

A 10-Minute Academic Evaluation? Using Curriculum Based Measurement to Monitor Reading, Writing, and Math Progress (A Response to Intervention Model)

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Response to Intervention: What does the law actually say? (some excerpts)

Federal Regulations IDEA 2004 Part D (www.wrightlsaw.com/idea/law.htm)

300.307 Specific learning disabilities.

- (a) General. A State must adopt, consistent with 300.309, criteria for determining whether a child has a specific learning disability as defined in 300.8(c)(10). In addition the criteria adopted by the State—
- (1) Must not require the use of a severe discrepancy between intellectual ability and achievement for determining whether a child has a specific learning disability, as defined in 300.8(c)(10);
 - (2) Must permit the use of a process based on the child's response to scientific, research-based intervention; and
 - (3) May permit the use of other alternative research-based procedures for determining whether a child has specific learning disability as defined in 300.8(c)(10).

300.308 **Additional group members.** The determination of whether a child suspected of having a specific learning disability is a child with a disability as defined in 300.8(c)(10), must be made by the child's parents and a team of qualified professionals which must include—

- (1) (a) -----
- (b) At least one person qualified to conduct individual diagnostic examinations of children, such as a school psychologist, speech-language pathologist, or remedial reading teacher.

300.309 Determining the existence of a specific learning disability.

(a) The group described in 300.8(c)(10) may determine that a child has a specific learning disability, as defined in 300.8(c)(10) if—

- (1) The child does not achieve adequately for the child's age or to meet State-approved grade-level standards in one or more of the following areas, when provided with learning experiences and instruction appropriate for the child's age or State-approved grade-level standards:
 - (i) Oral expression.
 - (ii) Listening comprehension.
 - (iii) Written expression
 - (iv) Basic reading skills.
 - (v) Reading fluency skills
 - (vi) Reading comprehension
 - (vii) Mathematics calculation
 - (viii) Mathematics problem solving

(2) -----

- (i) The child does not make sufficient progress to meet age or State-approved grade-level standards in one or more of the areas identified in paragraph (a)(1) of this section when using a process based on the child's response to scientific, research-based intervention; or

(3 b) To ensure that underachievement in a child suspected of having a specific learning disability is not due to lack of appropriate instruction in reading or math, the group must consider, as part of the evaluation.....

- (1) Data that demonstrate that prior to, or as a part of, the referral process, the child was provided appropriate instruction in regular education settings, delivered by qualified personnel; and
- (2) Data-based documentation of repeated assessments of achievement at reasonable intervals, reflecting formal assessment of student progress during instruction, which was provided to the child's parents.

Response to Intervention and/or The Problem Solving Method

- focus: providing more effective instruction early
- assumes that students will not need to be identified as LD if intervention provided
- emphasizes use of comprehensive, school-wide system
(Frank Gresham, University of California, Riverside)

Rtl: Core Characteristics (www.acsa.org/publications/edcal)

- High-quality, research-based instruction in GE
- GE teachers take active role in students' assessment in the curriculum
- Universal screening of academics and behavior
- Continuous progress-monitoring of student performance to pinpoint specific difficulties
- Implementation of specific, research-based interventions
- Use of progress-monitoring data to determine intervention effectiveness and need for modifications
- Systematic assessment of fidelity with which instruction/interventions are implemented

Rtl: One Size Does Not Fit All

- Multiple tiers of increasingly intense student interventions (usually 3 or 4)
- Implementation of differentiated curriculum
- Instruction delivered by staff other than classroom teacher
- Varied duration, frequency, and time of interventions
- Categorical and/or non categorical placement decisions
- Severity levels for placement decisions
- Use of a problem-solving model OR standardized treatment protocols.....

Rtl: What/How to Report

Reports (e.g., suggested at the school psychologist level) should include

- Integration of data from all levels of problem solving (in chronological order)
- Brief description of all interventions
- Graphs of data demonstrating student's growth trends compared to peers
- Interpretations regarding response to interventions, discrepancy from peers, and intensity of services needed to make adequate progress.

Factors to consider:

- Identification of long-standing concern
- Systematic implementation and evaluation of interventions focusing on the concern:
multiple data points and multiple interventions
- Poor response to interventions
- Performance must be significantly discrepant from peers (10th percentile or below or 2 times discrepant from peers (half the rate of the median of the class)---
AND
- The interventions require resources beyond the scope of what is reasonable in general education.

Using Curriculum Based Measurement to Monitor Reading, Writing, and Math Progress

Curriculum based measurement is a series of assessments, based on short timed probes. The assessments measure fluency in reading, spelling, written expression, and math calculation. CBM is standardized, norm-referenced (although often to local norms) and uses graphing and charting to visually display progress and goals. It is one way to measure a student's response to intervention (RtI).

Principles of CBM:

- ✓ Direct, repeated measurement of student performance
- ✓ Tied to student's curricula (though not necessarily directly)
- ✓ Capable of having many forms
- ✓ Sensitive to small improvement of students' achievement over time
- ✓ Nondiscriminatory evaluation
- ✓ Can be used to determine instructional effectiveness—General Outcome Measure
- ✓ Can be teacher-made

Three Levels of Learning

1. Accuracy—when you can just barely do something without error, if you go slowly and if you concentrate carefully. Thoughtful, careful, cognitively intensive phase. Hurrying or distractions cause errors.
2. Fluency—when you can do something quickly without any errors (or no more than 5% rate-induced errors). Fluency comes after being accurate and only comes with considerable practice.
3. Automaticity—when you can do something quickly without errors and in the presence of distracters (without concentrating) or while doing other tasks. Automaticity comes after becoming fluent and only with considerable practice.
(Crawford, 2001)

Overview of CBM procedures:

Reading	1 minute	Students orally read passages. Number of words read correctly and incorrectly counted and charted.
Spelling	2 minutes	Students write words dictated orally. Number of correct letter sequences counted and charted.
Written Expression	3 minutes	Students respond to a story starter or topic sentence. Number of words written, number of words spelled correctly, and/or number of correct word sequences may be counted and charted.
Mathematics Computation/ Problem Solving	1, 2-8 minutes	Students write answers to problems. For math facts, correct answers are counted and charted. For computation, correct and incorrect digits are counted and charted.

Oral Reading Fluency (CBM) *

Procedure:	<ul style="list-style-type: none"> Give a passage to the student. You have a copy of the passage with the words pre-counted.
	<ul style="list-style-type: none"> Tell the student when to begin reading. Start timer and note time. (May use a silent timer.)
	<ul style="list-style-type: none"> Observe text and time while student reads. Mark errors on your (words counted) copy of the passage.
	<ul style="list-style-type: none"> Do correct proper names that repeat throughout the passage—and don't count the error more than once.
	<ul style="list-style-type: none"> Do not correct errors unless the correction is necessary for the student to keep reading the passage. If the student can't read a word within 3 seconds, say the word and mark it as an error.
	<ul style="list-style-type: none"> Do not blurt out "stop" while the student is reading. Mark where the student is at the end of a minute, and allow student to read to a convenient stopping point or even finish the passage if it's going well.
	<ul style="list-style-type: none"> Record the number of errors, correct words per minute (wcpm) and percent accuracy (correct words divided by total words read).

Errors:	<ul style="list-style-type: none"> Hesitations lasting more than 3 seconds (after which you give word)
	<ul style="list-style-type: none"> Misidentifications/substitutions
	<ul style="list-style-type: none"> Word omissions
	<ul style="list-style-type: none"> Line-skipping (count as one error but get them on the right line)
	<ul style="list-style-type: none"> (Self-corrections and re-reading words are not counted as errors but should be noted in your qualitative analysis.)

Grade Norms: Spring rates on grade-level texts (50 %ile) (multi-year aggregates)		
WCPM = words read correctly in one minute		
	AIMSweb, 2005	Hasbrouck & Tindal, 2004
1	50 WCPM (SD: 36 wds.)	53 WCPM
2	91 WCPM (SD: 40 wds.)	89 WCPM
3	110 WCPM (SD: 43 wds.)	107 WCPM
4	125 WCPM (SD: 44 wds.)	123 WCPM
5	140 WCPM (SD: 46 wds.)	139 WCPM
6	155 WCPM (SD: 46 wds.)	150 WCPM
7	154 WCPM (SD: 43 wds.)	150 WCPM
8	156 WCPM (SD: 41 wds.)	151 WCPM

Possible weekly reading fluency goals: What can we expect?

Grade Level	Increase in Correctly Read Words per Minute of Each Instructional Week : "Realistic Goals" (Fuchs, Hamlett, Walz, & Germann, 1993)	Rate of Improvement (ROI) at 50 th %ile: Spring score minus fall score divided by 36 weeks (Aimsweb, 2005)
Grade 1	2.0	1.2
2	1.5	1.1
3	1.0	1
4	.85	.8
5	.5	.8
6/7/8	.3	.7/.6/.4

The Disappearing Ship

One day in 1881, the sailing schooner *Ellen Austin* sighted a similar ship. The wind was faint, so several days went by before the *Austin* drew close enough to hail the other schooner. But when the *Austin's* captain called across the calm water, he heard no answer. So he ordered a boat lowered and some members of his crew rowed him to the other vessel.

They climbed aboard and found that the ship was completely deserted, although its cargo, a load of valuable mahogany wood, was intact. According to the laws of the sea, the ship was a derelict. Whoever could salvage its cargo was entitled to the profits. The mahogany would fetch a good price when it was delivered to port. Still, an uneasy feeling lingered about the ship.

The captain made his decision quickly. He left some of his sailors behind to navigate the prize ship, and together the two vessels headed for port. For two days, all went well, but then a storm blew up and they lost sight of each other for a few hours. When the winds let up, the captain of the *Austin* found the other ship and reboarded her. Everything was as it had been when he first boarded the ship, the lumber was still in the hold, and there were no signs of trouble, except that the crew had disappeared!

The captain ordered his mate to form another crew for the mysterious ship. The mate was frightened, however. He agreed to go, but said he would sound the prize ship's bell every 15 minutes, day and night, to keep in touch with the *Austin*. Again, for two days, all went well. Then a fog bank suddenly appeared, the prize ship sailed directly into it, and the bell immediately ceased ringing. Alarmed, the captain had the *Austin* put about, and they searched for the ship. But now the entire ship had disappeared, taking with it the second crew.

Where did this happen? In the Bermuda Triangle, a stretch of the Atlantic with "comers" near the Bahamas, Bermuda, and Florida. Many other unexplained disappearances of ships and airplanes have occurred in this area. The story of the *Ellen Austin* and its mysterious prize ship remains one of the most baffling on record.

Math Fact Fluency (CBM)

Procedure:	<ul style="list-style-type: none"> Present set of math facts (one algorithm) which is approximately 150% or more of what student could complete in two minutes.
	<ul style="list-style-type: none"> Explain that students should try to do each fact in order. If they come to one they absolutely cannot complete, they can skip it (X it) and go on to the next fact.
	<ul style="list-style-type: none"> Monitor to make sure problems are being completed in order (rather than skipping around to complete easy ones.)
	<ul style="list-style-type: none"> Time students for two minutes.

Scoring:	<ul style="list-style-type: none"> Score number of correct math facts. Total (per minute) will be HALF.
Examples:	<ul style="list-style-type: none"> Count reversed numbers as correct. " " is okay.
	<ul style="list-style-type: none"> Reversed digit sequences are errors. e.g., $6 + 7 = 31$

Math Fact Expectations: overall—40-80 problems per minute *

Norms *	End of year (separate algorithms)
1	20-25 addition problems per minute
2	30-35 addition and subtraction problems per minute
3	35-40 addition and subtraction, beginning multiplication
4 and up	40 problems, plus the above

*Crawford, 2003—oral communication

Norms	"Locally Derived—High SES" Spring, 3 year norms (50%ile): Facts Per Minute				
	Addition	Subtraction	Multiplication	Division	Average + and -
1	14	11	-----	-----	12
2	20	15	-----	-----	18
3	24	19	18	-----	20
4	31	26	28	23	27
5	38	34	40	34	37

Research correlation: 40 facts per minute or higher at 5th grade level is related to increased placement in Proficient/Advanced categories on the CA State Standards Test (for many students.)

$2\overline{)18}$	$6\overline{)6}$	$3\overline{)15}$	$3\overline{)27}$	$2\overline{)14}$	$5\overline{)25}$	$6\overline{)48}$	$7\overline{)21}$	$2\overline{)10}$	$6\overline{)42}$
$4\overline{)20}$	$9\overline{)63}$	$1\overline{)4}$	$4\overline{)8}$	$7\overline{)0}$	$8\overline{)16}$	$3\overline{)24}$	$4\overline{)32}$	$8\overline{)56}$	$1\overline{)0}$
$5\overline{)5}$	$8\overline{)64}$	$3\overline{)0}$	$2\overline{)2}$	$5\overline{)40}$	$3\overline{)9}$	$9\overline{)18}$	$6\overline{)0}$	$5\overline{)10}$	$9\overline{)9}$
$8\overline{)32}$	$1\overline{)1}$	$9\overline{)36}$	$8\overline{)40}$	$2\overline{)0}$	$5\overline{)20}$	$9\overline{)27}$	$6\overline{)18}$	$4\overline{)0}$	$5\overline{)30}$
$2\overline{)12}$	$5\overline{)45}$	$1\overline{)7}$	$7\overline{)14}$	$3\overline{)3}$	$8\overline{)24}$	$5\overline{)0}$	$2\overline{)8}$	$7\overline{)42}$	$6\overline{)36}$
$7\overline{)56}$	$9\overline{)0}$	$8\overline{)72}$	$4\overline{)28}$	$7\overline{)49}$	$2\overline{)4}$	$9\overline{)81}$	$1\overline{)2}$	$5\overline{)35}$	$3\overline{)21}$
$8\overline{)0}$	$7\overline{)28}$	$4\overline{)36}$	$1\overline{)3}$	$4\overline{)24}$	$3\overline{)6}$	$9\overline{)54}$	$1\overline{)8}$	$4\overline{)4}$	$7\overline{)35}$
$9\overline{)45}$	$1\overline{)9}$	$6\overline{)54}$	$6\overline{)12}$	$3\overline{)18}$	$9\overline{)72}$	$5\overline{)15}$	$6\overline{)24}$	$8\overline{)8}$	$2\overline{)16}$
$1\overline{)6}$	$4\overline{)12}$	$7\overline{)7}$	$2\overline{)6}$	$7\overline{)63}$	$4\overline{)16}$	$8\overline{)48}$	$3\overline{)12}$	$6\overline{)30}$	$1\overline{)5}$

Example

Writing Fluency (CBM) "Quick-Writes"

Procedure:	<ul style="list-style-type: none"> Present a story starter to student with beginning of story already on page.
	<ul style="list-style-type: none"> Keep timing in the background. Emphasize "best work."
	<ul style="list-style-type: none"> Give student 30 seconds to think about what s/he is going to write.
	<ul style="list-style-type: none"> If student wants to choose different topic—that's okay. He crosses out starter and begins on his own topic.
	<ul style="list-style-type: none"> Allow student 3 minutes to write. At the end of 3 minutes, ask student to make a heavy slash (/) after the last word.
	<ul style="list-style-type: none"> Allow opportunity to finish her sentence (or in some cases, the story.)

Scoring:	<ul style="list-style-type: none"> Count total number of words written in 3 minutes (TW), spelled correctly or not.
	<ul style="list-style-type: none"> Count number of correct word sequences (CWS)—two adjacent, correctly spelled words that are acceptable within the context of the phrase to a native English speaker.
	<ul style="list-style-type: none"> Count also as 1 CWS: the beginning of a sentence—if capitalized and spelled correctly.
	<ul style="list-style-type: none"> Count also as 1 CWS: the end of a sentence—if correctly spelled and punctuated.
	<ul style="list-style-type: none"> Hint: first highlight incorrectly spelled words.

Examples:	<p>Sometimes lerning new things seems hard. this little strange. (TW: / CWS: 7)</p> <p>practicing scoring realy help Now you are geting the hang of it. (TW: / CWS: 8)</p>
Try these!	<p>do you thinck you can do one yourself. (TW: / CWS:)</p> <p>Tri this sentense too sea how it goes (TW: / CWS:)</p>

Writing Fluency Norms	Correct Word Sequences (CWS) (50%ile)	
	"Locally Derived—High SES" Spring, 3 year norms (50%ile):	AIMSweb Multi-Year Aggregate
K (one year-5 minutes)	6	No data
Grade 1	17	8
Grade 2	28	17
Grade 3	44	25
Grade 4	51	38
Grade 5	64	47
Grade 6	No data	51

Initial Growth Expectations (a starting point): Growth of 12 total words per year/10 CWS per year—up to class medians--Crawford (2001)

Calculation Fluency (CBM)

Procedure:	<ul style="list-style-type: none"> Present a variety of calculation problems, approximately 150% or more of what student could possibly complete in the given number of minutes.
	<ul style="list-style-type: none"> For single-skill probe, say, "This sheet contains (name type of problem)."
	<ul style="list-style-type: none"> For multiple skill problems, say, "These sheets have several types of problems. Some are (name types included). Look at each problem carefully before you answer it."
	<ul style="list-style-type: none"> For all probes, " When I say, 'begin,' start answering the problems. Begin with the first one and work across the page, (demonstrate by pointing). Then go to the next row. If you cannot answer the problem, mark an X through it and go to the next one. If you finish a page, turn the page and continue working."
	<ul style="list-style-type: none"> Allow 2-6 minutes (grade level dependent-- timing must be a constant).
	<ul style="list-style-type: none"> Score correct DIGITS.

Scoring:	<ul style="list-style-type: none"> A correct digit is the correct digit in the correct place.
	<ul style="list-style-type: none"> Incorrect digits are counted as errors. Digits that appear in the wrong place value, even if otherwise correct, are scored as errors.
Special rules: See following	<ul style="list-style-type: none"> If the answer is correct, the student earns the score equivalent to the number of correct digits written using the "longest method" taught to solve the problem, <u>even if the work is not shown.</u>
	<ul style="list-style-type: none"> Give credit for correctly placed digits, even if total answer is not correct.
	<ul style="list-style-type: none"> Incomplete or Crossed-out Problems—If a student has crossed out, or erased an answer or work to a problem, give credit for legible correct digits.
	<ul style="list-style-type: none"> Reversed or rotated digits are counted as correct, with the exceptions of 6 and 9.
	<ul style="list-style-type: none"> In multiplication problems, an X, 0 or blank counts as a place holder and is scored as a correct digit.
	<ul style="list-style-type: none"> In division problems remainders are scored as correct digits. To get all digits possible, remainder must be completely written out ($r = 2$)

Possible Norms	Spring Correct Digits on Computation: 50 %ile *
1	13
2	10
3	18
4	27
5	27
6	25
7	29
8	40

*Using screening probes from

<http://www.mpls.k12.mn.us/departments/speced/resources/pdf/PICPAGE1.html>

Local norms, using either commercially available or teacher-made probes, can be developed.

Example:

$$\begin{array}{r} 97 \\ \times 9 \\ \hline 8730 \end{array}$$

"873" is the correct answer to this problem, but no credit can be given since the addition of the 0 pushes the other digits out of their proper place-value positions.

- The student is given credit for "place-holder" numerals that are included simply to correctly align the problem. As long as the student includes the correct space, credit is given whether or not a "0" has actually been inserted.

Example:

$$\begin{array}{r} 55 \\ \times 82 \\ \hline 110 \\ 4400 \\ \hline 4510 \end{array}$$

Since the student correctly placed 0 in the "place-holder" position, it is given credit as a correct digit. Credit would also have been given if the space were reserved but no 0 had been inserted.

- In more complex problems such as advanced multiplication, the student is given credit for all correct numbers that appear below the line.

Example:

$$\begin{array}{r} 33 \\ \times 28 \\ \hline 264 \\ 660 \\ \hline 924 \end{array}$$

Credit is given for all work below the line. In this example, the student earns credit for 9 correct digits.

- Credit is not given for any numbers appearing above the line (e.g., numbers marked at the top of number columns to signify regrouping).

Example:

$$\begin{array}{r} 1 \\ 46 \\ + 39 \\ \hline 85 \end{array}$$

Credit is given for the 2 digits below the line. However, the carried "1" above the line does not get credit.

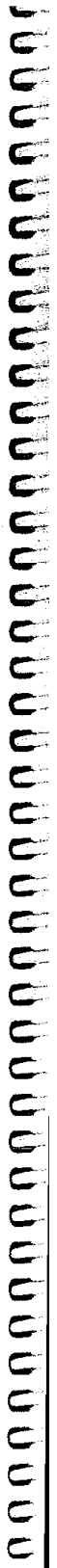
Jim Wright, 1992

Password: JAR

Name: _____ Date: _____

<p>A</p> $\begin{array}{r} 7 \\ \times 6 \\ \hline \end{array}$	<p>B</p> $9\overline{)63}$	<p>C</p> $\begin{array}{r} 32 \\ \times 33 \\ \hline \end{array}$	<p>D</p> $\begin{array}{r} 206 \\ - 197 \\ \hline \end{array}$	<p>E</p> $5\overline{)80}$
<p>F</p> $\frac{2}{3} - \frac{1}{3} =$	<p>G</p> $4\overline{)4}$	<p>H</p> $6\overline{)90}$	<p>I</p> $\begin{array}{r} 6 \\ \times 7 \\ \hline \end{array}$	<p>J</p> $6\overline{)51}$
<p>K</p> $\begin{array}{r} 0 \\ \times 2 \\ \hline \end{array}$	<p>L</p> $2\frac{1}{3} - 1 =$	<p>M</p> $\begin{array}{r} 3494 \\ \times 34315 \\ \hline \end{array}$	<p>N</p> $2\overline{)9}$	<p>O</p> $\frac{5}{7} + \frac{1}{7} =$
<p>P</p> $\begin{array}{r} 7 \\ \times 8 \\ \hline \end{array}$	<p>Q</p> $\begin{array}{r} 6591 \\ - 4455 \\ \hline \end{array}$	<p>R</p> $\begin{array}{r} 885 \\ \times 7 \\ \hline \end{array}$	<p>S</p> $\begin{array}{r} 9419 \\ 5149 \\ + 43 \\ \hline \end{array}$	<p>T</p> $\begin{array}{r} 7 \\ \times 7 \\ \hline \end{array}$
<p>U</p> $\begin{array}{r} 48 \\ \times 11 \\ \hline \end{array}$	<p>V</p> $7\overline{)28}$	<p>W</p> $\begin{array}{r} 355 \\ \times 8 \\ \hline \end{array}$	<p>X</p> $5\frac{3}{7} + 2 =$	<p>Y</p> $8\overline{)72}$

Example



Curriculum Based Measurement: Partial Bibliography of Research/Materials

Comptom, D.L. (2000) Modeling the Response of Normally Achieving and At-Risk First Grade Children to Word Reading Instruction. *Annals of Dyslexia* (Vol. 50)

Crawford, D.B., (2001) *Making IEPs Easy: Using Curriculum-Based Progress Monitoring Measures*. Eau Claire, WI: Otter Creek Institute

Crawford, D.B., (2004) *Improving the Writing (and Spelling) of Kids Who Won't Write and Can't Spell*. Eau Claire, WI: Otter Creek Institute

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, 27-48.

Fuchs, L.S., Fuchs, D. (1992) Identifying a measure for monitoring student reading data. *School Psychology Review*, 21.

Fuchs,L.S., Hamlett, C.L., & Fuchs, D. (1998) Monitoring Basic Skills Progress: Basic Math Computation. Pro-ed: Austin, Texas

Fuchs,L.S., Hamlett, C.L., & Fuchs, D. (1999) Monitoring Basic Skills Progress: Basic Math. Pro-ed: Austin, Texas

Hasbrouck, J., & Tindal, G. (2005). Oral Reading Fluency: 90 Years of Measurement (Tech. Rep. No. 33). Eugene, Oregon: University of Oregon, College of Education, Behavioral Research and Teaching.

Kame'enui, E.J., et al (2000) Schools as Host Environments: Toward a Schoolwide Reading Improvement Model. *Annals of Dyslexia* (Vol. 50)

Kaminski, R.A. & Good, R.H.H. (1998) Assessing Early Literacy Skills in a Problem-Solving Model: Dynamic Indicators of Basic Early Literacy Skills. *Advanced Applications of Curriculum-Based Measurement*, ed. Shinn, M.

Shin, M.R. (1998) *Administration and Scoring of Curriculum-Based Measurement*. University of Oregon

Shinn, M.R. (1989) *Curriculum-Based Measurement. Assessing Special Children*. The Guilford Press: New York.

Wilson, P.L. Literature Review: Recent Research on Curriculum Based Evaluation of Reading Skills. Georgia State University

<http://www.aimsweb.com>

<http://dibels.uoregon.edu/>

<http://www.edformation.com/>

<http://www.edcheckup.com>

www.interventioncentral.org

Materials for Intervention

Mastering Math Facts, Mastering Dictated Sentences, Mastering Printing: Otter Creek Institute (www.ocisems.com)

Read Naturally (www.readnaturally.com)

Great Leaps (www.greatleaps.com)

SIPPS (Systematic Instruction in Phoneme Awareness, Phonics, and Sight Words): Developmental Studies Center (www.devstu.org)

Writing Skills, 2nd Edition—Diana Hanbury King (EPS)

Math Fact Fluency ABSI Scores by Grade (North School)
Norms Based on Spring Scores: 2 minute timed tests, separate algorithms

1 st grade	Addition	Subtraction	Average + and -
Advanced (83 rd)	20	16	18
Benchmark (50th)	14	11	12
Strategic (25 th)	11	7	9
Intensive (17 th)	10	7	7
(10 th)	8	5	6

2 nd Grade	Addition	Subtraction	Average + and -
Advanced (83 rd)	30	22	27
Benchmark (50th)	20	15	18
Strategic (25 th)	14	12	12
Intensive (17 th)	12	9	11
(10 th)	11	8	9

3rd Grade	Addition	Subtraction	Multiplication	Average +,-,x
Advanced (83 rd)	32	25	26	28
Benchmark (50th)	24	19	18	20
Strategic (25 th)	19	14	14	15
Intensive (17 th)	16	13	12	14
(10 th)	15	10	10	11

4 th Grade	Addition	Subtraction	Multiplication	Division	Average All Facts
Advanced (83 rd)	39	33	40	32	37
Benchmark (50th)	31	26	28	23	27
Strategic (25 th)	25	21	22	19	21
Intensive (17 th)	22	19	20	17	19
(10 th)	19	18	18	15	18

5 th Grade	Addition	Subtraction	Multiplication	Division	Average All Facts
Advanced (83 rd)	51	46	50	48	48
Benchmark (50th)	38	34	40	34	37
Strategic (25 th)	30	28	32	23	29
Intensive (17 th)	26	25	30	21	25
(10 th)	23	22	26	17	21

Writing Fluency** ABSI Scores by Grade (North School)
 Norms Based on Spring Scores

(Percentiles)	1		2		3		4		5	
	TW	CWS	TW	CWS	TW	CWS	TW	CWS	TW	CWS
Advanced (83 rd)	32	27	47	45	60	59	70	68	85	80
Benchmark (50th)	22	17	29	28	48	44	53	51	63	64
Strategic (25 th)	17	12	22	21	38	34	42	37	52	52
Intensive (17 th)	16	10	21	18	34	30	39	33	47	48
(10 th)	14	8	17	13	27	25	34	27	44	44

** Using Quick-Writes = 3-minute writing samples

* TW= Total Words *CWS= Number of correct 2 word sequences

Data compiled from 2003--2005