



AIMSweb[®] Training Workbook

Administration and Scoring of Reading Curriculum-Based Measurement (R-CBM) for Use in General Outcome Measurement

Michelle M. Shinn, Ph.D.
Mark R. Shinn, Ph.D.

Edformation Inc.
6420 Flying Cloud Drive,
Suite 204
Eden Prairie, MN 55344

P: (952) 944-1882 (888) 944-1882 **F:** (952) 944-1884

Table of Contents

This manual is to be used as a supplement to the *AIMSweb Power Point Training Presentation* and *AIMSweb Training Video*.

Letter to AIMSweb Subscriber	3
Overview of AIMSweb Training Materials	4
Big Ideas of General Outcome Measurement	6
The <i>Reading Curriculum-Based Measure</i> (R-CBM)	6
Things to Remember About General Outcome Measurement	7
Using Standard Reading Assessment Passages	8
Administration and Scoring of Reading-CBM	9
Things you need to do Before Testing	9
Things you need to do While Testing	10
Things you need to do After Testing	12
Qualitative Features of Reading	12
Determining Inter-Scorer Agreement	13
Checking Out Accuracy in Testing Administration	13
References	14
Appendix A – Forms	16
Directions	17
Accuracy of Implementation Rating Scale (AIRS)	18
Qualitative Features Checklist	19
Appendix B – Practice Exercises	20
Student Copy	20
Examiner Copy	22
Answer Key	30
Scoring Rules and Examples	33
Appendix C – Summary of Validity and Reliability	35
Reading CBM – Is it a Valid Measure?	36
What do Experts say about Reading – CBM?	37
Validity and Reliability Studies	39

Dear AIMSweb Subscriber:

Welcome to the *AIMSweb* formative assessment and basic skills improvement system. *AIMSweb* provides teachers, school administrators, and parents a complement to the summative (high stakes) assessment/evaluation model prevalent in education today. Rather than just providing schools with information about student learning at the end of the school year, *AIMSweb* organizes and reports the results of simple, accurate, low cost, and more frequent testing using validated General Outcome Measures like Curriculum-Based Measurement during the school year. The *AIMSweb* formative assessment model informs the instructional process as it occurs by identifying at risk students as early as possible and importantly, those students who are learning and those who are not progressing satisfactorily. The distinction between “did they learn last year” and “are they learning this year” represents a paradigm shift, one that is critical for quality improvement!

The *AIMSweb* system consists of four components:

1. **Two web-based data management and information reporting programs to report and graph the results of Curriculum-Based Measurement (CBM) in early literacy, reading, and spelling.**
 - *AIMSweb Benchmark* manages, evaluates, reports, and charts the results of three times per year school benchmark assessments for all students Grades K-8.
 - *AIMSweb Progress Monitor* allows teachers to monitor students at risk or those students with more severe educational needs more frequently to evaluate the effects of interventions and document appropriate instructional changes.
2. **Standard General Curriculum Assessment Materials:**
 - *Standard Benchmark Reading Assessment Passages:* A set of 3 graded and equivalent standard passages for Grades 1-8 for establishing fall, winter and spring reading benchmarks (24 total passages). These passages are also available in Spanish.
 - *Standard Progress Monitoring Reading Assessment Passages:* A set of 30 graded and equivalent passages per grade for Grades 2-8, 20 for Grade 1, and 20 for Pre-Primer Level for use in more frequent and continuous monitoring (250 passages total).
 - *Early Literacy Indicators:* A set of 3 equivalent Standard Benchmark Early Literacy Indicators to assess Phonemic Awareness and Phonics for Kindergarten and Grade 1 for establishing fall, winter, and spring benchmarks.
 - *Early Literacy Indicators for Progress Monitoring:* A set of 20 equivalent Standard Early Literacy Indicators for Kindergarten and Grade 1 for use in more frequent and continuous monitoring of early literacy skills (20 tests for each indicator).
 - *Standard Maze Passages:* Three Standard Assessment Reading Passages for Grades 1-8 have been prepared in a maze (multiple choice close) format for use as another measure of reading comprehension (24 maze passages total).
 - *Standard Benchmark Spelling Lists:* A set of graded and equivalent standard spelling lists for use in Grades 1-8 for establishing fall, winter, and spring spelling benchmarks (24 total lists).

- *Standard Progress Monitoring Spelling Lists*: A set of 30 graded and equivalent lists of Grade 2-8 spelling words per grade and 20 lists of Grade 1 words (230 total) for use in more frequent and continuous monitoring.

3. Training Workbooks designed to train staff to implement the *AIMSweb* system.

- *Administration and Scoring of Reading Curriculum-Based Measurement (R-CBM) for Use in General Outcome Measurement*
- *Administration and Scoring of Early Literacy Indicators for Use in General Outcome Measurement*
- *Administration and Scoring of Spelling Curriculum-Based Measurement (S-CBM) for Use in General Outcome Measurement*
- *Administration and Scoring of Reading Maze for Use in General Outcome Measurement of Reading Comprehension*
- *Organizing and Implementing a Benchmark Assessment Program*
- *AIMSweb Progress Monitor - Strategies for Writing Individualized Goals in General Curriculum and More Frequent Formative Evaluation*

AIMSweb trainers are available to deliver the training onsite or the materials can be used without assistance.

4. Online Support:

AIMSweb users become members of a community of users and an online support site (*AIMSonline*) designed to solve problems, answer questions, and contribute to professional development and successful implementation. A network of Strategic School Partners and Certified *AIMSweb* Trainers located around the country are available for inquiries, expertise, training, onsite visits, etc. *AIMSweb* "informs" the teaching and learning process by providing continuous student performance data and reports improvement to students, parents, teachers, and administrators.

Our promise to you is simple. Use of the *AIMSweb* system will improve instruction, increase achievement, and report improvement to all stakeholders.

Gary Germann
President/CEO

Steve Jennen,
Vice President and Chief Technical Officer

Overview of AIMSweb Training Materials

This is one in a series of Training Workbooks developed to accompany *AIMSweb* (Achievement Improvement Monitoring System). The purpose of the series is to provide instruction, delivery models, and practice opportunities to better use *AIMSweb* to improve achievement outcomes.

Administering and Scoring of Reading Curriculum-Based Measurement (R-CBM) for Use in General Outcome Measurement provides instruction and practice in the skill area of reading. The workbook is accompanied by the AIMSweb Training Video which contains segments of students reading to demonstrate key features of administering and scoring the graded reading tests. Critical activities to complete before, during, and after testing, including scoring rules, are provided. Practice examples and answer keys are provided for users to observe and score as well as reproducible forms for making testing easier and more accurate. A Power Point Presentation accompanies the user through the training experience.

Administering and Scoring of Spelling Curriculum-Based Measurement (S-CBM) for Use in General Outcome Measurement provides instruction and practice in the skill area of spelling. The workbook is to be used with the AIMSweb Training Video which also contains demonstrations of key features of administering the graded spelling lists. Critical activities to complete before, during, and after testing, including scoring rules, are provided. Practice examples and answer keys are provided for users to observe and score as well as reproducible forms for making testing easier and more accurate. A Power Point Presentation accompanies the user through the training experience.

Administering and Scoring of Early Literacy Indicators for Use in General Outcome Measurement provides instruction and practice in the skill areas of early reading. The workbook describes five fluency measures designed to assess early literacy acquisition from early Kindergarten to Grade 1, including Beginning Sounds, Letter Names, Letter Sounds, Phonemic Segmentation, and Nonsense Words. The workbook is accompanied by a videotape of students taking these tests to demonstrate key features of administering and scoring each indicator. Critical activities to complete before, during, and after testing, including scoring rules, are provided. Practice examples and answer keys are provided for users to observe and score as well as reproducible forms for making testing easier and more accurate. A Power Point Presentation accompanies the user through the training experience.

Administering and Scoring of Reading Maze for Use in General Outcome Measurement provides instruction and practice in the skill area of reading comprehension. Critical activities to complete before, during, and after testing, including scoring rules, are provided. Practice examples and answer keys are provided for users to observe and score as well as reproducible forms for making testing easier and more accurate. A Power Point Presentation accompanies the user through the training experience.

Organizing and Implementing a Benchmark Assessment Program provides information on how to conduct benchmark testing in general education classrooms. The workbook provides straightforward, simple, and valuable information for planning, communication, and conducting all school benchmark testing. This manual is intended for use with *AIMSweb Benchmark* web-based software.

AIMSweb Progress Monitor - Strategies for Writing Individualized Goals in General Curriculum and More Frequent Formative Evaluation instructs teachers on how to write individualized annual goals for students and monitor progress on a frequent and continuous basis. Intended for use with students in individualized remedial programs - such as special education or Title I - the Training Workbook demonstrates how to

write individualized annual goals based on a Survey-Level Assessment (SLA) and provides strategies for collecting student outcome information frequently and continuously. This manual is intended for use with the *AIMSweb Progress Monitor* web-based software.

Big Ideas About General Outcome Measurement (GOM)

Medicine measures height, weight, temperature, and blood pressure; the Federal Reserve Board measures the Consumer Price Index; Wall Street measures the Dow-Jones Industrial Average; companies report earnings per share; and even McDonald's measures how many hamburgers they sell. What do these measures have in common? They all assess general outcomes so decisions are data-based and timely.

Although these measures do not assess *all* health, economic, stock market, business or even fast food sales behavior, they are indicators considered so important to outcomes that *they are routine*. These measures are simple, accurate, and reasonably inexpensive in terms of time and materials. They are collected on an ongoing basis over time. They shape a variety of important decisions.

Education has its own set of indicators of general basic skill success. Derived out of the research base generated by a set of test procedures called Curriculum-Based Measurement (CBM), these General Outcome Measures (GOMs) allow us to make important statements about our students' reading, spelling, written expression, and mathematics computation skills.

CBM was developed more than 20 years ago by Stanley Deno at the University of Minnesota, and implemented into schools by Gary Germann, with the idea of giving educators simple, accurate, and efficient indicators of student achievement. School-based research on CBM with real students and real teachers continues to this day. The references included in this workbook provide extensive information about how CBM was developed and validated, and how CBM can be used to make a variety of general and special education decisions.

Originally, CBM was designed to assess growth and development in students' specific curricula. Teachers created their own individual set of CBM passages based on what they were teaching and used the information to determine students' rates of progress and make changes in instruction as needed. This tie to curriculum had high instructional validity but lacked the necessary other technical features of reliable and valid measurement.

It soon became apparent that the positive effects of testing from materials selected from an individual teacher's curriculum were offset by the lack of standard information about students' progress. Some teachers had "no curriculum," the curriculum would change year to year, and the differences between schools, between teachers within schools, and so on, made accurate decisions about students' progress very difficult. Furthermore, teachers were too often burdened by the business of creating their own testing materials. In addition to being more time consuming, the variability in test practices was a concern.

After considerable research, it has been demonstrated that the perfect correspondence between what CBM assessed and students' specific curricula was not necessary. In fact, by using standard test materials the same judgments about students' level of reading skill and reading progress, could still be made accurately, as well as provide appropriate, standards of growth and development across varied curricula,

teachers, schools, and school districts.

What emerged from this school-based research was the following conclusion: Achievement can be improved by testing students (1) using standard, valid assessments, (2) that measured something important, (3) on tasks of about equal difficulty tied to general curriculum (4) over time.

CBM provided the testing procedures to be able to do Numbers 1, 2, and 4. By developing graded and equivalent testing materials of about equal difficulty tied to general curriculum, (Number 3) General Outcome Measurements (GOMs) evolved. Thus, the testing procedures known as CBM are used in an testing approach called General Outcome Measurement.

The Reading General Outcome Measure: CBM Oral Reading Fluency (R-CBM)

When educators are interested in making decisions with General Outcome Measurement so they can make accurate statements about student reading growth and development, they use CBM oral reading fluency (R-CBM). Students read aloud for 1 minute from meaningful, connected, and graded passages of text (*Edformation's Standard Reading Assessment Passages*) that are written to represent general curriculum. The number of words read correctly and errors are counted. R-CBM has been demonstrated to be a valid general outcome measure of reading, including comprehension for most students.

A summary of this test, how long the test is, how students are assessed, and what is scored is shown in the table below.

Area	Timing	Test Arrangements	What is Scored
CBM Oral Reading Fluency (R-CBM)	1 minute	Individual	# of Words Read Correctly (WRC) and # of Errors

Illustration 1: Student Copy

Listen to Sally, a 3rd grader reading from a Grade 2 Standard Progress Monitor Reading Assessment Passage. Note the testing set up, directions, and observe how she reads with attention to how fluently she reads, how accurately she reads, and what signs of good/poor reading she displays.

<p>I can say many numbers. First I say "one," and then I say "two." I can count very high, but I can't count every number. Even though I can write many numbers, I can never write every number. I would run out of time and space before I could finish. Numbers keep going forever.</p> <p>I see numbers just about anywhere I look. Numbers help us every day. You can put them together to add. You can take them away to subtract. Numbers help measure how long, short, and wide things are. Numbers tell us how much food and toys cost. They tell us how many miles we have left to drive until we get home. Numbers tell us how fast we ran a race. They let us know how many points our team scored in a game. Numbers tell us how tall we are. They help us figure out how much we've grown. They let us know what size our hands and feet are.</p> <p>Continues on to about 250-300 words.</p>	
---	--

1. What did you observe about the testing situation?
2. What did the examiner do?
3. What did you observe about the student's reading skills?
4. How many words did the student read correctly in 1 minute? _____WRC
5. How accurately did the student read? _____%

Illustration 2: Student Copy

Listen to Jessica, a low-performing, 2nd grader, reading from the same reading passage as Sally. How fluently and accurately does she read, and what signs of good/poor reading does she show?

I can say many numbers. First I say "one," and then I say "two." I can count very high, but I can't count every number. Even though I can write many numbers, I can never write every number. I would run out of time and space before I could finish. Numbers keep going forever.

I see numbers just about anywhere I look. Numbers help us every day. You can put them together to add. You can take them away to subtract. Numbers help measure how long, short, and wide things are. Numbers tell us how much food and toys cost. They tell us how many miles we have left to drive until we get home.

Actual Passage Shortened to Save Space

1. What did you observe about the student's reading skills?
2. How many words did the student read correctly in 1 minute? _____WRC
3. How accurately did the student read? _____%

Things to Remember about General Outcome Measurement

Throughout learning to administer and score R-CBM, it is important to remember each of the following features. All GOM assessments:

- Are designed to serve as "signs" of general achievement. They don't measure everything, but measure *important* things.
- Are standardized assessments. They are intended to be administered, scored, and interpreted in a standard way.
- Are researched with respect to psychometric properties of reliability and validity. If we use standardized GOM testing procedures, we can be *confident* in accurate measures of general outcomes.
- Are sensitive to improvement in short periods of time. Improvement on General Outcome Measures over time means students are learning to read, spell, or use mathematics.
- Tell us how students earned their scores (Qualitative Information) as well as their scores (Quantitative Information).
- Are designed to be as short as possible to not conflict with teaching and to ensure its "do-ability."
- Are linked to decision making for promoting positive achievement with general education students and for Problem-Solving decision making with at risk students or those in remedial programs like Title I and special education.

Using Standard Reading Assessment Passages

Edformation's Standard Reading Assessment Passages are narrative fiction stories carefully written and tested with students to ensure that the passages within each grade level are similar in difficulty. The use of narrative versus expository passages allows educators to see reading skills more clearly in a context where prior subject information is minimized. They are “curriculum independent,” allowing teachers to make decisions about **general reading outcomes** regardless of reading curriculum differences between teachers and schools.

AIMSweb uses *Standard Reading Assessment Passages* for two primary purposes:

AIMSweb System	Purpose	Description
<i>AIMSweb Benchmark</i>	<ol style="list-style-type: none"> 1. To screen and identify at risk students in need of reading interventions. 2. To monitor progress and improvement of individual students in the fall, winter, and spring of the school year. 3. To make program evaluation decisions and improve accountability. 	Three Standard Benchmark Reading Assessment Passages are used in each grade (1-8) to develop school reading benchmarks. Available also in Spanish.
<i>AIMSweb Progress Monitor</i>	<ol style="list-style-type: none"> 1. To provide a practical way of writing individualized progress goals, including IEPs. 2. To monitor progress of individual students and determine rate of improvement and intervention success. 3. To provide teachers, parents, and administrators with accountability data. 	Includes 30 Standard Progress Monitoring Reading Assessment Passages (20 for grade one) for frequently monitoring the progress of individual students.

AIMSweb software provides a testing and improvement management system via the Internet. By providing improvement reports in a timely and cost/time efficient manner teachers, parents and administrators are provided valuable information to improve instruction, increase achievement and report success.

Administration and Scoring of Reading-CBM

This workbook section covers administration and scoring of R-CBM and what examiners need to do (1) before testing students, (2) while testing students, and (3) after testing students. Ten video-based practice tests for learning how to score are included.

Things You Need to Do Before Testing

Before testing students, examiners must have their Standard Reading Assessment Passages and other testing materials set up in an appropriate assessment environment.

Things You Need Before Testing:

- Standard Reading Assessment Passages.
- A list of students to be assessed.
- Stop Watch (An accurate, non-intrusive timer. Using the “clock on the wall” is inaccurate and inefficient.)
- Clipboard (Helps shield the Examiner Copy from the student and provides a solid surface for scoring).
- Transparencies, Dry Marker, and Wipe Cloth (If it is not necessary to keep a permanent record of a student’s R-CBM results, a transparency over the examiner copy that can be erased after scoring saves testing materials).
- Pencil.

Arranging the Testing Environment

Getting accurate reading results depends on how the testing environment is arranged. Although R-CBM testing is conducted 1 to 1, testing environments are modestly flexible. A set-aside place in the classroom can work. It should be reasonably quiet and away from distractions (sinks, water fountains) and preferably include a small table. Alternately, a reading station in the hallway when there is no traffic is suitable. On more large scale, R-CBM testing (benchmark), reading stations in the media center, cafeteria, gym, or empty classrooms will work.

A Number of Things Must be Kept in Mind

- It’s About Testing, Not Teaching—The standardized directions should always be used. That means keeping the testing a “test.” R-CBM is not to be used as instruction. Students shouldn’t practice reading the passages, nor should they have their errors corrected by the examiner during the testing.
- Best versus Fastest Reading—Everything should be done to prepare the student for their “best,” not their fastest. Timing should be subtle and not “in the student’s face.” Examiners should always emphasize “best reading.”
- Sit Across from, Not Beside—When we read with students, we sit next to them. When we assess students, we sit *across* from them. We want the students to be looking at what they read, not how we, the examiners, are scoring or what we are doing.

What Students Read

Students always read *Edformation’s Standard Reading Assessment Passages* such as the one below. The student copy does not have numbers so students can focus on doing their best reading and not get unnecessarily stressed by timing. The passages typically are between 250-300 words long and begin with an informative first sentence. First-grade passages are shorter (about 150 words). All the passages are in the same font style and without pictures, which are distracting during testing.

Sample Student Standard Reading Assessment Passage

Bat lived all by himself in a damp and musty cave. The cave was always dark and dreary. As Bat hung upside down day after day, he thought about his sorrows.

“If only I had a friend,” Bat often thought. “If I had a friend, I would have someone to play with. If I had a friend to talk to, I think I’d finally be very happy.”

At night Bat would spread his strong wings and fly from the cave. He would search for nice apple tree. Then he would perch on a branch and gobble down juicy dinner. Bat liked apples, and he loved plums. But his favorite meals were those beetles and other bugs.

Continues on to about 250-300 Words.

What the Examiner Scores

Examiners always use *Standard Reading Assessment Passages* such as the one below. They are already numbered so they can be scored immediately and quickly. Note on the video how the examiner copy is held so the student cannot see what the examiner is marking.

Sample Examiner Standard Reading Assessment Passage

Bat lived all by himself in a damp and musty cave. The cave was always dark and dreary. As Bat hung upside down day after day, he thought about his sorrows.

“If only I had a friend,” Bat often thought. “If I had a friend, I would have someone to play with. If I had a friend to talk to, I think I’d finally be very happy.”

At night Bat would spread his strong wings and fly from the cave. He would search for nice apple tree. Then he would perch on a branch and gobble down juicy dinner. Bat liked apples, and he loved plums. But his favorite meals were those beetles and other bugs.

Continues on to about 250-300 Words.

15
27
31
47
66
67
80
93
105
116

Things You Need to do While Administering the Test

Because R-CBM is a standardized test, we must give the test the same way. On the next page are standardized directions that can be copied and should be read to the student. Once students are familiar with the directions, the shortened “familiar” directions can be used.

General Considerations:

- **Emphasizing Words Read Correctly (WRC).** Because R-CBM is rich in information, we may want to count or record everything the student does. As will be seen, there are ways of doing much of this. However, don't lose sight of our goal of obtaining an accurate count of the number of words read correctly.
- **3-Second Rule.** If a student stops or struggles with a word for 3 seconds, tell the student "the word" and mark it as incorrect. We want enough time to observe if the student is using a strategy for unfamiliar words but not too long so the student gets frustrated or gives up.
- **No Other Corrections.** As noted earlier, R-CBM is about testing. Don't correct errors. We want "examiner talk" to be minimum and student reading to be maximum.
- **Discontinue Rule.** If the passage that is read is so hard that the student reads less than 10 words correctly in 1 minute, discontinue administration of any other passages from that level and use this WRC score.
- **Being Polite.** After the examiner is very accurate at scoring, mark where the student ends at the end of 1 minute, but it is polite to let the student finish the sentence before saying "stop." In the interest of time, don't let them finish the story.
- **Speed Reading.** You may encounter some excellent readers who may view R-CBM as a "speed reading test" (i.e., read the passage very fast and without expression) in their first R-CBM testing. When this occurs, interrupt the student, saying

"This is not a speed reading test. Begin again, and be sure to do your best reading."

- **Interruptions.** If something disrupts testing (bells, dropped passages, timing) discard the passage and administer another.

R-CBM Standard Directions for 1-Minute Administration

1. Place the unnumbered copy in front of the student.
2. Place the numbered copy in front of you but shielded so the student cannot see what you record.
3. Say:
"When I say 'Begin,' start reading aloud at the top of this page. Read across the page (DEMONSTRATE BY POINTING). Try to read each word. If you come to a word you don't know, I'll tell it to you. Be sure to do your best reading. Are there any questions?" (Pause)
- Say:
"Begin" and start your stopwatch when the student says the first word. If the student fails to say the first word of the passage after 3 seconds, tell them the word, mark it as incorrect, then start your stopwatch.
5. Follow along on your copy. Put a slash (/) through words read incorrectly.
6. At the end of 1 minute, place a bracket (]) after the last word and say, "Stop."
7. Score and summarize by writing WRC/Errors.

Familiar Shortened Directions

Substitute...
When I say 'Begin,' start reading aloud at the top of this page.

Things You Need To Do After Testing

After the student has completed reading a passage, score immediately. Your most important task is to determine the number of Words Read Correctly (WRC). Determining WRC and errors is, in general, a straightforward process. Examiners put a slash (/) through incorrect words. Complete definitions and examples of the scoring big ideas, plus rules for scoring some more unusual situations, are included Appendix B at the end of this part of the workbook.

General Scoring Rules (See Appendix B for Specific Scoring Rules and Practice)

WHAT IS A WORD READ CORRECTLY (WRC)?

- Correctly Pronounced Words within context
- Self-Corrected Incorrect Words within about 3 seconds

WHAT IS AN ERROR?

- Mispronunciation of the Word or Substitutions
- Omissions
- 3-Second Pauses or Struggles

WHAT IS NOT INCORRECT (NEITHER A WRC OR ERROR)?

- Repetitions
- Dialect Differences
- Insertions (Consider them Qualitative Errors)

Calculating and Reporting R-CBM Scores

Determining the WRC involves first recording the total number of words read and then subtracting the number of errors. Scores are reported in a standard format of **WRC/Errors** so that all educators are aware of exactly what is being reported. For example, Mike finished reading after 1 minute at the 145th word so he read 145 words total. Mike also made 3 errors. Therefore his WRC was 142 with 3 errors and would be recorded as **142/3**. It is important to remember this reporting format, as often, even with training, the scores reported incorrectly are total words read, not WRC which may give an inaccurate perception of a student's reading skill.

Assessing the Qualitative Features of Reading as Part of R-CBM

The richness of information about a child's reading skills obtained with R-CBM is evident and we believe that decision making is enhanced by occasionally adding your professional judgments about the quality of a student's reading, as well as "quantity" of reading. The checklist included shown below is a simple way of structuring your observations and includes a number of skills displayed by good readers that are lacking in many poor readers. After listening to students read 3 Standard Reading Assessment Passages, the checklist can be completed. *AIMSweb Benchmark* allows teachers to select from the Qualitative Features checklist as part of a student's Benchmark improvement Report.

Qualitative Features Checklist

After listening to the student read connected text, judge the degree to which you observe these important features of successful reading. Note that some features may not be observed.

Reads fluently or efficiently.
 Reads very accurately (> 95%).
 Has an effective strategy for unknown words.
 Reading errors preserve rather than distort meaning.
 Reads with expression (attention to prosodic features).
 Self-corrects errors (comprehension self-monitoring).
 Adjusts pace when complexity or “considerateness” of text changes.

Determining Inter-Scorer Agreement

Getting accurate student reading results should not depend on who assesses the students. Because no testing is perfectly reliable, we need to know how much different examiners agree. This process of obtaining Inter-Scorer agreement is not done just after training but periodically to ensure that examiners are consistent in administration and scoring.

A simple formula for calculating Inter-Scorer agreement is:

$$\text{Agreements}/(\text{Agreements} + \text{Disagreements}) \times 100$$

For 2 examiners who scored Dave as 100 WRC and 98 WRC, their Inter-Scorer agreement would be 98% as follows:

- They agreed that Dave read 98 of the words correct.
- They disagreed on 2 words correct.
- Agreements (98)/Agreements + Disagreements (98 + 2) = 98/100 = .98
.98 x 100 = 98%

Inter-Scorer agreement can be determined for more than 1 pair as follows. Each pair of scores are compared for agreements and disagreements, and then entered into the formula.

For 3 examiners (1, 2, 3) who scored Dave as 100 WRC, 98 WRC, and 97 WRC, their Inter-Scorer agreement would be 98% as follows:

- Examiner 1 and 2 agreed on 98 WRC and disagreed on 2
- Examiner 1 and 3 agreed on 97 WRC and disagreed on 3
- Examiner 2 and 3 agreed on 97 WRC and disagreed on 1
- Agreements (98 + 97 + 97)/ Agreements + Disagreements ((98 + 2) + (97 + 3) + (97 + 1))
= 292/298 = .98
.98 x 100 = 98%

Checking Out Accuracy in Testing Administration

Getting accurate student reading results should not depend on who assesses the students. If we use the Standard Reading Assessment Passages, their standardized instructions and score correctly, different examiners should obtain about the same results. To ensure that examiners are consistent in administration and scoring, we recommend “check outs,” the process of observing each other administer R-CBM. Use the Accuracy of Implementation Rating Scale (AIRS) provided in Appendix A. After watching a trainee administer R-CBM, complete an AIRS, calculate an Inter-Scorer agreement and provide feedback. This will ensure accurate and consistent standardized testing. See Appendix A for a copy of Accuracy of Implementation Rating Scale (AIRS).

Books, Book Chapters, and Journal Articles on General Outcome Measurement

Books Available at www.guilford.com or www.amazon.com

Books

- Shinn, M. R. (1989). *Curriculum-Based Measurement: Testing Special Children*. New York, NY: Guilford.
- Shinn, M. R. (1998). *Advanced Applications of Curriculum-Based Measurement*. New York, NY: Guilford.
- Shinn, M.R., Deno, S.L., & Fuchs, L.S. (2002). *Using Curriculum-Based Measurement in a Problem Solving Model*. New York: Guilford.
- Shinn, M. R., Walker, H.M. & Stoner, G., (2002). *Interventions for Academic and Behavior Problems II: Preventive and Remedial Approaches*. Bethesda, MD: National Association of School Psychologists.

Book Chapters

- Baker, S. K., Plasencia-Peinado, J., & Lezcano-Lytle, L. (1998). The use of Curriculum-Based Measurement with language-minority students. In M. R. Shinn (Ed.), *Advanced Applications of Curriculum-Based Measurement* (pp. 175-213). New York, NY: Guilford.
- Deno, S. L. (1989). Curriculum-Based Measurement and special education services. A fundamental and direct relationship. In M. R. Shinn (Ed.), *Curriculum-Based Measurement: Testing special children* (pp. 1-17). New York, NY: Guilford.
- Deno, S. L. (1995). School psychologist as problem solver. In J. Grimes & A. Thomas (Eds.), *Best practices in school psychology III* (pp. 471-484). Silver Spring, MD: National Association of School Psychologists.
- Fuchs, L. S. & Shinn, M. R. (1989). Writing CBM IEP Objectives. In M. R. Shinn (Ed.), *Curriculum-Based Measurement: Testing special children* (pp. 130-152). New York, NY: Guilford.
- Fuchs, L. S. (1989). Evaluating solutions: Monitoring progress and revising intervention plans. In M. R. Shinn (Ed.), *Curriculum-Based Measurement: Testing special children* (pp. 153-181). New York, NY: Guilford.
- Fuchs, L. S. (1993). Enhancing instructional programming and student achievement with Curriculum-Based Measurement. In J. Kramer (Ed.), *Curriculum-based testing: Examining old problems, evaluating new solutions* (pp. 1-32). Hillsdale, NJ: Lawrence Erlbaum Associates.
- Gibbons, K.A., & Shinn, M. M. (2001). Best Practices in Evaluating Psychoeducational Services Based on Student Outcome Data. In A. Thomas and J. Grimes (Eds.), *Best practices in school psychology IV*. Bethesda, MD: National Association of School Psychologists.
- Marston, D. B. (1989). A Curriculum-Based Measurement approach to testing academic performance: What it is and why do it. In M. R. Shinn (Ed.), *Curriculum-Based Measurement: Testing special children* (pp. 18-78). New York, NY: Guilford.
- Marston, D., & Magnusson, D. (1988). Curriculum-Based Measurement: District-level implementation. In J. L. Graden, J. E. Zins, & M. J. Curtis (Eds.), *Alternative educational delivery systems: Enhancing instructional options for all students* (pp. 137-172). Washington, D.C.: National Association of School Psychologists.
- Shinn, M. R. (2001). Best practices in Curriculum-Based Measurement. In A. Thomas & J. Grimes (Eds.), *Best practices in school psychology IV*. Bethesda, MD: National Association of School Psychologists.
- Shinn, M. R., & Baker, S. (1996). The use of Curriculum-Based Measurement with diverse learners. In L. A. Suzuki, P. J. Meller, & J. G. Ponterotto (Eds.), *The handbook of multicultural testing* (pp. 179-222). San Francisco, CA: Jossey-Bass.
- Shinn, M. R., Collins, V. L., & Gallagher, S. (1998). Curriculum-Based Measurement and its use in a Problem-Solving model with students from minority backgrounds. In M. R. Shinn (Ed.), *Advanced Applications of Curriculum-Based Measurement* (pp. 143-174). New York, NY: Guilford.
- Shinn, M.M. & Shinn, M.R. (2000). Curriculum-based measurement: Cheaper, faster, better testing of students with learning disabilities. In L. Denti and Cousin, P. T. (Eds.), *New ways of looking at learning disabilities*. Love: Denver, CO.
- Shinn, M.R., & Shinn, M.M. (2000). Writing IEP goals and making appropriate revisions to evaluate involvement and progress in the general curriculum. In C. F. Telzrow & M. Tankersley (Eds.), *IDEA Amendments of 1997: Practice Guidelines for School-Based Teams*. Bethesda, MD National Association of School Psychologists.
- Shinn, M.R., Shinn, M.M., Hamilton, C., & Clark, B. (2002). Using curriculum-based measurement in general education classrooms to promote reading success. In M.R. Shinn, H.M. Walker, and G. Stoner, *Interventions for Achievement and Behavior Problems II: Preventive and Remedial Approaches*. Bethesda, MD: National Association of School Psychologists.

- Tilly, W. D., & Grimes, J. (1998) Curriculum-Based Measurement: One vehicle for systemic educational reform. In M. R. Shinn (Ed.), *Advanced Applications of Curriculum-Based Measurement* (pp. 32-60). New York, NY: Guilford.
- Tindal, G. (1989). Evaluating the effectiveness of educational programs at the systems level using Curriculum-Based Measurement. In M. R. Shinn (Ed.), *Curriculum-Based Measurement: Testing special children* (pp. 202-238). New York, NY: Guilford.

Journal Articles

- Baker, S. K., & Good, R. H. (1995). Curriculum-Based Measurement of English reading with bilingual Hispanic students: A validation study with second-grade students. *School Psychology Review*, 24(4), 561-578.
- Deno, S. L. (1985). Curriculum-Based Measurement: The emerging alternative. *Exceptional Children*, 52(3), 219-232.
- Deno, S. L. (1986). Formative evaluation of individual student programs: A new role for school psychologists. *School Psychology Review*, 15(3), 358-374.
- Deno, S. L. (1992). The nature and development of Curriculum-based Measurement. *Preventing School Failure*, 36(2), 5-10.
- Deno, S., Marking, P., & Wesson, C. (1984). How to write effective data-based Imps. *Teaching Exceptional Children*, 12, 99-104.
- Fuchs, L. (1986). Monitoring progress among mildly handicapped pupils: Review of current practice and research. *Remedial and Special Education*, 7(5), 5-12.
- Fuchs, L. S., & Deno, S. L. (1991). Paradigmatic distinctions between instructionally relevant measurement models. *Exceptional Children*, May, 488-500.
- Fuchs, L. S., & Fuchs, D. (1992). Identifying a measure for monitoring student reading progress. *School Psychology Review*, 21(1), 45-58.
- Fuchs, L. S., Blinder, R., Hamlet, C. L., & Fuchs, D. (1990). Analysis of spelling curricula and teachers' skills in identifying error types. *Remedial and Special Education*, 11(1), 42-53.
- Fuchs, L. S., Fuchs, D., & Maxwell, L. (1988). The validity of informal reading comprehension measures. *Remedial and Special Education*, 9(2), 20-28.
- Fuchs, L. S., Fuchs, D., Hamlet, C. L., & Allinder, R. M. (1991). Effects of expert system advice within Curriculum-Based Measurement on teacher planning and student achievement in spelling. *School Psychology Review*, 20(1), 49-66.
- Fuchs, L. S., Fuchs, D., Hamlett, C. L., & Ferguson, C. (1992). Effects of expert system consultation within Curriculum-Based Measurement, using a reading maze task. *Exceptional Children*, 58(5), 436-450.
- Fuchs, L. S., Fuchs, D., Hamlett, C. L., & Stecker, P. M. (1990). The role of skills analysis to Curriculum-Based Measurement in math. *School Psychology Review*, 19(1), 6-22.
- Fuchs, L. S., Fuchs, D., Hamlett, C. L., Walz, L., & Germann, G. (1993). Formative evaluation of academic progress: How much growth can we expect? *School Psychology Review*, 22(1), 27-48.
- Good, R. H., III, & Shinn, M. R. (1990). Forecasting accuracy of slope estimates for reading CBM: empirical evidence. *Behavioral Testing*, 12(2), 179-193.
- Hasbrouck, J. E., & Tindal, G. (1992). Curriculum-based oral reading fluency norms for students in grades 2 through 5. *Teaching Exceptional Children*, 41-44.
- Shinn, M. R., & Hubbard, D. (1992). Curriculum-Based Measurement and Problem-Solving testing: Basic procedures and outcomes. *Focus on Exceptional Children*, 24(5), 1-20.
- Shinn, M. R., Good, R. H., Knutson, N., Tilly, W. D., & Collins, V. (1992). Curriculum-Based Measurement of oral reading fluency: A confirmatory analysis of its relation to reading. *School Psychology Review*, 21(3), 459-479.
- Shinn, M. R., Tindal, G. A., & Stein, S. (1988). Curriculum-Based Measurement and the identification of mildly handicapped students: A research review. *Professional School Psychology*, 3(1), 69-85.
- Tindal, G. A., & Marston, D. B. (1996). Technical adequacy of alternative reading measures as performance testing. *Exceptionality*, 6(4), 201-230.
- Tindal, G., & Marston, D. (1996). Reflections on "technical adequacy of alternative reading measures as performance assessment". *Exceptionality*, 6(4), 247-251.

Appendices

R-CBM Standard Directions for 1-Minute Administration

1. Place the unnumbered copy in front of the student.
2. Place the numbered copy in front of you but shielded so the student cannot see what you record.
3. Say:
“When I say ‘Begin,’ start reading aloud at the top of this page. Read across the page (DEMONSTRATE BY POINTING). Try to read each word. If you come to a word you don’t know, I’ll tell it to you. Be sure to do your best reading. Are there any questions?” (Pause)
4. Say:
“Begin” and start your stopwatch when the student says the first word. If the student fails to say the first word of the passage after 3 seconds, tell them the word, mark it as incorrect, then start your stopwatch.
5. Follow along on your copy. Put a slash (/) through words read incorrectly.
6. At the end of 1 minute, place a bracket (]) after the last word and say, “Stop.”
7. Score and summarize by writing WRC/Errors.

Familiar Shortened Directions

Substitute...

“When I say ‘Begin,’ start reading aloud at the top of this page.”

Qualitative Features Checklist

Student Name: _____

Rater: _____

Date: _____

Testing Material: _____

After listening to the student read connected text, judge the degree to which you observe these important features of successful reading. Note that some features may not be observed.

- _____ Reads fluently or efficiently.
- _____ Reads very accurately (> 95%).
- _____ Has an effective strategy for unknown words.
- _____ Reading errors preserve rather than distort meaning.
- _____ Reads with expression (attention to prosodic features).
- _____ Self-corrects errors (comprehension self-monitoring).
- _____ Adjusts pace when complexity or “considerateness” of text changes.

Additional Comments:

Accuracy of Implementation Rating Scale (AIRS)

Examiner: _____

Observer: _____

X = completed accurately O = incorrect

Testing Procedure

	Observation				
	1	2	3	4	5
Places student copy in front of reader.	___	___	___	___	___
Places examiner copy out of view of reader.	___	___	___	___	___
Seated appropriate distance from reader.	___	___	___	___	___
Says standardized directions.	___	___	___	___	___
Says "Begin".	___	___	___	___	___
Starts stopwatch at correct time (after student says first word).	___	___	___	___	___
Marks errors on examiner copy.	___	___	___	___	___
Times accurately for 1 minute.	___	___	___	___	___
Stays "Stop".	___	___	___	___	___
Stops stopwatch.	___	___	___	___	___
Marks last word read with a bracket.	___	___	___	___	___
Turns off tape recorder (optional).	___	___	___	___	___
Determines WRC and Errors.	___	___	___	___	___
Records score as WRC/Errors.	___	___	___	___	___

Practice Exercise 1: Examiner Copy

Listen to this student read. Score the number of WRC and errors.

It was raining outside, and there was nothing for Norman to do.	12
"I have the most boring life," he moaned, as he plopped down on the couch. Just as he switched on the television, the power went out.	26
Watching a blank television was not something Norman wanted to do. He	38
looked around at the four dismal walls that kept him out of the rain.	49
"Now what am I going to do?"	64
"You could tidy up your room," his mom suggested, "or organize your closet. Your closet is a disaster, Norman. I'm actually frightened of what you might find in there. You haven't cleaned it in a decade."	71
	83
	95
	107
Continues on to about 250-300 words.	

Scores and Agreements

Examiner 1 Score (WRC): _____

Examiner 2 Score (WRC): _____

Agreements: _____

Disagreements: _____

Agreements + Disagreements: _____

Calculation

Agreements (_____) / (Agreements + Disagreements) (_____) = Agreement Value (_____)

Agreement Value (_____) x 100 = Inter-Scorer Agreement (_____)%

AIRS Score

Number Completed Correctly: _____

Number Completed Incorrectly: _____

Practice Exercise 2: Examiner Copy

Listen to this student read. Score the number of WRC and errors.

It was raining outside, and there was nothing for Norman to do.	12
"I have the most boring life," he moaned, as he plopped down on the couch. Just as he switched on the television, the power went out.	26
Watching a blank television was not something Norman wanted to do. He	38
looked around at the four dismal walls that kept him out of the rain.	49
"Now what am I going to do?"	64
"You could tidy up your room," his mom suggested, "or organize your closet. Your closet is a disaster, Norman. I'm actually frightened of what you might find in there.	71
	83
	95
	100
Continues on to about 250-300 words.	

Scores and Agreements

Examiner 1 Score (WRC): _____

Examiner 2 Score (WRC): _____

Agreements: _____

Disagreements: _____

Agreements + Disagreements: _____

Calculation

Agreements (_____) / (Agreements + Disagreements) (_____) = Agreement Value (_____)

Agreement Value (_____) x 100 = Inter-Scorer Agreement (_____)%

AIRS Score

Number Completed Correctly: _____

Number Completed Incorrectly: _____

Practice Exercise 3: Examiner Copy

Listen to this student read. Score the number of WRC and errors.

It was raining outside, and there was nothing for Norman to do.	12
"I have the most boring life," he moaned, as he plopped down on the couch. Just as he switched on the television, the power went out.	26
Watching a blank television was not something Norman wanted to do.	38
He looked around at the four dismal walls that kept him out of the rain.	49
"Now what am I going to do?"	64
"You could tidy up your room," his mom suggested, "or organize your closet. Your closet is a disaster, Norman. I'm actually frightened of what you might find in there. You haven't cleaned it in a decade."	71
There was nothing Norman could say after his mom had made up her mind. He was going to have to clean out his closet.	83
The only problem was that Norman couldn't even open his closet door.	83
He had it held closed with a large wooden block.	95
	107
	120
	131
	143
	153
Continues on to about 250-300 words.	

Scores and Agreements

Examiner 1 Score (WRC): _____

Examiner 2 Score (WRC): _____

Agreements: _____

Disagreements: _____

Agreements + Disagreements: _____

Calculation

Agreements (_____) / (Agreements + Disagreements) (_____) = Agreement Value (_____)

Agreement Value (_____) x 100 = Inter-Scorer Agreement (_____)%

AIRS Score

Number Completed Correctly: _____

Number Completed Incorrectly: _____

Practice Exercise 4: Examiner Copy

Listen to this student read. Score the number of WRC and errors.

Andy was one of the many ants who worked daily in the anthill. Every day Andy and the other ants would wake up and go off to work. Andy's job was to carry pieces of sand up the side of the anthill to build it higher. Andy thought his job was really boring. Who would find carrying pieces of sand interesting? All Andy did day after day was stack tiny pieces of sand on top of other tiny pieces of sand. Where was the challenge in that?	14 29 46 58 71 85 87
All Andy really wanted was to create a daring new kind of anthill. He wanted to build a modern castle. He could see the castle in his mind, and that goal made him continue his daily grind.	101 115 124
Continues on to about 250-300 words.	

Scores and Agreements

Examiner 1 Score (WRC): _____

Examiner 2 Score (WRC): _____

Agreements: _____

Disagreements: _____

Agreements + Disagreements: _____

Calculation

Agreements (_____) / (Agreements + Disagreements) (_____) = Agreement Value (_____)

Agreement Value (_____) x 100 = Inter-Scorer Agreement (_____)%

AIRS Score

Number Completed Correctly: _____

Number Completed Incorrectly: _____

Practice Exercise 5: Examiner Copy

Listen to this student read. Score the number of WRC and errors.

Andy was one of the many ants who worked daily in the anthill. Every day Andy and the other ants would wake up and go off to work. Andy's job was to carry pieces of sand up the side of the anthill to build it higher.	14 29 46
Andy thought his job was really boring. Who would find carrying pieces of sand interesting? All Andy did day after day was stack tiny pieces of sand on top of other tiny pieces of sand. Where was the challenge in that?	58 71 85 87
All Andy really wanted was to create a daring new kind of anthill. He wanted to build a modern castle. He could see the castle in his mind, and that goal made him continue his daily grind.	101 115 124
Continues on to about 250-300 words.	

Scores and Agreements

Examiner 1 Score (WRC): _____

Examiner 2 Score (WRC): _____

Agreements: _____

Disagreements: _____

Agreements + Disagreements: _____

Calculation

Agreements (_____) / (Agreements + Disagreements) (_____) = Agreement Value (_____)

Agreement Value (_____) x 100 = Inter-Scorer Agreement (_____)%

AIRS Score

Number Completed Correctly: _____

Number Completed Incorrectly: _____

Practice Exercise 6: Examiner Copy

Listen to this student read. Score the number of WRC and errors.

Andy was one of the many ants who worked daily in the anthill. Every day Andy and the other ants would wake up and go off to work. Andy's job was to carry pieces of sand up the side of the anthill to build it higher. Andy thought his job was really boring. Who would find carrying pieces of sand interesting? All Andy did day after day was stack tiny pieces of sand on top of other tiny pieces of sand. Where was the challenge in that?	14 29 46 58 71 85 87
All Andy really wanted was to create a daring new kind of anthill.	100
Continues on to about 250-300 words.	

Scores and Agreements

Examiner 1 Score (WRC): _____

Examiner 2 Score (WRC): _____

Agreements: _____

Disagreements: _____

Agreements + Disagreements: _____

Calculation

Agreements (_____) / (Agreements + Disagreements) (_____) = Agreement Value (_____)

Agreement Value (_____) x 100 = Inter-Scorer Agreement (_____)%

AIRS Score

Number Completed Correctly: _____

Number Completed Incorrectly: _____

Practice Exercise 7: Examiner Copy

Listen to this student read. Score the number of WRC and errors.

An old man lived in a shack deep in the forest. His tiny shack stood beside a musical brook. He didn't mind that his house was tiny or that the wind blew in under his doors. Even though he was cramped and often cold, he could listen to the music of the brook all day and night.	15 29 42 57
In his spare time, the old man made bells out of brass and silver. However, the bells he made were silent. Only the musical brook beside his shack could make the bells ring. Every evening the man would carry the bells he'd forged that day to the brook and dip them into its musical waters.	71 83 96 111 112
Continues on to about 250-300 words.	

Scores and Agreements

Examiner 1 Score (WRC): _____

Examiner 2 Score (WRC): _____

Agreements: _____

Disagreements: _____

Agreements + Disagreements: _____

Calculation

Agreements (_____) / (Agreements + Disagreements) (_____) = Agreement Value (_____)

Agreement Value (_____) x 100 = Inter-Scorer Agreement (_____)%

AIRS Score

Number Completed Correctly: _____

Number Completed Incorrectly: _____

Practice Exercise 8: Examiner Copy

Listen to this student read. Score the number of WRC and errors.

An old man lived in a shack deep in the forest. His tiny shack stood	15
beside a musical brook. He didn't mind that his house was tiny or that	29
the wind blew in under his doors. Even though he was cramped and	42
often cold, he could listen to the music of the brook all day and night.	57
In his spare time, the old man made bells out of brass and silver.	71
However, the bells he made were silent. Only the musical brook beside	83
his shack could make the bells ring. Every evening the man would carry	96
the bells he'd forged that day to the brook and dip them into its musical	111
waters. The bells would go into the brook silent and come out ringing	124
with song. It always made the man joyful to hear his bells ringing. What	137
a beautiful sound!	141
Continues on to about 250-300 words.	

Scores and Agreements

Examiner 1 Score (WRC): _____

Examiner 2 Score (WRC): _____

Agreements: _____

Disagreements: _____

Agreements + Disagreements: _____

Calculation

Agreements (_____) / (Agreements + Disagreements) (_____) = Agreement Value (_____)

Agreement Value (_____) x 100 = Inter-Scorer Agreement (_____)%

AIRS Score

Number Completed Correctly: _____

Number Completed Incorrectly: _____

Practice Exercise Answer Key

Practice Exercise 1 was scored as 73 WRC / 8 Errors

It was raining outside, and there was nothing for Norman to do.	12
"I have the most boring life," he moaned, as he plopped down on the couch. Just as he switched on the television, the power went out.	26
Watching a blank television was not something Norman wanted to do.	38
He looked around at the four dismal walls that kept him out of the rain.	49
"Now what am I going to do?"	64
"You could tidy up your room," his mom suggested, "] or organize your closet. Your closet is a disaster, Norman. I'm actually frightened of what you might find in there. You haven't cleaned it in a decade."	71
	83
	95
	107

Practice Exercise 2 was scored as 97 WRC / 4 Errors

It was raining outside, and there was nothing for Norman to do.	12
"I have the most boring life," he moaned, as he plopped down on the couch. Just as he switched on the television, the power went out.	26
Watching a blank television was not something Norman wanted to do.	38
He looked around at the four dismal walls that kept him out of the rain.	49
"Now what am I going to do?"	64
"You could tidy up your room," his mom suggested, " or organize your closet. Your closet is a disaster, Norman. I'm actually frightened of what you might find in there.]	71
	83
	95
	100

Practice Exercise 3 was scored as 141 WRC / 2 Errors

It was raining outside, and there was nothing for Norman to do.	12
"I have the most boring life," he moaned, as he plopped down on the couch. Just as he switched on the television, the power went out.	26
Watching a blank television was not something Norman wanted to do. He	38
looked around at the four dismal walls that kept him out of the rain.	49
"Now what am I going to do?"	64
"You could tidy up your room," his mom suggested, "or organize your closet. Your closet is a disaster, Norman. I'm actually frightened of what you might find in there. You haven't cleaned it in a decade."	71
	83
	95
	107
There was nothing Norman could say after his mom had made up her mind. He was going to have to clean out his closet.	120
The only problem was that Norman couldn't even open his closet door.]	131
He had it held closed with a large wooden block.	143
	153

Practice Exercise Answer Key

Practice Exercise 4 was scored as 86 WRC / 5 Errors

Andy was one of the many ants who worked daily in the anthill. Every	14
day Andy and the other ants would wake up and go off to work. Andy's	29
job was to carry pieces of sand up the side of the anthill to build it higher.	46
Andy thought his job was really boring. Who would find carrying pieces	58
of sand interesting? All Andy did day after day was stack tiny pieces of	72
sand on top of other tiny pieces of sand. Where was the challenge in	86
that?	87
All Andy really wanted] was to create a daring new kind of anthill. He	101
wanted to build a modern castle. He could see the castle in his mind,	115
and that goal made him continue his daily grind.	124

Practice Exercise 5 was scored as 88 WRC / 2 Errors.

Andy was one of the many ants who worked daily in the anthill. Every	14
day Andy and the other ants would wake up and go off to work. Andy's	29
job was to carry pieces of sand up the side of the anthill to build it higher.	46
Andy thought his job was really boring. Who would find carrying pieces	58
of sand interesting? All Andy did day after day was stack tiny pieces of	72
sand on top of other tiny pieces of sand. Where was the challenge in	86
that?	87
All Andy really] wanted was to create a daring new kind of anthill. He	101
wanted to build a modern castle. He could see the castle in his mind,	115
and that goal made him continue his daily grind.	124

Practice Exercise Answer Key

Practice Exercise 6 was scored as 99 WRC / 1 Errors

Andy was one of the many ants who worked daily in the anthill. Every	14
day Andy and the other ants would wake up and go off to work. Andy's	29
job was to carry pieces of sand up the side of the anthill to build it higher.	46
Andy thought his job was really boring. Who would find carrying pieces	58
of sand interesting? All Andy did day after day was stack tiny pieces of	71
sand on top of other tiny pieces of sand. Where was the challenge in	85
that?	87
All Andy really wanted was to create a daring new kind of anthill.]	100

Practice Exercise 7 was scored as 96 WRC / 6 Errors

An old man lived in a shack deep in the forest. His tiny shack stood	15
beside a musical brook. He didn't mind that his house was tiny or that	29
the wind blew in under his doors. Even though he was cramped and	42
often cold, he could listen to the music of the brook all day and night.	57
In his spare time, the old man made bells out of brass and silver.	71
However, the bells he made were silent. Only the musical brook beside	83
his shack could make the bells] ring. Every evening the man would carry	96
the bells he'd forged that day to the brook and dip them into its musical	111
waters.	112

Practice Exercise 8 was scored as 139 WRC / 2 Errors.

An old man lived in a shack deep in the forest. His tiny shack stood	15
beside a musical brook. He didn't mind that his house was tiny or that	29
the wind blew in under his doors. Even though he was cramped and	42
often cold, he could listen to the music of the brook all day and night.	57
In his spare time, the old man made bells out of brass and silver.	71
However, the bells he made were silent. Only the musical brook beside	83
his shack could make the bells ring. Every evening the man would carry	96
the bells he'd forged that day to the brook and dip them into its musical	111
waters. The bells would go into the brook silent and come out ringing	124
with song. It always made the man joyful to hear his bells ringing. What	137
a beautiful sound!]	141

R-CBM Scoring Rules and Examples

Correctly Read Words Are Pronounced Correctly. A word must be pronounced correctly given the context of the sentence.

Example 1 – The word “r-e-a-d” must be pronounced “reed” when presented in the context of:

“He will read the book.”

WRC = 5

not as:

“He will red the book.”

WRC = __

Self-Corrected Words Are Counted As Correct. Words misread initially but corrected within 3 seconds are counted as correctly read.

Example 1

“The river was cold.”

WRC = 4

read as:

“The river was could...(2 sec)...cold.”

WRC = __

Repeated Words Are Counted As Correct. Words said over again correctly are ignored.

Example 1

“Ted ran swiftly.”

WRC = 3

read as:

“Ted ran...Ted ran swiftly.”

WRC = __

Dialect. Variations in pronunciation that are explainable by local language norms are not errors.

Example 1

They washed the car.

WRC = 4

read as:

“They warshed the car.”

WRC = __

Inserted Words Are Ignored Quantitatively. When a student adds extra words, they are not counted as correct words or as reading errors.

Example 1

Sue was happy.

WRC = 3

read as:

“Sue was very happy.”

WRC = __

Mispronounced or Substituted Words are counted as incorrect.

Example 1

The dog ate a bone.

WRC = 5

read as:

“The dig ate a bone.”

WRC = __

Example 2

Lynne has many hats.

WRC = 4

read as:

“Lynne has many hat.”

WRC = __

Omitted Words, including entire lines skipped, are counted as errors.

Example 1

Mario climbed the oak tree.

WRC = 5

read as:

“Mario climbed the tree.”

WRC = __

Example 2

Sewing is my favorite hobby.

I enjoy sewing dresses and suits.

What is your favorite hobby?

WRC = 16

read as:

“Sewing is my favorite hobby.

What is your favorite hobby?”

WRC = __

Hesitations. When a student hesitates or fails to correctly pronounce a word within 3 seconds, the student is told the word and an error is scored.

Example 1

Mark saw an elephant.

WRC = 4

read as:

“Mark saw an ...(3 sec)”

WRC = __

or read as:

“Mark saw an ehhh-eee ...(3 sec)”

WRC = __

Reversals. When a student transposes two or more words, those words not read in the correct order are errors.

Example 1

Charlie ran quickly.

WRC = 3

read as:

“Charlie quickly ran.”

WRC = __

Example 2

Shelly bought a beautiful sweater.

WRC = 5

read as:

“Shelly bought a sweater beautiful.”

WRC = __

Numbers Written As Numerals Numbers are counted as words and must be read correctly within the context of the passage.

Example 1

May 5, 1989.

WRC = 3

should be read as:

“May fifth, nineteen eighty-nine.”

WRC = 3

not as:

“May five, one nine eight nine.”

WRC = __

Example 2

He was in grade 3.

WRC = 5

should be read as:

“He was in grade three.”

WRC = 5

not as:

“He was in grade third.”

WRC = __

Hyphenated Words. Each morpheme separated by a hyphen(s) is counted as an individual word if it can stand alone.

Example 1

Fifty-seven	WRC = 2
Daughter-in-law	WRC = ___

Hyphenated Words. If one or more of the morphemes separated by a hyphen(s) cannot stand alone, the entire sequence is counted as one word.

Example 2

re-evaluate	WRC = 1
Spic-n-span	WRC = ___
Bar-b-que	WRC = ___

Abbreviations are counted as words, and must be read correctly within the context of the sentence.

Example 1

Dr. Adams received a promotion.	WRC = 5
---------------------------------	---------

should be read as:

“Doctor Adams received a promotion.”	WRC = 5
--------------------------------------	---------

not as:

“D-R Adams received a promotion.”	WRC = ___
-----------------------------------	-----------

Example 2

Jan lives on Fifth Ave.	WRC = 5
-------------------------	---------

should be read as:

“Jan lives on Fifth avenue”	WRC = 5
-----------------------------	---------

not as:

“Jan lives on Fifth a-v-e”	WRC = ___
----------------------------	-----------

Answer Key:

Correctly Read Words Are Pronounced Correctly. WRC = 4

Self-Corrected Words Are Counted As Correct. WRC = 4

Repeated Words Are Counted As Correct: WRC = 3

Dialect WRC = 4

Inserted Words Are Ignored Quantitatively WRC = 3

Mispronounced or Substituted Words (*Example 1*) WRC = 4, (*Example 2*) WRC = 3

Omitted Words (*Example 1*) WRC = 4, (*Example 2*) WRC = 10

Hesitations WRC = 3, WRC = 3

Reversals (*Example 1*) WRC = 1, (*Example 2*) WRC = 3

Numbers Written As Numerals (*Example 1*) WRC = 1, (*Example 2*) WRC = 4

Hyphenated Words WRC = 3

Hyphenated Words (*Example 2*) WRC = 1, WRC = 1

Abbreviations (*Example 1*) WRC = 4, (*Example 2*) WRC = 4

Reading CBM – Is it a Valid Measure?

What does research say about Reading Fluency/Accuracy as a valid measure for reading proficiency? **Note:** Fluency is the number of words read correctly in a fixed amount of time (usually indexed per minute); accuracy is the percentage/number of words read correctly.

Roland H. Good III and Gretchen Jefferson, *Contemporary Perspectives on Curriculum-Based Measurement Validity, in Advanced Applications of Curriculum-Based Measurement, The Guilford Press 1998, Edited by Mark R. Shinn, p. 66.*

In CBM reading, multiple validity coefficients are available for each grade level, based on different studies and reading curricula. All CBM reading validity coefficients are in the .60 to .80 range, supporting the construct validity of CBM reading.

In summary, the construct validity of CBM oral reading probes has been demonstrated persuasively. Clearly, CBM reading probes are as valid or more valid indicators of reading competence as other available reading measures. P. 67.

Taken together, these studies indicate that CBM can be used to identify the presence of educational problems and establish their severity. Page 71.

Lynn S. Fuchs, *Evaluating Solutions Monitoring Progress and Revising Intervention Plans, in Curriculum-Based Measurement – Accessing Special Children, The Guilford Press 1989, Edited by Mark R. Shinn, Chapter 6.*

Although fluency traditionally is not viewed as a reading comprehension measure, evidence supports it as an index of reading comprehension. Correlations between reading fluency and well-accepted criterion measures of comprehension are consistently strong when (1) both measurements are derived from passages of similar difficulty (Deno et al., 1982; L. Fuchs, 1982a; Gates, 1927) and (2) elementary and/or high school level readers are employed as subjects (Sassenrath, 1972).

Moreover, in comparisons among the validities of question an. answering, recall, cloze and oral reading fluency tests, correlations between all measures and the criterion index of reading comprehension were comparable except one. The oral reading fluency test correlated statistically significantly higher with the criterion reading comprehension index than the other measures. Additionally, growth over time on the oral reading fluency CBM monitoring measure has been shown to relate to growth on global tests of reading comprehension (L. Fuchs, Deno, & Mirkin, 1984). Consequently, in the prototypical CBM reading-monitoring system, oral reading fluency is employed as the measurement behavior. That is, teachers regularly measure pupils' oral reading fluency from the goal-level material and employ the resulting data base to formulate decisions concerning the adequacy of student progress in the curriculum over time and the effectiveness of the instructional program in realizing programmatic reading goals.

Shinn, M.R., Good, R.H., Knutson, N., Tilly, W., and Collins, V. (199). *Curriculum-based reading fluency: A confirmatory analysis of its relationship to reading. School Psychology Review, 21, 459-459.*

“for third graders, the question of ‘what CBM oral reading measures’ appears to be moot; ...CBM correlated highly (.88 and .90) with the observed Reading Competence construct.” Page 475.

This study confirms that CBM oral reading fluency fits current theoretical models of reading well and can be validated as a measure of general reading achievement, including comprehension. Page 476.

Gough, P. B., Hoover, W., & Peterson, C. L. (1996). *Some observations on the simple view of reading. In C. Cornoldi & J. Oakhill (Eds.), Reading comprehension difficulties (pp. 1-13). Mahwah, NJ: Erlbaum.*

Word-reading skills are highly correlated with reading comprehension.

Michelle K. Hosp, (2001). *Variables that Affect the Correlation between Fluency and Accuracy with a*

Measure of Reading Comprehension. (Doctoral dissertation, Peabody College of Vanderbilt University, 2001).

Results of this review indicate that the relation between word-reading skills and an individual's capacity to derive meaning from text is strong, regardless of how word-reading skill is indexed. For each of the four word-reading measures (i.e., text fluency, list fluency, text accuracy, and list accuracy), correlations with measures of reading comprehension were high.

What do Experts say about Reading – CBM?

What do experts say about Reading Fluency as a General Outcome Measure for reading proficiency?

CBM Oral Reading Fluency Approved in the Final Report by the Assessment Committee, as part of the federal Reading First legislation as having Sufficient Evidence for use in (a) Screening and (b) Progress Monitoring of reading fluency

Kame'enui, E. (2002). *Executive summary: Final report on analysis of reading assessment instruments for K-3.* Eugene, OR: Institute for Educational Achievement, University of Oregon.

"The work and results represented in the Final Report are designed to provide State educational agencies and local educational agencies assistance on the selection and use of reading assessment instruments for kindergarten through grade 3" (Kame'enui, 2002, p. 1) to address Part B—Student Reading Skills Improvement Grants, Subpart 1, Sec. 1201. Purposes, p. 178 as follows:

"(3) To provide assistance to State educational agencies and local educational agencies in selecting or administering, screening, diagnostic, and classroom-based instructional reading assessments."

M. Susan Burns, Ph.D. Study Director, Committee on the Prevention of Reading Difficulties in Young Children National Research Council/National Academy of Sciences, National Research Council report entitled Preventing Reading Difficulties in Young Children. 1998.

"Adequate progress in learning to read English (or, any alphabetic language) beyond the initial level depends on sufficient practice in reading to achieve fluency with different texts."

"This we can say with certainty: If a child in a modern society like ours does not learn to read, he doesn't make it in life. If he doesn't learn to read well enough to comprehend what he is reading, if he doesn't learn to read effortlessly enough to render reading pleasurable, if he doesn't learn to read fluently enough to read broadly and reflectively across all the content areas, his chances for a fulfilling life, by whatever measure - academic success, financial success, the ability to find interesting work, personal autonomy, self-esteem - are practically nil." Page 223.

Executive Summary - National Reading Panel – Report of the Subgroup on Fluency

In 1997, Congress asked the "Director of the National Institute of Child Health and Human Development (NICHD), in consultation with the Secretary of Education, to convene a national panel to assess the status of research-based knowledge, including the effectiveness of various approaches to teaching children to read. In response to this Congressional request, the Director of NICHD, in consultation with the Secretary of Education, constituted and charged a National Reading Panel (the NRP or the Panel). The NRP was composed of 14 individuals,

including (as specified by Congress) “leading scientists in reading research, representatives of colleges of education, reading teachers, educational administrators and parents.

“There were a number of reasons why the NRP selected fluency for review and analysis. One is that there is growing concern that children are not achieving fluency in reading. Recently, the National Testing of Educational Progress conducted a large study of the status of fluency achievement in American education (Pinnell et. al., 1995). That study examined the reading fluency of a nationally representative sample of fourth graders, and found 44% of students to be disfluent even with grade-level stories that the students had read under supportive testing conditions. And furthermore, that study found a close relationship between fluency and reading comprehension. Students who are low in fluency may have difficulty getting the meaning of what they read.” Chapter 3, Page 1.

“Fluent readers can read text with speed accuracy, and proper expression. Fluency depends upon well developed word recognition skills, but such skills do not inevitably lead to fluency. It is generally acknowledged that fluency is a critical component of skilled reading. Nevertheless, it is often neglected in classroom instruction.” Chapter 3, Page 1.

“Because the ability to obtain meaning from print depends so strongly on the development of word recognition accuracy and reading fluency, both should be regularly assessed in the classroom, permitting timely and effective instructional response when difficulty or delay is apparent. ” Page 7.

“Fluent readers are able to read orally with speed, accuracy, and proper expression. Fluency is one of several critical factors necessary for reading comprehension. Despite its importance as a component of skilled reading, fluency is often neglected in the classroom. This is unfortunate. If text is read in a laborious and inefficient manner, it will be difficult for the child to remember what has been read and to relate the ideas expressed in the text to his or her background knowledge. Recent research on the efficacy of certain approaches to teaching fluency has led to increased recognition of its importance in the classroom and to changes in instructional practices.”

Implications for Reading Instruction - Is It Important to Increase Fluency?

“Teachers need to know that word recognition accuracy is not the end point of reading instruction. Fluency represents a level of expertise beyond word recognition accuracy, and reading comprehension may be aided by fluency. Skilled readers read words accurately, rapidly and efficiently. Children who do not develop reading fluency, no matter how bright they are, will continue to read slowly and with great effort.” Chapter 3, Page 3.

Adams, M.J. (1990). *Beginning to read: Thinking and learning about print*. Cambridge: MIT Press.

“The most salient characteristic of skillful reading is the speed with which text is reproduced into spoken language.”

Informed Instruction for Reading Success: Foundations for Teacher Preparation. A position paper of The Orton Dyslexia Society (officially approved by ODS on 2/7/97 by the Society’s Board of Directors.

Accordingly, measures of ability to read words (especially nonwords (e.g., *pim*) in isolation are crucial to recognizing a reading difficulty. It is important to appreciate, in light of the current interest in “authentic” testing, that such measures are valid and realistic even though they may seem unnatural on the surface. By the mid-elementary years, it is estimated that a child annually encounters thousands of written words that have not been seen before. The child’s ability to analyze these new words quickly and accurately affects whether that child is able to “read to learn.”

Unfortunately, poor decoding skills in the early grades is highly correlated with limited comprehension and decoding in the later grades: reading problems usually persist. Without direct instruction of the right kind, the child encountering difficulty does not catch up in decoding skill. The common assumption that reading problems in older individuals stem entirely from difficulties in comprehension, that decoding problems are only a stumbling block in the early grades, has been demonstrated to be false. Most older poor readers continue to have weak phoneme awareness and inaccurate and slow decoding skills

The good reader excels at word identification, and is able to read either new words or isolated words accurately and quickly. This automaticity creates the impression of the reader making a direct psychological between whole words and their meaning without having to analyze words. However, research confirms instead that the skilled reader rapidly and effortlessly translates written words into their spoken equivalents. Central to the reader's expertise is an appreciation of the phonemic structure of words. Skilled readers perform well on listening tasks requiring the identification or manipulation of the sounds in words (e.g., what is "smile" without the "s"). As phoneme awareness and good word reading skills develop, the reader is increasingly able to reflect on the meaning and structure of the text. Thus the better reader also tends to be superior at reading comprehension, at awareness of the communicative functions of text, and at knowledge of comprehension strategies.

Every Child Reading: An Action Plan of the Learning First Alliance, 1998. (The Learning First Alliance is composed of the following organizations: American Association of Colleges for Teacher Education, American Association of School Administrators, American Federation of Teachers, Association for Supervision and Curriculum Development, Council of Chief State School Officers, Education Commission of the States, National Association of Elementary School Principals, National Association of Secondary School Principals, National Association of State Boards of Education, National Education Association, National PTA and National School Boards Association).

... an approach does require continually monitoring children's progress both allow those who are progressing quickly to move ahead before they become bored and to ensure that those who are having difficulties get the assistance they need.

In first grade and beyond, regular curriculum-based assessments are needed to guide decisions about such things as grouping, the pace of instruction, and individual needs for assistance (such as tutoring).

Failure to learn to use spelling/sound correspondences to read and spell words is shown to be the most frequent and debilitating cause of reading difficulty.

National Consortium on Oral Reading Fluency.

On September 15, 2000 a group of professional educators assembled in Portland Oregon to discuss a very powerful and specific reading testing system: Oral reading fluency. This testing system was the focus of considerable research under the direction of Dr. Stan Deno at the University of Minnesota, Institute for Research on Learning Disabilities. From 1978 through 1988, a number of studies were conducted, focusing on many different aspects of technical adequacy. For example, studies were conducted on its reliability or the consistency in performance between different passages, judges, and occasions. A number of studies were conducted on the relationship between oral reading fluency and other measures of reading, most often published achievement tests as well as teacher made tests and judgments. In this line of research, it became obvious that the testing system was technically adequate: Reliability and validity was found documented again and again. Such information was important in ensuring that the standards were met for psychological and educational measurement.

After a decade of such research and practice, the use of oral reading fluency began to be adopted well beyond the field of special education where it first appeared. Indeed, as part of the inclusion movement of the late 1980s and 1990s, special education needed to be considered as part of general education. And in this trend, oral reading fluency gained credibility in its appropriateness for all students. With large normative databases having been established as part of the eligibility system, general educators began to take note of students' performance overall, not just those in specialized programs.

Summary of Validity Studies

Study	Subjects	Criterion Measure	Passages Derived From	Correlations
Bain & Garlock, 1992	479 1st to 3rd grade (1st was Title 1)	MacMillan Series r (at students grade level)	Comprehensive Tests of Basic Skills (CTBS)	.62 (1st) .79 (2nd) .72 (3rd)
Collins, 1989	58 2nd grade general ed.	Harcourt-Brace-Jovanovich (HBJ) Basal Reader (level 6 & 7)	California Achievement Test (CAT) & Harcourt- Brace-Jovanovich (HBJ) Basal Reader end of level test for comprehension	.75 .60
Deno, Mirkin, and Chiang, 1982; see also Fuchs, Tindal, and Deno, 1984.	45 1st to 6th grade with 18 LD	Allyn-Bacon, Ginn, & Houghton-Mifflin Basal Readers (3rd & 6th grade level)	Cloze Word Meaning	.86 (3rd) .87 (6th) .57 (3rd) .56 (6th)
Fuchs, 1981; see also Fuchs & Deno, 1992	91 1st to 6th grade with 15 special ed. & 23 Title 1	Ginn & Scott-Foresman Basal Readers, from each level (Ginn=10, S-F=9) (grade level 2nd to 6th)	Woodcock Reading Mastery Test (WRMT)	.91 (Ginn) .91 (S-F)
Fuchs, Fuchs, and Maxwell, 1988	35 4th to 8th grade with 27 LD, 7 ED, & 1 MR	Comprehensive Tests of Basic Skills (CRAB) at 2nd & 3rd grade level	SAT Questions Cloze Retell	.91 .84 .75 .74
Fuchs, Tindal, Fuchs et al., 1983	21 4th grade general ed.	Word Reading Test (at students grade level)	Holt Basic Reading Series	.79

Study	Subjects	Criterion Measure	Passages Derived From	Correlations
Fuchs, Tindal, Shinn, Fuchs, and Deno, 1983; see also Tindal, Fuchs et al., 1985	47 5th grade general ed.	Word Reading Test (at students grade level)	Ginn Basal Reader Mastery Test	.72
Hintze, Shapiro, Conte, and Basile, 1997	57 2nd to 4th grade with 8 special ed.	Authentic & Literature based Basal Readers (1st through 5th grade level)	Degrees of Reading Power Test (DRP)	.67 (Auth) .64 (Liter.)
Jenkins, Fuchs et al., 2000	113 4th grade with 7 RD	Comprehensive Tests of Basic Skills (CRAB) at 2nd & 3rd grade level	Iowa Test of Basic Skills (ITBS)	.83
Jenkins & Jewell, 1993	335 2nd to 6th grade with 15 LD, 1 MR, 1 ED	Narrative passages (1.7 grade level)	Gates-MacGinitie Reading Test (GMRT) Metropolitan Achievement Test (MAT)	.86(2nd) .82(3rd) .86(4th) .68(5th) .63(6th) .84(2nd) .67(3rd) .82(4th) .64(5th) .58(6th)
Kranzler, Brownell, and Miller, 1998	57 4th grade general ed.	Ginn Basal Readers (4th grade level)	Kaufman Test of Educational Achievement -Brief (KTEA-B)	.41
Kranzler, Miller, and Jordan, 1999	326 2nd to 5th grade general ed.	Ginn Basal Readers (2nd through 5th grade level)	California Achievement Test (CAT)	.63 (2nd) .52 (3rd) .54 (4th) .51 (5th)
Lomax. 1983	101 1st to 6th grade LD	Diagnostic Reading Scales (DRS)	Diagnostic Reading Scales (DRS) Comprehensive Tests of Basic Skills (CTBS)	.76 .75

Study	Subjects	Criterion Measure	Passages Derived From	Correlations
Madelaine & Wheldall, 1998	50 1st to 5th grade general ed	Wheldall Testing of Reading Passages, (5th to 6th grade reading level)	Neale Analysis of Reading- Revised	.71
Markell, 1991	42 3rd grade general ed.	Holt, Rinehart, & Winston Basal Readers (2nd, 4th , & 6th grade level)	Mazes below grade level Mazes at grade level Mazes above grade level Questions below grade level Questions at grade level Questions below grade level	.86 .89 .87 .26 .50 .40
Marston & Deno, 1982	26 3rd grade general ed.	Ginn Reading Series (3rd grade level)	Stanford Achievement Test (SAT) Science Research Associates (SRA) Ginn 720 Reading Series	.88 .80 .83
Parker, Hasbrouck, and Tindal, 1992	64 4th to 6th grade using lowest readers & Title 1	Students Basal Reader (1 below, 1 at and 1 above grade level)	Mazes	.76 (4th) .76 (5th) .59 (6th)
Shinn, Good, Knutson, Tilly, and Collins, 1992	238 3rd & 5th grades with 5% special ed.	Harcourt-Brace-Jovanovich (HBJ) Basal Reader (at students grade level)	Cloze SDRT Retell	.77 (3rd) .63 (5th) .59 (3rd) .58 (5th) .60 (3rd) .39 (5th)
Tindal, Fuchs et al., 1983; see also Tindal, Fuchs et al., 1985	25 4th grade general ed.	Word Reading Test (at students grade level)	Scott-Foresman Basal Mastery Test	.70

StudySubjects	Criterion Measure	Passages Derived	Correlations From	
Tindal, Shinn et al., 1983; see also Tindal, Fuchs et al., 1985	47 6th grade general ed.	Word Reading Test (at students grade level)	Houghton-Mifflin Basic Reading Test	.66
Parker, Hasbrouck, and Tindal, 1992	64 4th to 6th grade using lowest readers & Title 1	Students Basal Reader (1 below, 1 at and 1 above grade level)	Mazes	.76 (4th) .76 (5th) .59 (6th)

Reading CBM – Is it a Reliable Measure?

Summary of Reliability Studies

Study	Subjects	Type of Reliability	Results
Marston, 1982 (Grade 3 word list) (Grade-level list)	83 students who scored below 15th percentile in written expression, grades 3 to 6	T10 parallel forms, 1 week est-retest (10 weeks) apart. Test-retest (10 weeks) 10 parallel forms, 1 week apart	.90-.96 (range) .90 (mean) .82 .91 (mean) .84-.94 (range)
Shinn, 1981	7-1 LD and low-achieving students, grade 5 (Grade-level list)	Test-retest (5 weeks) 4 parallel forms, 1 week apart	.90-.91 (median) .89-.94 (range)
Tindal, Germann, et al., 1983 (passages)	30 regular education students, grade 5	Test-retest (2 weeks)	.97
Tindal, Germann, et. al., 1983 passages	110 regular education students, grade 4 passages	2 parallel forms at same time	.94
Tindal, Marston, etal., 1983 (passages)	566 randomly selected students, grades 1 to 6	Test-retest (10 weeks) Alternate form (1 week) Inter-judge agreement	.92 .89 .99