After I say the sound, I want you to blend the parts together and tell me what the word is. For example, if I say /p/-/i/-/g/, what would you say?”

Word Read by the Teacher	Student's Response
1. /k/-/i/-/d/ (kid)	
2. /l/-/e/-/p/ (lep)	
3. /h/-/u/-/t/ (hut)	

ASSESSMENT SAMPLES – PHONICS

Initial Consonants

from Indiana Grade 2 Reading Assessment,
Beginning Reading Skills - First Administration:

Directions:

SAY: Which one of the words in this row begins with the same sound as the sound at the beginning of the word **coat**? Fill in the circle under the word that begins with the sound that you hear at the beginning of the word **coat**.

Initial Consonants

Sample A  boat cook train pants

Final Consonants

from Indiana Grade 2 Reading Assessment,
Beginning Reading Skills - First Administration:

Directions:

SAY: Which of the words in this row ends with the same sound as the sound at the end of the word **book**? Fill in the circle under the word that ends with the sound that you hear at the end of the word **book**.

Final Consonants

Sample B  bag hot rake trip

Long Vowels

from Indiana Grade 2 Reading Assessment,
Beginning Reading Skills - First Administration:

Directions:

SAY: Which of the words in this row has the same vowel sound that you hear in the word *lake*? Fill in the circle under the word that has the same vowel sound that you hear in the word *lake*.

Long Vowels

Sample C  made camp let duck

Short Vowels

from Indiana Grade 2 Reading Assessment,
Beginning Reading Skills - First Administration:

Directions:

SAY: Which of the words in this row has the same vowel sound that you hear in the word *cat*? Fill in the circle under the word that has the same vowel sound that you hear in the word *cat*.

Short Vowels

Sample D  get pan cow day

Vowel Digraphs

from Indiana Grade 2 Reading Assessment,
Beginning Reading Skills - Second Administration:

Directions:

SAY: You are going to be listening carefully to vowel sounds in words. Fill in the circle under the word that has the same vowel sound as the word that names the picture.

Vowel Digraphs

Sample A  book cost food lock

Initial Digraphs

from Indiana Grade 2 Reading Assessment,
Beginning Reading Skills - Second Administration:

Directions:

SAY: Which word in this row has the same beginning sound that you hear at the beginning of the word *chair*? Fill in the circle under the word that begins with the same sound as the word *chair*.

Initial Digraphs and Blends

Sample B  charge shore quick wheel

Final Digraphs and Blends

from Indiana Grade 2 Reading Assessment,
Beginning Reading Skills - Second Administration:

Directions:

SAY: Which of the words in this row ends with the same sound as the sound at the end of the word **duck**? Fill in the circle under the word that ends with the sound that you hear at the end of the word **duck**.

Final Digraphs and Blends

Sample C  hug doll jump snack

r-Controlled Vowels

from Indiana Grade 2 Reading Assessment,
Beginning Reading Skills - Second Administration:

Directions:

SAY: Which of the words in this row has the same vowel sound as the vowel sound in the word **cord**? Fill in the circle under the word that has the vowel sound that you hear in the word **cord**.

r-Controlled Vowels

Sample D  born hard out there

Initial Blends and Clusters

from Indiana Grade 2 Reading Assessment,
Beginning Reading Skills - Third Administration:

Directions:

SAY: Now you are going to listen for beginning sounds in words. Listen carefully because many of the words will begin with a blend. Fill in the circle under the word that begins with the same blend that you hear at the beginning of the word that names the picture.

Initial Blends and Clusters

Sample A  less desk deep dream

Final Blends

from Indiana Grade 2 Reading Assessment,
Beginning Reading Skills - Third Administration:

Directions:

SAY: Which of the words in this row ends with the same blend that you hear at the end of the word **wolf**? Fill in the circle under the word that ends with the same blend that you hear at the end of the word **wolf**.

Final Blends

Sample B  fold self left chief

ASSESSMENT SAMPLES – PHONICS (cont.)

Initial and Final Digraphs

from Indiana Grade 2 Reading Assessment,
Beginning Reading Skills - Third Administration:

Directions:

SAY: Which group of letters below the sentence belongs with the letters em to make a word that makes sense in the sentence? Fill in the circle next to the group of letters that completes the underlined word.

Initial and Final Digraphs	
Sample C Have you seen <u>em</u> ?	Sample D Dad drives a <u>tr</u> .
<input type="radio"/> sh	<input type="radio"/> ck
<input type="radio"/> th	<input type="radio"/> ng
<input type="radio"/> wh	<input type="radio"/> sh

ASSESSMENT SAMPLES – VOCABULARY

Compound Words

from Indiana Grade 2 Reading Assessment,
Beginning Reading Skills - First Administration:

Directions:

SAY: The sentence says: **My grand** took me to the zoo. **Grand** is the first part of the compound word. Look below the sentence to find the other part of the compound word. Fill in the circle next to the word that makes the correct compound word.

Compound Words	
Sample G My grand took me to the zoo.	
<input type="radio"/> family	
<input type="radio"/> mother	
<input type="radio"/> sister	

Synonyms

from Indiana Grade 2 Reading Assessment,
Beginning Reading Skills - First Administration:

Directions:

SAY: The underlined word is **gift**. The sentences say: **My mom opened the birthday gift.** **A word that means the same as gift is** _____. Fill in the circle next to the word that means the same as **gift**.

Synonyms	
Sample H My mom opened the birthday gift. A word that means the same as gift is _____.	
<input type="radio"/> trouble	
<input type="radio"/> present	
<input type="radio"/> candies	

Antonyms

from Indiana Grade 2 Reading Assessment,
Beginning Reading Skills – Second Administration:

Directions:

SAY: The underlined word is bad. The sentence says: **Today was a bad day because I hurt my leg.** Look below the sentence to find a word that means the opposite of bad. Fill in the circle next to the word that means the opposite of bad.

Vocabulary in Context

Sample Today was a bad day because I hurt my leg. A word that H means the opposite of bad is _____.

sore
 good
 night

Prefixes and Suffixes

from Indiana Grade 2 Reading Assessment,
Beginning Reading Skills – Third Administration:

Directions:

SAY: The sentence says: **Mark is _____ that he will win the race.** The line shows where a word is missing. The missing word is one of the words under the sentence. Read the words to yourself.

Prefixes and Suffixes

Sample Mark is _____ that he will win the race.
H

hopes
 hopeful
 hopelessness

Vocabulary in Context

from Indiana Grade 2 Reading Assessment,
Beginning Reading Skills – Second Administration:

Directions: Read the sentence to students.

SAY: The line shows where a word is missing. The missing word is one of the words under the sentence. Fill in the circle next to the word that completes the sentence.

Vocabulary in Context

Sample A puppy needs a good _____.
E

jumps
 home
 next

Sample Sarah is _____ flowers for her mother.
F

gather
 gathers
 gathering

Story Comprehension

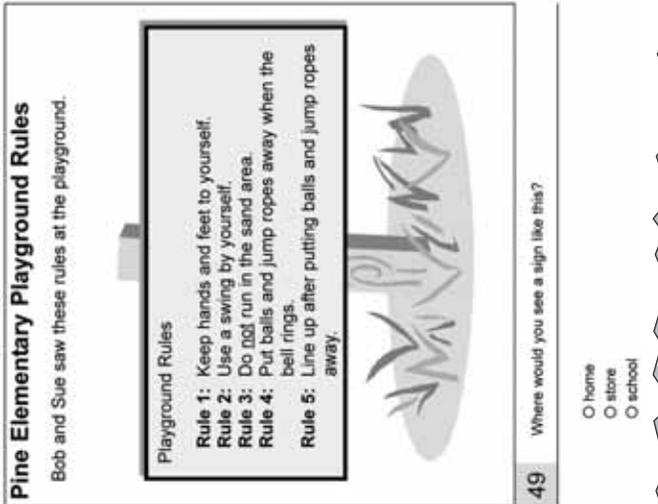
from Indiana Grade 2 Reading Assessment, Story Comprehension - First Administration:

Directions:

SAY: Now you will read some stories, and you will answer some questions about the stories. We will first read a story and answer some questions about it together before you work on your own.

49 Where would you see a sign like this?

home
 store
 school



Pine Elementary Playground Rules
Bob and Sue saw these rules at the playground.

Playground Rules
Rule 1: Keep hands and feet to yourself.
Rule 2: Use a swing by yourself.
Rule 3: Do not run in the sand area.
Rule 4: Put balls and jump ropes away when the bell rings.
Rule 5: Line up after putting balls and jump ropes away.

52 Why is Rule 3 a good idea?

someone might trip and fall

APPENDIX C: TEST COMPARISONS

Phonemic Awareness: Rhyming Words

from *Indiana Reading Assessment – Grade 2*,
Beginning Reading Skills - First Administration:

Directions: Say, “I am going to say three more words that rhyme: fig, rig, dig. These three words rhyme. Can you tell me another word (or even a make-believe word) that rhymes with fig, rig, dig?”

from TPRI Inventory,
Rhyming, Task 1:

Directions: Teacher says, “Listen to these words: ____, ____, ____. All of these words rhyme. Can you tell me another real word or made-up word that rhymes with ____, ____, ____?”

Phonemic Awareness: Beginning Sounds

from *Indiana Reading Assessment – Grade 2*,
Beginning Reading Skills - First Administration:

Directions: The teacher says, “I am going to say three words. One of these words begins with the /k/ sound. Listen to the three words and tell me which word begins with the /k/ sound: king, sand, party. Which of these three words begins with the /k/ sound?”

from TPRI Graphophonemic Knowledge,
Letter to Sound Linking, Task 7:

Directions: Teacher asks, “What is the first sound in the word ____?”

Phonemic Awareness: Ending Sounds

from *Indiana Reading Assessment – Grade 2*,
Beginning Reading Skills - First Administration:

Directions: The teacher says, “I am going to say three words. One of these words ends with the /m/ sound. Listen to the three words and tell me which word ends with the /m/ sound: wall, room, boy. Which of these three ends with the /m/ sound?”

from TPRI,
Detecting Final Sounds, Task 5:

Directions: The teacher says, “Say the word _____. Now say (word) again without the _____.” (For example, the teacher would say, “Say the word rain. Now say rain again without the n.”) Do not say the letter name; say the sound of the letter.

TEST COMPARISONS (cont.)

Phonemic Awareness: Phoneme Deletion

from *Indiana Reading Assessment – Grade 2*,
Beginning Reading Skills - First Administration:

Directions: The teacher says, “I am going to say a word. Then I am going to say a sound that is part of that word. I want you to say the word back to me without that sound. For example, if I say the mat and then ask you to say the word without the /m/ sound, you would say at. At is the word mat without the /m/ sound.

from Woodcock-Johnson III,
Sound Awareness-Deletion-From A, Test 21B:

Directions: Say smart without /sm/. Say hat without /h/.

Phonemic Awareness: Blending Phonemes

from *Indiana Reading Assessment – Grade 2*,
Beginning Reading Skills - First Administration:

Directions: The teacher says, “I am going to say parts of a word. After I say the sounds, I want you to blend the parts together and tell me what the word is. For example, if I say /p/-/i/-/g/, what would you say?”

from TPRI,
Blending Phonemes, Task 2:

Directions: The teacher says, “When I say r-u-g, I know the word is rug.” The teacher says, “What would the word be if I say ____?” Say the sound for each letter or cluster of letters, not the letter names at approximately ½-second intervals.

Phonics: Initial Consonants

from *Indiana Reading Assessment – Grade 2*,
Beginning Reading Skills - First Administration:

Directions: Say: Which one of the words in this row begins with the same sound as the sound at the beginning of the word **coat**? Fill in the circle under the word that begins with the sound you hear that the beginning of the word **coat**.

from TPRI,
Initial Consonant Substitution, Task 5:

Directions: Before administering the task, place the following alphabet letters on the right side of the magnetic task board: c, d, f, b, h, j, l, p. The student is given the last two letters. The teacher asks, “Can you make the word ____?” The teacher uses words that end with ‘og’ for this task.

TEST COMPARISONS (cont.)

Phonics: Final Consonants

from *Indiana Reading Assessment – Grade 2*,
Beginning Reading Skills - First Administration:

Directions: Say: Which of the words in this row ends with the same sound as the sound at the end of the word book? Fill in the circle under the word that ends with the sound that you hear at the end of the word book.

from TPRI,
Final Consonant Substitution, Task 6:

Directions: Before administering the task, place the following alphabet letters on the right side of the magnetic task board: d, m, t, g, p, k. The student is given the first two letters. The teacher asks, "Can you make the word ____?" The teacher uses words that begin with 'sa' or 'fa' for this task.

Phonics: Long and Short Vowels

from *Indiana Reading Assessment – Grade 2*,
Beginning Reading Skills - First Administration:

Directions: Say: Which of the words in this row has the same vowel sound that you hear in the word **lake**? Fill in the circle under the word that ends with the same vowel sound that you hear in the word **lake**.

from TPRI,
Middle Vowel Substitution, Task 7:

Directions: "Can you make the word ____?" The student is given the first and last letters of a word (the middle letter is missing). The teacher uses words that begin with 'b' and end with 'g' and words that begin with 'p' and end with 't' for this task.

Phonics: Vowel Digraphs

from *Indiana Reading Assessment – Grade 2*,
Beginning Reading Skills - Second Administration:

Directions: Say: You are going to be listening carefully to vowel sounds in words. Fill in the circle under the word that has the same vowel sound as the word that names the picture.

from Iowa Test of Basic Skills,
Form A/Level 7, Word Analysis:

Directions: In row 25, fill in the circle under the picture whose name has the same vowel sound as cheap...cheap.

TEST COMPARISONS (cont.)

Phonics: Initial Digraphs

from *Indiana Reading Assessment – Grade 2*,
Beginning Reading Skills - Second Administration:

Directions: Say: Which word in this row has the same beginning sound that you hear at the beginning of the word **chair**? Fill in the circle under the word that begins with the same sound as the word **chair**.

from Iowa Test of Basic Skills,
Form A/Level 7, Word Analysis:

Directions: In the first row, there are pictures of a *ship*, *soldier*, and a *chimney*. Fill in the circle under the picture whose name begins with the same sound as cement...cement.

Phonics: Final Digraphs and Blends

from *Indiana Reading Assessment – Grade 2*,
Beginning Reading Skills - Second Administration:

Directions: Say: Which of the words in this row ends with the same sound as the sound at the end of the word **duck**? Fill in the circle under the word that ends with the sound that you hear at the end of the word **duck**.

from Iowa Test of Basic Skills,
Form A/Level 7, Word Analysis:

Directions: In row 21, the word is born. Take away the *r-n* and put *w-l* in their place. Fill in the circle under the picture of the new word.

Phonics: r-Controlled Vowels

from *Indiana Reading Assessment – Grade 2*,
Beginning Reading Skills - Second Administration:

Directions: Say: Which of the words in this row has the same vowel sound as the vowel sound in the word **cord**? Fill in the circle under the word that has the vowel sound that you hear in the word **cord**.

from Stanford Achievement Test-9th Edition,
Primary 2, Word Study Skills:

Directions: Say: Listen for the sound or sounds that are made by the letter or letters that have lines under them. Then say the other three words in the row quietly to yourself and find the word that has the same sound or sounds as the underlined letter or letters in the first word.

TEST COMPARISONS (cont.)

Phonics: Initial Blends

from *Indiana Reading Assessment – Grade 2*,
Beginning Reading Skills - Third Administration:

Directions: Now you are going to listen for beginning sounds in words. Listen carefully because many of the words will begin with a blend. Fill in the circle under the word that begins with the same blend that you hear at the beginning of the word that names the picture.

from TPRI,
Initial Blending Substitution, Task 8:

Directions: Before administering the task, place the following alphabet letters on the right side of the magnetic task board: l, r, c, g, d, f, s, t, p, m. The student is given the last two letters. The teacher asks, “Can you make the word ____?”

Phonics: Final Blends

from *Indiana Reading Assessment – Grade 2*,
Beginning Reading Skills - Third Administration:

Directions: Say: Which of the words in this row ends with the same blend that you hear at the end of the word **wolf**? Fill in the circle under the word that ends with the same blend that you hear at the end of the word **wolf**.

from TPRI,
Blends in Final Position, Task 9:

Directions: “I want you to use the letters on the board to help you make words.” (Teacher points to the letters on the board.) The teacher says, “Can you make the word ____?”

Phonics: Initial and Final Digraphs

from *Indiana Reading Assessment – Grade 2*,
Beginning Reading Skills - Third Administration:

Directions: Say: Which group of letters below the sentence belongs with the letters ‘em’ to make a word that makes sense in the sentence? Fill in the circle next to the group of letters that completes the underlined word.

from Iowa Test of Basic Skills,
Form A/Level 7, Word Analysis:

Directions: In row 18, the word is trunk. Take away the t-r and put s-k in their place. Fill in the circle under the picture of the new word.

TEST COMPARISONS (cont.)

Vocabulary: Compound Words

from *Indiana Reading Assessment – Grade 2*,
Beginning Reading Skills - First Administration:

Directions: Say: The sentence says: **My grand__ took me to the zoo. Grand** is the first part of the compound word. Look below the sentence to find the other part of the compound word. Fill in the circle next to the word that makes the correct compound word.

from Stanford Achievement Test-9th Edition,
Primary 1, Word Study Skills:

Directions: In the shaded box you see the words *surprise...everyone...thought*. Put your marker under this box. One of these words has two words in it. Mark the space next to the word that has two words in it.

Vocabulary: Synonyms

from *Indiana Reading Assessment – Grade 2*,
Beginning Reading Skills - First Administration:

Directions: Say: The underlined word is **gift**. The sentences say: **My mom opened the birthday gift. A word that means the same as gift is__**. Fill in the circle next to the word that means the same as **gift**.

from Woodcock-Johnson III,
Reading Vocabulary-Synonyms-From A, Test 17A:

Directions: Point to word “large” on subject’s page and say: **Tell me another word for “large”**.

Vocabulary: Antonyms

from *Indiana Reading Assessment – Grade 2*,
Beginning Reading Skills - Second Administration:

Directions: Say: The underlined word is **bad**. The sentence says: **Today was a bad day because I hurt my leg**. Look below the sentence to find a word that means the opposite of **bad**. Fill in the circle next to the word that means the opposite of **bad**.

from Woodcock-Johnson III,
Reading Vocabulary-Antonyms-From A, Test 17B

Directions: Point to “no” on subject’s page and say: **Tell me the opposite of “no”**.

TEST COMPARISONS (cont.)

Vocabulary: Vocabulary in Context

from *Indiana Reading Assessment – Grade 2*,
Beginning Reading Skills - Second Administration:

Directions: Say: The line shows where a word is missing. The missing word is one of the words under the sentence. Fill in the circle next to the word that completes the sentence.

from Stanford Achievement Test-9th Edition,
Primary 2, Word Study Skills:

Directions: Which one is the word **answers**? The teacher always **answers** our questions. Mark the space under the word **answers**.

from Stanford Achievement Test-9th Edition,
Primary 2, Word Study Skills:

Directions: Under each sentence, there are three words. One of these words completes the sentence. When the sentence is complete, it tells you something about the picture. Mark next to the word that makes the sentence tell about the picture.

Vocabulary: Prefixes and Suffixes

from *Indiana Reading Assessment – Grade 2*,
Beginning Reading Skills - Third Administration:

Directions: Say: The sentence says: **Mark is ___ that he will win the race.** The line shows where a word is missing. The missing word is one of the words under the sentence. Read the words to yourself.

from MAT 6,
Word Part Clues, Primary 1- Form L:

Directions: Read the sentence in Sample B. Pick the word that makes the best sentence and mark the answer space next to the word you've picked. Raise your hand when you have the answer.

Comprehension: Story Comprehension

from *Indiana Reading Assessment – Grade 2*,
Beginning Reading Skills - First Administration:

Directions: Say: Now you will read some stories, and you will answer some questions about the stories. We will first read a story and answer some questions about it together before you work on your own.

from TPRI,
Reading Comprehension, Inventory Task 6:

Directions: Reading Accuracy: The teacher says, "I am going to ask you to read a story. This is a story about a boy and what he and his dad did one day. After you read it, I will ask you a few questions."

APPENDIX D: TEACHER FEEDBACK

Appendix D: Teacher Feedback

The following teacher feedback data is based on survey results from the 2003-2004 school year.

Table 6. Clarity of the Indiana Reading Assessment – Grade 2 materials

	Very Clear	Generally Clear	Confusing
<i>Clarity of the administration directions</i>	51%	44%	4%
<i>Clarity of assessment material for students</i>	51%	44%	4%
<i>Clarity of the scoring directions</i>	25%	58%	14%
<i>How clear were the scoring guidelines for the open-ended questions?</i>	11%	56%	30%

Table 7. Effectiveness of the Indiana Reading Assessment – Grade 2 and materials.

	Very Effective	Somewhat Effective	Not Effective	Did Not Use
<i>Effectiveness at assessing specific Indiana Academic Standards indicators</i>	23%	54%	7%	4%
<i>Effectiveness of Additional Assessments in the Resource Guide</i>	25%	28%	4%	33%

TEACHER FEEDBACK (cont.)

Table 8. Usefulness of the Indiana Reading Assessment – Grade 2 materials.

	Very Useful	Somewhat Useful	Not Useful	Did not use
<i>Usefulness of CD-ROM</i>	2%	17%	9%	70%
<i>Usefulness of Classroom Activities in the Resource Guide</i>	21%	39%	0%	39%

Table 9. Amount of time to administer each Part.

Assessment Section	Under 20 minutes	21-30 minutes	31-45 minutes	46-60 minutes	Over 60 minutes
<i>Time to administer Part A (Phonics)</i>	9%	44%	28%	12%	4%
<i>Time to administer Part B (Vocabulary)</i>	11%	35%	40%	9%	0%
<i>Time to administer Part C (Comprehension)</i>	2%	17%	35%	35%	5%

APPENDIX E: DEMOGRAPHIC DATA

Appendix E: Demographic Data

The following demographic data is derived from an informal study of 125 schools who have participated in the Indiana Reading Assessments for three consecutive years beginning with the 2002-2003 school year.

Table 11. Locale Data

Locale	% of 125 schools in locale in 2004-2005	% of Indiana schools in locale in 2004-2005
<i>1=Large City</i>	6.03%	9.99%
<i>2=Mid-size City</i>	14.66%	15.79%
<i>3=Urban Fringe of Large City</i>	9.48%	16.36%
<i>4=Urban Fringe of Mid-size City</i>	3.45%	6.78%
<i>5=Large Town</i>	3.45%	2.43%
<i>6=Small Town</i>	14.66%	13.26%
<i>7=Rural, outside MSA</i>	34.48%	18.54%
<i>8=Rural, inside MSA</i>	12.93%	16.83%

Table 12. Achievement Data

Criteria	% of 125 schools meeting criteria in 2002-2003	% of Indiana schools meeting criteria in 2004-2005
<i>Above State Average Percent Passing English/Language Arts on State Test</i>	44%	44.80%
<i>Scores on State Test Increased from 2002-2003 Scores</i>	Not Applicable	72.80%
<i>Scores on State Test Increased by 5 points or more from 2002-2003</i>	Not Applicable	42.40%

DEMOGRAPHIC DATA (cont.)

Table 13. Minority/Ethnicity Data

Minority Data	125 schools	Indiana Public Schools
<i>% Total Enrollment Minority Students</i>	21.77%	21.30%
<i>% of schools with more than 50% minority enrollment in 2004-2005</i>	15.20%	State Data Not Available
Ethnicity Category	Average % of ethnicity population in the 125 schools in 2004-2005	State Ethnicity Enrollment Not Available
<i>Asian</i>	0.72%	
<i>Black</i>	11.12%	
<i>Native American</i>	0.21%	
<i>Hispanic</i>	5.68%	
<i>Mixed Race</i>	3.57%	
<i>White</i>	77.90%	

Table 14. Income Level Data

	125 schools	Indiana Public Schools
<i>% Total Enrollment on Free or Reduced Lunch in 2004-2005</i>	46.14%	34.40%
<i>% of schools with more than 50% on free or reduced lunch in 2004-2005</i>	25.60%	State Data Not Available

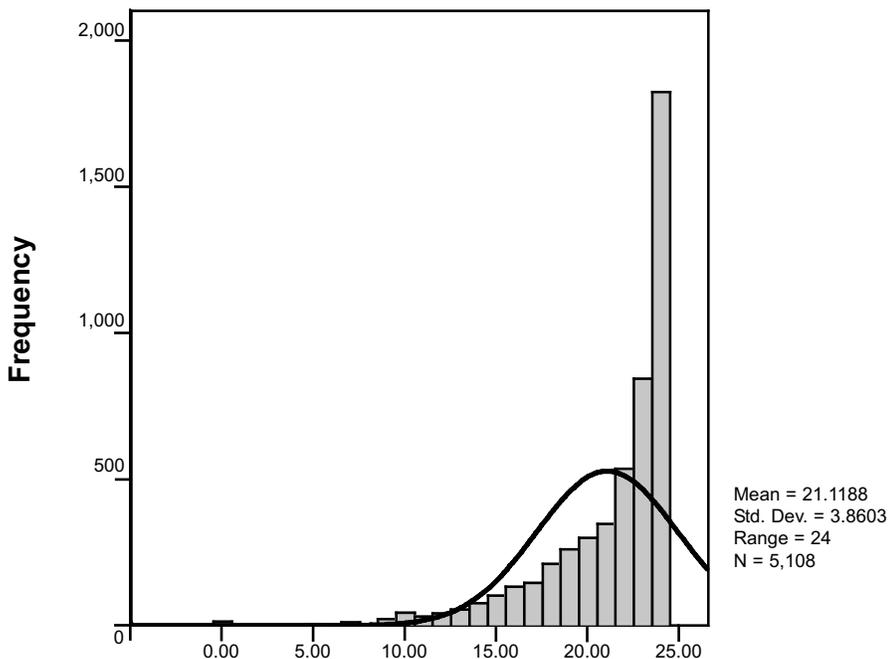
APPENDIX F: DESCRIPTIVE STATISTICS

Appendix F: Descriptive Statistics and Score Distribution

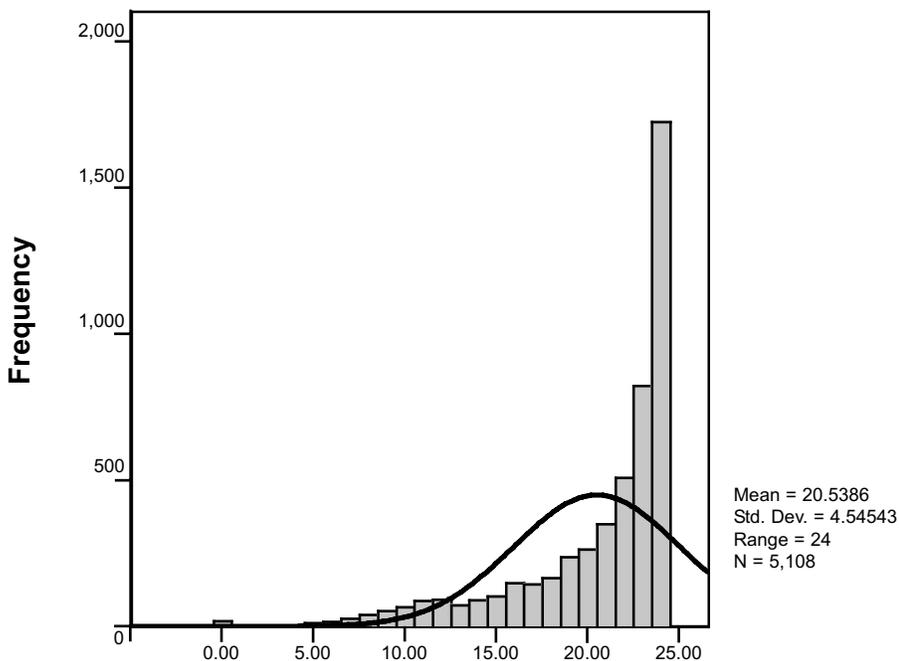
The following descriptive statistics are based on data from the 2003-2004 Random Sample Group.

Appendix F-1 Descriptive Statistics and Score Distribution by Reading Skill

Graph 1. First Administration Phonics Score Distribution



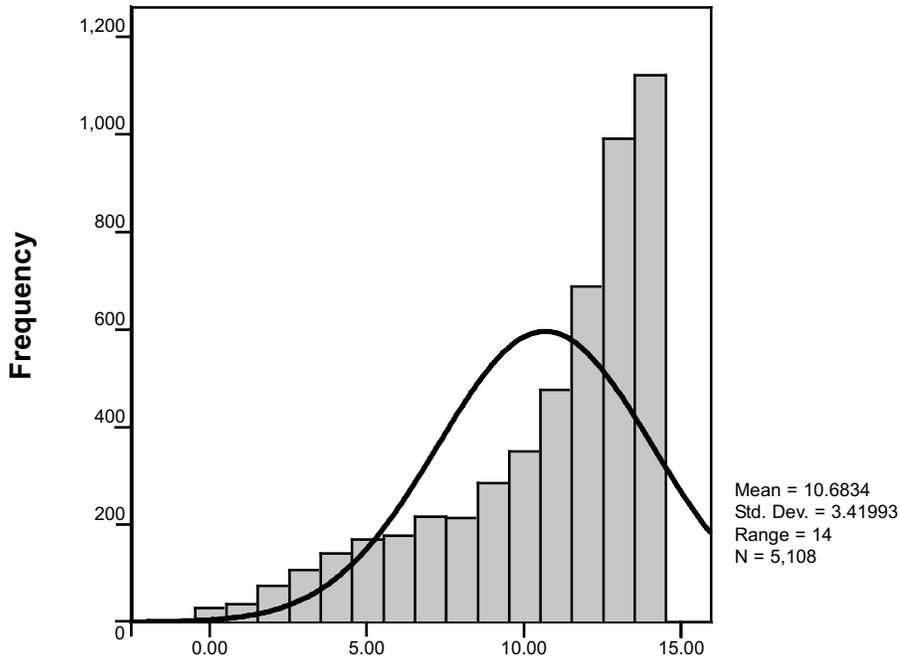
Graph 2. First Administration Vocabulary Score Distribution



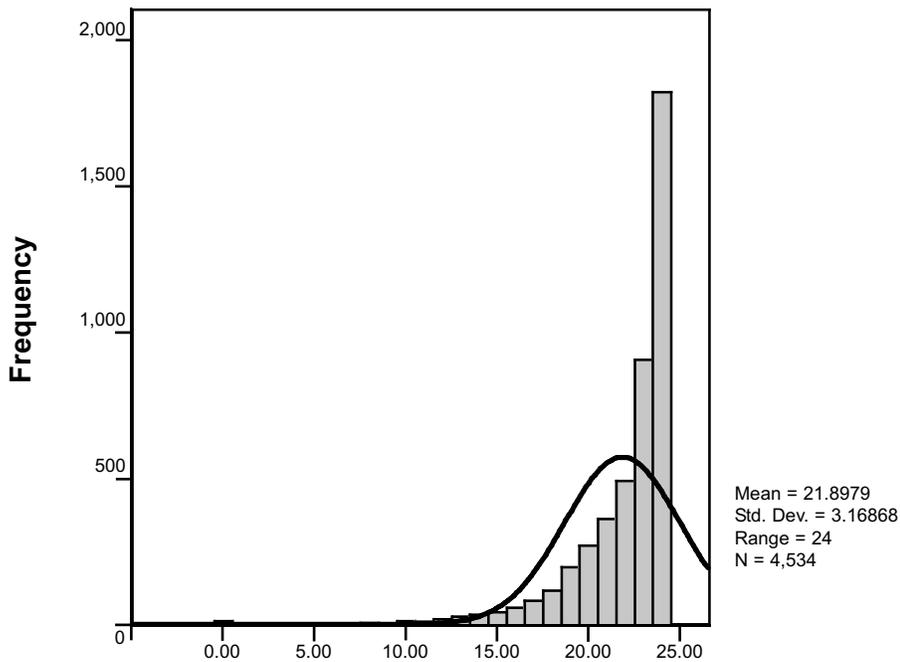
DESCRIPTIVE STATISTICS (cont.)

Appendix F-1 Descriptive Statistics and Score Distribution by Reading Skill (cont.)

Graph 3. First Administration Comprehension Score Distribution



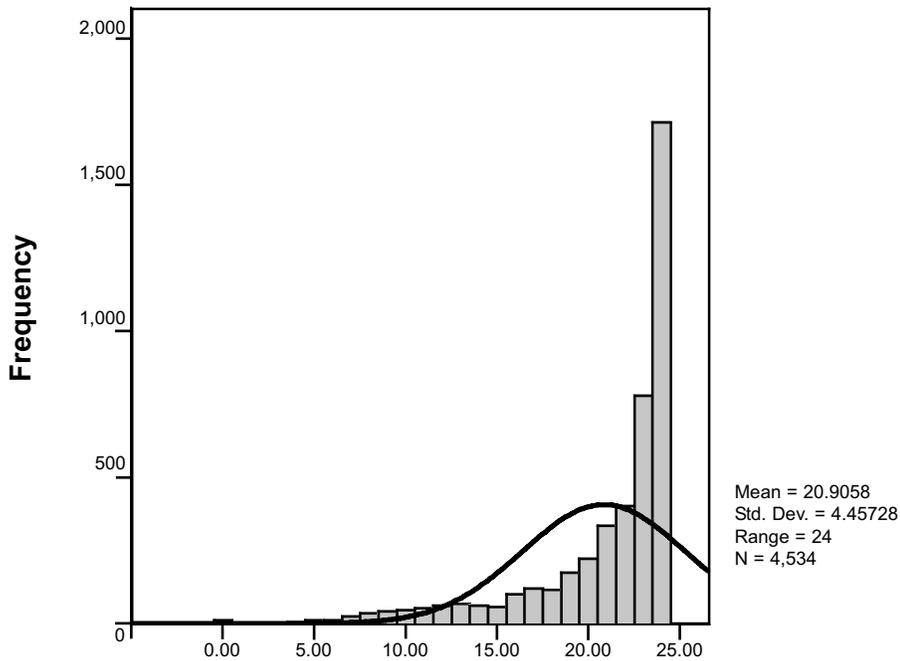
Graph 4. Second Administration Phonics Score Distribution



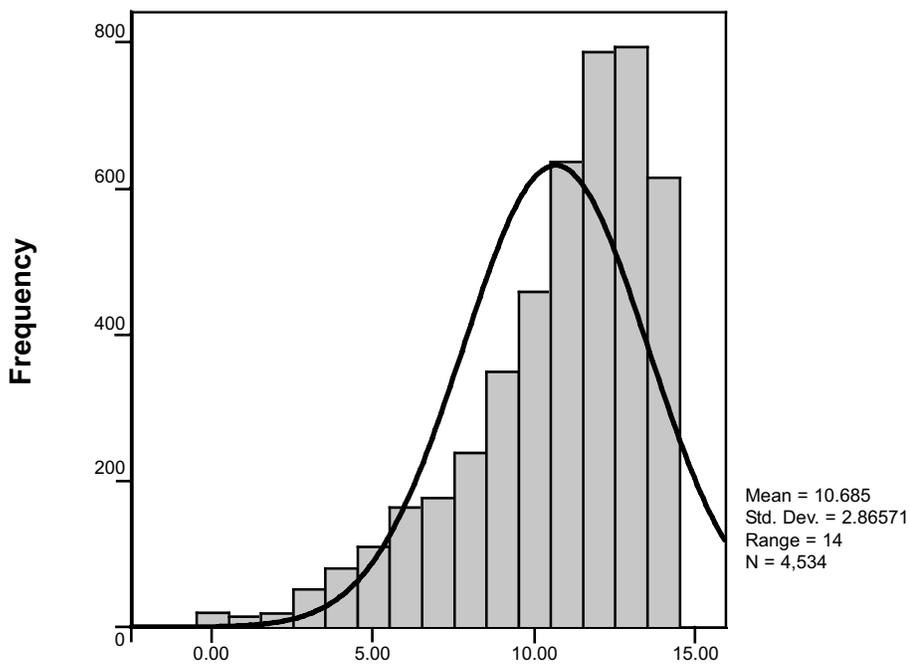
DESCRIPTIVE STATISTICS (cont.)

Appendix F-2 Descriptive Statistics and Score Distribution by Assessment Section

Graph 5. Second Administration Vocabulary Score Distribution



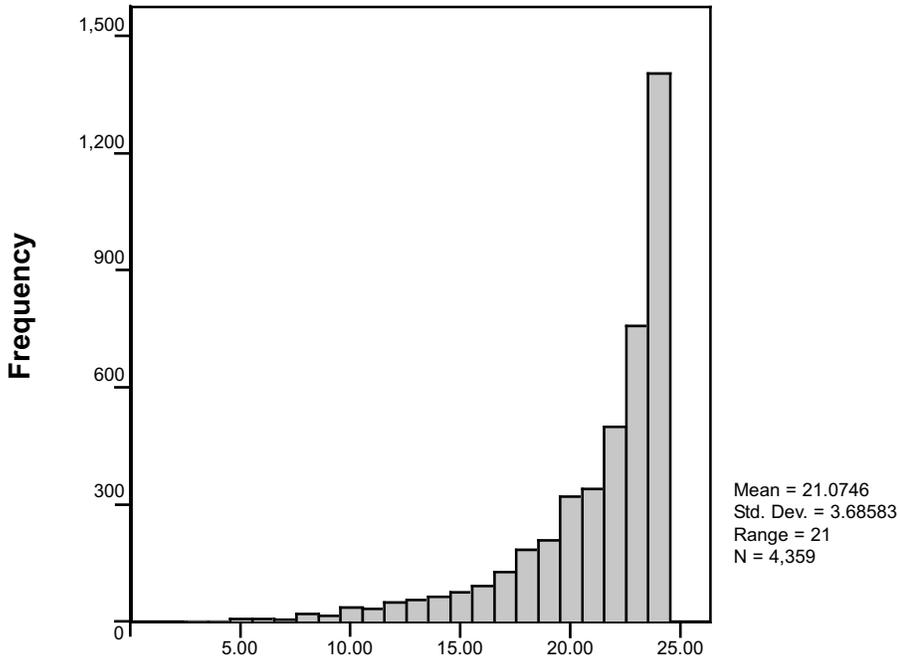
Graph 6. Second Administration Comprehension Score Distribution



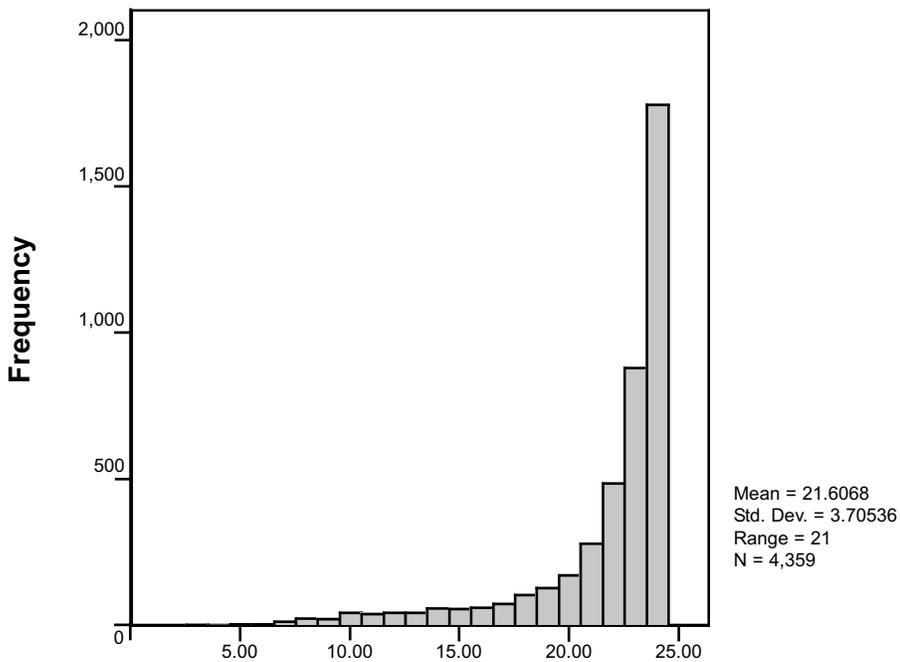
DESCRIPTIVE STATISTICS (cont.)

Appendix F-1 Descriptive Statistics and Score Distribution by Reading Skill (cont.)

Graph 7. Third Administration Phonics Score Distribution



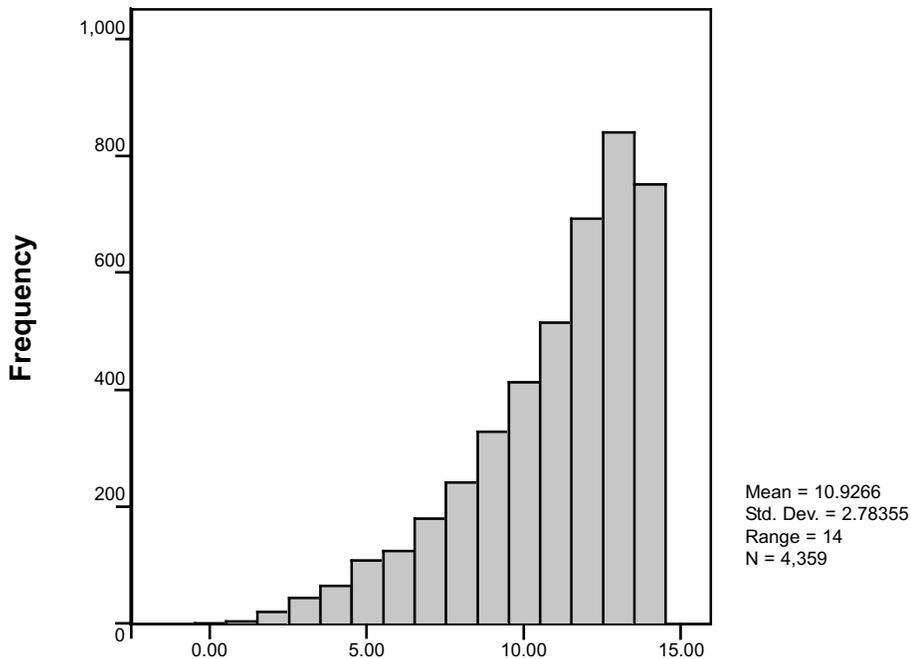
Graph 8. Third Administration Vocabulary Score Distribution



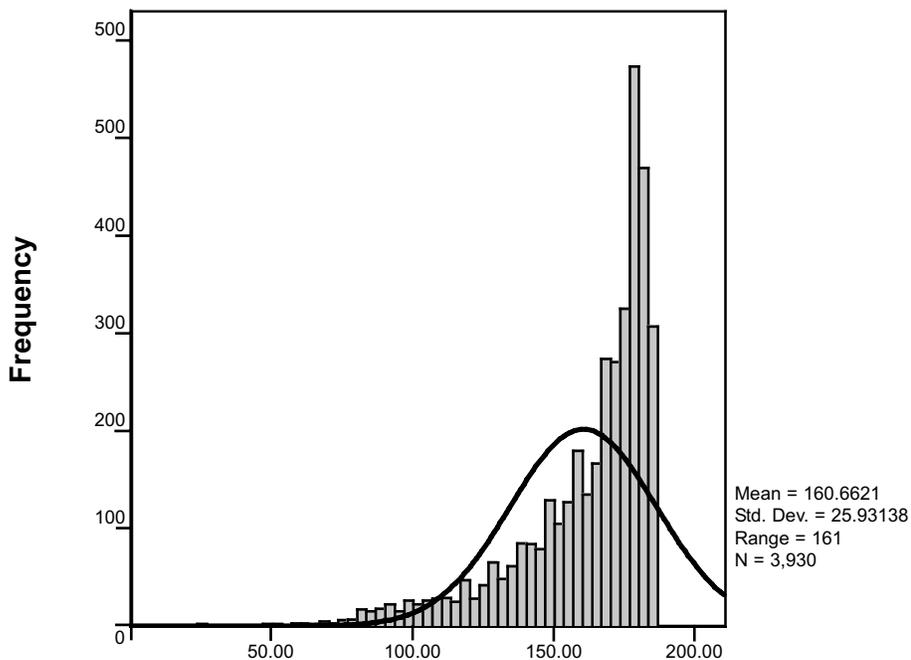
DESCRIPTIVE STATISTICS (cont.)

Appendix F-2 Descriptive Statistics and Score Distribution by Assessment Section

Graph 9. Third Administration Comprehension Score Distribution



Graph 10. Entire Test*



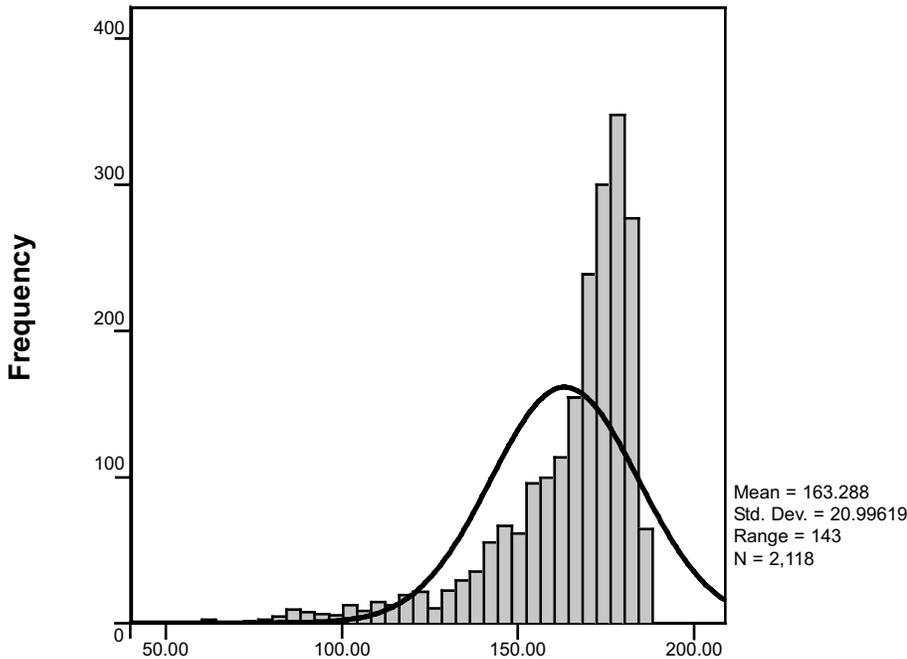
* All Parts, All Administrations

APPENDIX G: PREDICTIVE VALIDITY STATISTICS

Appendix G: Descriptive Statistics/Score Distribution (Predictive Validity Analysis)

The following results are based on an longitudinal study completed on scores derived from the 2002-2003 *Indiana Reading Assessment – Grade 2* Random Sample group and the 2003-2004 ISTEP+ scores for the same set of students.

Graph 1. 2002-2003 Indiana Reading Assessment – Grade 2 Score Distribution



Graph 2. 2003-2004 ISTEP+ Score Distribution

