

Curriculum Based Measurement is a standardized and systematic method of formative assessment; **CBM** is an empirically validated method of progress monitoring with over 25 years of research on effectiveness of CBM

CBM has been linked to:	Characteristics of CBM:
<ul style="list-style-type: none"> • Improved student academic outcomes • More effective instruction • Higher student achievement • Increased student responsibility for learning • Relationship between CBM and high stakes testing • Better communication between parents and teachers <p>(Fuchs, Deno, Mirkin, 1984; Fuchs, Fuchs, & Hamlett, 1988; Good, Simmons, & Kameenui, 2001)</p>	<ul style="list-style-type: none"> • Used to monitor student progress across an entire year • Probes are brief and easy to administer • Administered weekly or as benchmarks and administered the same way each time • Each probe samples curriculum for an entire school year • Each probe is different, but each form assesses the same types of skills at same level of difficulty • CBM can be used to: <ul style="list-style-type: none"> ◦ Monitor student learning outcomes ◦ Identify at-risk students ◦ Evaluate intervention effectiveness ◦ Guide instruction and cue instructional changes ◦ Measure AYP ◦ Monitor annual goals and objectives <p>(L. S. Fuchs & Fuchs, 2004; L. S. Fuchs, Fuchs, Hamlett, & Stecker, 1990; Hosp & Hosp, 2003)</p>

What is writing CBM?

Writing CBM is a simple task to measure students' ability to write. This assessment requires students to write for 3 minutes based on an instructional-level story starter. Teachers can begin using writing CBM as soon as students can write sentences. Spelling and writing CBM can be used concurrently.

Steps for Writing CBM Steps (Adapted from Hosp, Hosp, & Howell, 2007)

1) Obtain different but equivalent grade-level story starters

- a) Short, oral or written
- b) Designed to prompt more than a yes/no or short answer
- c) Stops in mid sentence
- d) Should reflect a wide range of student experiences and be a familiar theme.
- e) Because all story starters need to be at the same grade level, Hosp et al. recommends purchasing generic story starters designed for progress monitoring (see below for resources)
 - a. Examples (Hosp et al., 2007; pp. 86-87)
 - i. Primary: I looked out my window and to my surprise...
 - ii. Intermediate: I was walking to school when ...
 - iii. Advanced: My dog was running to the President and was about to ...

2) Provide students with paper and pencil

- a) Use lined paper with story starter at the top
- b) Can also use spiral notebooks to monitor progress over time and to keep student records

3) Use stopwatch or countdown timer that displays seconds

4) Be sure to test in a quiet environment

5) Consistently use standardized directions for administration and scoring

- a) Administer 3 equivalent lists the first time in one session (recommended) or across days; the median score will be first data point on graph.
- b) Can be administered individually or in groups
- c) Use 20 to 30 equivalent lists for duration of year
- d) Use same directions for each administration (Hosp et al., 2007; p. 68):
 - Say, "*Today, I want you to write a story. I am going to read a sentence to you first and then I want you to compose a short story about what happens, You will have 1 minute to think about what you will write and 3 minutes to write your story. Remember to do your best work. If you do not know how to spell a word, you should guess. Are there any questions?*"
 - Start timer for 1 minute to allow students time to think. At 30 seconds, say, "***You should be thinking about ...*** (repeat story starter)"
 - At the end of 1 minute, say, "***Now begin writing***"
 - Monitor students and encourage as needed
 - At 90 seconds, say, "***You should be writing about ...***"
 - When the 3 minutes is up, say "***Thank you. Put your pencils down.***"

Note: if 3 minutes does not provide long enough samples, teachers can use 5 or 10-minute assessment periods. However, those longer samples cannot be used in comparison with the norms. Hosp et al. (2007) indicate that another option is to note where a student is at the end of 3 minutes (for comparison to norms), and let the student continue writing for another 2 to 7 minutes.

6) Score the writing CBM (Hosp et al., 2007)

- a) Options for scoring include (keep the scoring method the same for the year):
 - Total words written (TWW): provides data on writing fluency
 - Number of words spelled correctly (WSC): also provides data on writing fluency
 - Total number of correct writing sequences (CWS): takes longer to score but is recommended for students who are below grade level in writing
- b) TWW
 - Number of words written even if words are spelled incorrectly
 - Also count abbreviations (e.g., TV, titles) and endings (e.g., The end)
 - For hyphenated words, count each morpheme as a separate word
 - Other characters are not counted (e.g., \$50, "&")
- c) WSC
 - Number of words spelled correctly regardless of contextual clarity
 - Count words found in English language
 - Circle incorrectly spelled words
 - The TWW guidelines above are also used
 - Also:
 - Proper nouns must be capitalized
 - Reversed letters are not counted wrong unless the word is misspelled
 - "The dig pig ate" = a score of 4 with all words correct (the "b" is reversed)
 - Contractions are correct with apostrophe
 - Score: TWW – number of circled words is the WSC score
- d) CWS
 - Score with a caret ^ - adjacent, correctly spelled words
 - Words must be used correctly within the context of English - consider correct punctuation, syntax, semantics, and capitalization
 - Circle incorrectly spelled words
 - The first sequence is the space before the first word and the first word as long as the first word is capitalized correctly
 - Continue counting word-to-word sequences as long as they are correct as indicated above
 - The last sequence in a sentence is the last word to the correct punctuation
 - Continue with the rest of the sentences in the writing sample
 - See table below for examples

Examples	CWS Score
^The ^ boy ^ sat ^ with ^ the ^ girl ^.	7 (out of a possible 7)
the boy ^ sat ^ with ^ the girl	4 (out of a possible 7)

7) Graph the data

- 1) Paper and pencil
 - a) Vertical axis - include the range of scores of all students in the class from zero to the highest score. Horizontal axis - include the number of weeks of instruction.
 - b) Make a template of the above and one copy for each student
- 2) Chart Dog (www.interventioncentral.org): Web-based data storage and management

3) Commercial CBM materials (e.g., AIMSweb www.aimsweb.com)

8) Set ambitious goals.

Using benchmarks:

Using the writing CBM Benchmarks table below, find the student's grade level, and use the spring 50th percentile. Graph the three baseline scores and the end of year benchmark. Draw a goal line on the graph from the median score to the spring benchmark.

The following table is taken from Hosp et al. (2007; p. 95)

Grade	Percentile	Norms for Correct Word Sequences (AIMSweb, 2006)		
		Fall	Winter	Spring
1	90%		13	18
	75%		8	13
	50%		4	8
	25%		1	4
	10%		0	1
2	90%	20	27	35
	75%	12	18	27
	50%	6	10	17
	25%	1	3	9
	10%	0	0	0
3	90%	34	42	48
	75%	25	33	37
	50%	14	22	26
	25%	4	11	15
	10%	0	0	5
4	90%	48	54	60
	75%	37	44	48
	50%	23	32	37
	25%	12	20	27
	10%	3	8	17
5	90%	61	64	70
	75%	47	52	60
	50%	34	40	48
	25%	21	28	35
	10%	5	9	25
6	90%	63	71	75
	75%	52	58	64
	50%	41	47	51
	25%	29	35	39
	10%	20	25	28
7	90%	76		
	75%	66		
	50%	53		
	25%	40		
	10%	25		
8	90%	77		
	75%	65		
	50%	48		
	25%	38		
	10%	28		

Step 6: Apply data decision rules

See the table below:

Making Decisions using CBM Data	
Look at the last 3 data points. If the data points are:	
Close to the goal line (all on the line, or some above and some below)	<ul style="list-style-type: none">Continue your instruction as implemented <i>If your student has an increasing slope with gains at or near your aimline, then he/she is responding to your instruction - so keep doing what you are doing</i>
All <i>below</i> the goal line	<ul style="list-style-type: none">Change your instruction<i>If at least 3 consecutive scores have fallen below the aimline, the student is not responding optimally to instruction. Try something new.</i>
All <i>above</i> the goal line	<ul style="list-style-type: none">Change your goal for the student and maintain your instruction as implemented<i>If at least 3 consecutive scores are above the aimline, your instruction is very effective for the student and you can increase the goal for the student.</i>

How often should writing CBM be given? (Hosp et al., 2007)

- 1) If you are using CBM for screening or benchmarking: three times a year (fall, winter, spring)
- 2) If you are using CBM for progress monitoring: one to two times a week for any student considered at risk based on norms or benchmark data.
- 3) Teachers can use monthly monitoring for all students to provide data on the effectiveness of writing instruction.

Resources to Find Probes

Premade Writing CBM Story Starters

www.aimsweb.com

Cost for materials; graphing and data management available

Other Resources

- National Center on Student Progress Monitoring
<http://www.studentprogress.org/>
- National Center on Response to Intervention
<http://www.rti4success.org/>
- Intervention Central
<http://www.interventioncentral.org/index.php/cbm-warehouse>

References

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