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.

<table>
<thead>
<tr>
<th>CBM has been linked to:</th>
<th>Characteristics of CBM:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Improved student academic outcomes</td>
<td>• Used to monitor student progress across an entire year</td>
</tr>
<tr>
<td>• More effective instruction</td>
<td>• Probes are brief and easy to administer</td>
</tr>
<tr>
<td>• Higher student achievement</td>
<td>• Administered weekly or as benchmarks and administered the same way each time</td>
</tr>
<tr>
<td>• Increased student responsibility for learning</td>
<td>• Each probe samples curriculum for an entire school year</td>
</tr>
<tr>
<td>• Relationship between CBM and high stakes testing</td>
<td>• Each probe is different, but each form assesses the same types of skills at same level of difficulty</td>
</tr>
<tr>
<td>• Better communication between parents and teachers</td>
<td>• CBM can be used to:</td>
</tr>
<tr>
<td>(Fuchs, Deno, Mirkin, 1984; Fuchs, Fuchs, &amp; Hamlett, 1989, Good, Simmons, &amp; Kameeuni, 2001)</td>
<td>o Monitor student learning outcomes</td>
</tr>
<tr>
<td></td>
<td>o Identify at-risk students</td>
</tr>
<tr>
<td></td>
<td>o Evaluate intervention effectiveness</td>
</tr>
<tr>
<td></td>
<td>o Guide instruction and cue instructional changes</td>
</tr>
<tr>
<td></td>
<td>o Measure AYP</td>
</tr>
<tr>
<td></td>
<td>o Monitor annual goals and objectives</td>
</tr>
</tbody>
</table>

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

1) Obtain grade-level spelling CBM lists
   a) Each list is different but at the equivalent grade-level and with the same number of total letters
   b) The lists represent the whole year’s spelling curriculum
   c) Lists contain 12 words for grades 1 and 2 and 7 words for grades 3 and higher

2) Provide students with paper and pencil
   a) Use lined paper
   b) Can also use spiral notebooks
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) Use 20 to 30 equivalent lists for duration of year
   c) Ask students to number paper 1 to 12 (grades 1 & 2) or 1 to 17 (grade 3 and higher).
      - Use same directions for each administration (Hosp et al., 2007; pp. 75-76)
      - Say, “I am going to read some words to you. I want you to write the words on the sheet in front of you. Write the first word on the first line, the second word on the second line, and so on. I will give you 10 seconds [7 seconds for grades 3 and up] to spell each word. When I say the next word, try to write it, even if you haven’t finished the last one. Are there any questions?” Say the first word and start timer for 2 minutes.
      - Say each word twice and use homonyms in a sentence.
      - Every 10 seconds (grades 1 & 2) or 7 seconds (grade 3 & higher), say a new word.
      - When the 2 minutes is up, say “Thank you. Put your pencils down.”

6) Score the spelling CBM (Hosp et al., 2007)
   a) The score can “correct letter sequences” (CLS) or “words spelled correctly” (WSC).
   b) CLS takes more time but is a more sensitive measure.
   c) 1st – 2nd graders should have 55-70 CLS; Students in higher grades should have 125-155 CLS
   d) CLS:
      - The first letter sequence is the space before the first letter
      - Continue counting the letter to letter sequences
      - Also count letter to punctuation, punctuation to letter, last letter to a space
      - See table below for examples

<table>
<thead>
<tr>
<th>Word</th>
<th>Student Answers</th>
<th>CLS</th>
<th>CLS Score</th>
<th>WSC Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>summer</td>
<td>summer</td>
<td>s<code>u</code>m<code>e</code>r</td>
<td>7</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>summer</td>
<td>s<code>u</code>m<code>e</code>r</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>won’t</td>
<td>won’t</td>
<td>w<code>o</code>n<code>t</code></td>
<td>6</td>
<td>1</td>
</tr>
<tr>
<td>wont</td>
<td>wont</td>
<td>w<code>o</code>n<code>t</code></td>
<td>4</td>
<td>0</td>
</tr>
</tbody>
</table>

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.
There are several options in goal setting:

1) Using benchmarks:
   Using the spelling CBM Benchmarks table below, determine the end of year
   benchmark (performance goal). Graph the three baseline scores and the end of year
   benchmark. Draw a goal line on the graph from the median score to the benchmark.

2) Using norms:
   Using the spelling CBM Weekly Growth Rates table and the formula to calculate goal.
   Graph the three baseline scores and the end of year goal. Draw a goal line on the graph
   from the median score to the benchmark.

   Initial median score + (growth rate x number of weeks of instruction)

---

<table>
<thead>
<tr>
<th>Grade</th>
<th>Weekly Growth Rates</th>
</tr>
</thead>
<tbody>
<tr>
<td>2nd</td>
<td>1 – 1.5</td>
</tr>
<tr>
<td>3rd</td>
<td>0.65 - 1</td>
</tr>
<tr>
<td>4th</td>
<td>0.45 – 0.85</td>
</tr>
<tr>
<td>5th</td>
<td>0.3 – 0.65</td>
</tr>
<tr>
<td>6th</td>
<td>0.3 – 0.65</td>
</tr>
</tbody>
</table>

From Fuchs et al., 1993

Step 6: Apply data decision rules
See the table below:

---

<table>
<thead>
<tr>
<th>Making Decisions using CBM Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Look at the last 3 data points. If the data points are:</td>
</tr>
</tbody>
</table>

**Close to the goal line (all on the line, or some above and some below)**
- Continue your instruction as implemented
  *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*

**All below the goal line**
- Change your instruction
  *If at least 3 consecutive scores have fallen below the aimline, the student is not responding optimally to instruction. Try something new.*

**All above the goal line**
- Change your goal for the student and maintain your instruction as implemented
  *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.*

---

How often should spelling 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: own to two times a week for any student
   considered at risk based on norms or benchmark data.
Resources to Find Probes

Premade Spelling CBM Probe Sheets
- Many teachers design their own spelling CBM lists, but AIMSweb, with Pearson Publishing, has compiled graded standard spelling word lists from the most frequently occurring words from 7 commonly used spelling series and reading word lists
  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
- Intervention Central
  http://www.interventioncentral.org/index.php/cbm-warehouse

References


