# Strategies for Making <br> Adequate Yearly Progress 

# USING CURRICULUM-BASED MEASUREMENT FOR PROGRESS MONITORING 

Lynn S. Fuchs

Lynn.fuchs@vanderbilt.edu

# Insights into First-Grade Thinking: New Twists on Old Proverbs 

- Better to be safe than ...


## First-Grade Thinking: New Twists on Old Proverbs

- Better to be safe ... than punch a 5 th grader.


## First-Grade Thinking: New Twists on Old Proverbs

- It's always darkest before ...


# First-Grade Thinking: New Twists on Old Proverbs 

- It's always darkest before ... Daylight Savings Time.


# First-Grade Thinking: New Twists on Old Proverbs 

- A miss is as good as a ...


# First-Grade Thinking: New Twists on Old Proverbs 

- A miss is as good as a ... Mr.


# First-Grade Thinking: New Twists on Old Proverbs 

- You can't teach an old dog new ...


# First-Grade Thinking: New Twists on Old Proverbs 

- You can't teach an old dog new ... math.


# USING CURRICULUMBASED MEASUREMENT 

for
Progress Monitoring

## With Progress Monitoring

- Teachers assess students' academic performance on a regular basis
- To determine whether children are profiting appropriately from the typical instructional program
- To build more effective programs for children who do not benefit appropriately from typical instruction

A Scientific Base Supports One
Form of Progress Monitoring:

> Curriculum-Based Measurement (CBM)

# Endorsed by Reading First Assessment Committee: 

## Screening, Progress <br> Monitoring, Outcome <br> Assessment

## What is CBM?

A form of classroom assessment for...

- describing academic competence in reading, spelling, or mathematics
- tracking academic development
- improving student achievement

Curriculum-Based Measurement (CBM) . . .

- result of 20 years of research
- used in schools across the country
- demonstrates strong reliability and validity
- used with all children to determine whether they are profiting from typical instruction
- used with failing children to enhance instructional programs


## Research Indicates:

- CBM produces accurate, meaningful information about students' academic levels and growth;
- CBM is sensitive to student improvement;
- When teachers use CBM to inform their instructional decisions, students achieve better.


## Most Forms of Classroom

 Assessment Are Mastery
## Measurement

## CBM is NOT

Mastery Measurement

## Mastery Measurement describes

 mastery of a series of short-term instructional objectivesTo implement mastery measurement, the teacher

- determines a sensible instructional sequence for the school year
- designs criterion-referenced testing procedures to match each step in that instructional sequence


## Fourth Grade Math Computation Curriculum

1 Multidigit addition with regrouping
2 Multidigit subtraction with regrouping
3 Multiplication facts, factors to 9
4 Multiply 2-digit numbers by a 1-digit number
5 Multiply 2-digit numbers by a 2-digit number
6 Division facts, divisors to 9
7 Divide 2-digit numbers by a 1-digit number
8 Divide 3-digit numbers by a 1-digit number
$9 \quad$ Add/subtract simple fractions, like denominators
10 Add/subtract whole number and mixed number

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## Multidigit Addition Mastery Test

Name:
Date $\qquad$

Adding

| 36521 | 53429 | 84525 | 67842 |
| ---: | ---: | ---: | ---: |
| +63758 |  |  |  |
| + | +63421 | +75632 |  |


| 56382 | 36422 | 34824 | 32415 |
| ---: | ---: | ---: | ---: |
| +94742 | +57529 | +69426 | +85439 |



## Mastery of Multidigit Addition

## Fourth Grade Math Computation Curriculum

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## Multidigit Subtraction Mastery Test

Name:

## Date

Subtracting

| 6521 | 5429 | 8455 | 6782 | 7321 |
| ---: | ---: | ---: | ---: | ---: |
| $-\mathbf{3 7 5}$ | $-\mathbf{- 6 3 4}$ | $-\mathbf{- 7 5 6}$ | $-\mathbf{9 3 7}$ | $-\mathbf{- 3 9 1}$ |

$\begin{array}{r}5682 \\ -\quad 942 \\ \hline\end{array}$
6422
2415
4321

- 942
$-529 \quad-426$
$-854 \quad-874$



## Mastery of Multidigit Addition and Subtraction

Problems Associated with Mastery Measurement:

- Hierarchy of skills is logical, not empirical.
- Assessment does not reflect maintenance or generalization.
- Number of objectives mastered does not relate well to performance on criterion measures.
- Measurement shifts make it difficult to estimate learning patterns.
- Measurement methods are designed by teachers, with unknown reliability and validity.
- Measurement framework is highly associated with a set of instructional methods.

Curriculum-Based Measurement (CBM) was designed to address these problems.

- CBM makes no assumptions about instructional hierarchy for determining measurement (i.e., CBM fits with any instructional approach).
- CBM incorporates automatic tests of retention and generalization.


## How to Do CBM:

- Identify the skills in the year-long curriculum
- Determine the weight of skills in the curriculum
- Create 30 alternate test forms
- each test samples the entire year's curriculum
- each test contains the same types of problems
- Give tests weekly (twice weekly for special ed)
- Graph and analyze data
- Modify instruction as appropriate


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## (with computer assistance):

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## MATHEMATICS

CBM

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## Random numerals within problems (considering specifications of problem types) <br> Random <br> placement of problem types on page

Password: ARM

| $\frac{3}{7}-\frac{2}{7}=$ | B $1 \frac{6}{7}+3=$ | $4 \longdiv { 6 }$ | $\begin{aligned} & \hline \text { D } \\ & 6 \longdiv { 7 8 } \end{aligned}$ | $\begin{array}{ll} \hline \mathrm{E} \\ & \\ & 875 \\ \times \quad 7 \\ \hline \end{array}$ |
| :---: | :---: | :---: | :---: | :---: |
| F $\begin{array}{r} \\ \\ 6 \\ \times 7 \\ \hline\end{array}$ | G $\begin{array}{r} 9 \\ \times 0 \\ \hline \end{array}$ | $\begin{array}{r} 244 \\ \times \quad 7 \\ \hline \end{array}$ | $6 \longdiv { 4 8 }$ | $5 \longdiv { 2 0 }$ |
| $\begin{array}{rr}  \\ \hline & \\ 2 \longdiv { 5 0 } \end{array}$ | $\begin{array}{r} 6144 \\ -4420 \\ \hline \end{array}$ | $\begin{aligned} & \hline \text { M } \\ & \\ & \\ & \\ & 33 \\ & \times \quad 10 \\ & \hline \end{aligned}$ | N $\begin{array}{r} 6 \\ \times 0 \\ \hline \end{array}$ | $0$ $7 \longdiv { 3 0 }$ |
| $\begin{array}{r} 95225 \\ +75268 \\ \hline \end{array}$ | $8 \longdiv { 3 2 }$ | $\mathrm{R}$ $\begin{array}{r} 1156 \\ 2824 \\ +\quad 83 \end{array}$ | $7 \frac{4}{7}-2=$ | $\begin{array}{r} \hline \mathrm{T} \\ \\ \\ \\ \hline \end{array}$ |
| $\frac{3}{5}+\frac{1}{5}=$ | v $\begin{array}{r} 982 \\ -\quad 97 \\ \hline \end{array}$ | w $\begin{array}{r} 9 \\ \times 5 \\ \hline \end{array}$ | $\begin{array}{r} \hline \times \\ \\ \hline \end{array}$ | $\begin{array}{ll}Y & \\ & \\ & 7 \longdiv { 5 6 }\end{array}$ |

Password: AIR
Name:

|  | B $\begin{array}{r} 52852 \\ +\quad 64708 \\ \hline \end{array}$ | C  <br>   <br>  9 <br>  $\times 0$ | $4 \longdiv { 7 2 }$ | E $\begin{array}{r} 8285 \\ 4304 \\ +\quad 90 \\ \hline \end{array}$ |
| :---: | :---: | :---: | :---: | :---: |
| F | G | H | 1 | J |
| $6 \longdiv { 3 0 }$ | $\begin{array}{r} 35 \\ \times \quad 74 \\ \hline \end{array}$ | $\begin{array}{r} 4 \\ \times 5 \\ \hline \end{array}$ | $\begin{array}{r} 7 \\ \times 9 \\ \hline \end{array}$ | $\frac{2}{3}-\frac{1}{3}=$ |
|   <br> $K$ 32 <br> $\times 23$  | $\begin{array}{r} 8 \\ \times 6 \\ \hline \end{array}$ | $\begin{aligned} & \text { M } \\ & 5 \longdiv { 6 5 } \end{aligned}$ | $6 \longdiv { 3 0 }$ | $3 \frac{4}{7}-1=$ |
| P | Q | R | s | T |
| $\begin{array}{r} 107 \\ \times \quad 3 \\ \hline \end{array}$ | $2 \longdiv { 9 }$ | $\begin{array}{r} 416 \\ -\quad 44 \\ \hline \end{array}$ | $\frac{5}{11}+\frac{3}{11}=$ | $\begin{array}{r} 6 \\ \times 22 \\ \hline \end{array}$ |
| U | v | w | x | Y |
| $4 \frac{1}{2}+6=$ | $\begin{array}{r} 1504 \\ -1441 \\ \hline \end{array}$ | $9 \longdiv { 8 1 }$ | $\begin{array}{r} 130 \\ \times \quad 7 \\ \hline \end{array}$ | $5 \longdiv { 1 0 }$ |

## Donald's Progress in Digits Correct Across the School Year



A "Correct Digit" Is the Right Numeral in the Right Place

$$
\begin{array}{rrr}
4507 & 4507 & 4507 \\
-2146 & -2146 & -2146 \\
\hline \frac{2361}{2461} & & \underline{2441} \\
\cline { 1 - 2 } \begin{array}{c}
\text { correct } \\
\text { digits }
\end{array} & \begin{array}{c}
\text { correct } \\
\text { digits }
\end{array} & \begin{array}{c}
\text { correct } \\
\text { digits }
\end{array}
\end{array}
$$




# READING <br> CBM 

## Grade 1 Reading Curriculum

- Phonics
- Sound-letter correspondence
- cve patterns
- cvce patterns
- cvvc patterns
- Sight Vocabulary
- Comprehension
- identification of who/what/when/where
- identification of main idea
- Sequence of events
- Fluency


## Reading CBM

- Number of words read aloud correctly in 1 minute on end-of-year passages
- Number of words selected correctly in 2.5 minutes on end-of-year maze passages

Jason Fry ran home from school. He had to pack his clothes. He was going to the beach. He packed a swimsuit and shorts. He packed tennis shoes and his toys. The Fry family was going to the beach in Florida.

The next morning Jason woke up early. He helped Mom and Dad pack the car, and his sister, Lonnie, helped too. Mom and Dad sat in the front seat. They had maps of the beach. Jason sat in the middle seat with his dog, Ruffie. Lonnie sat in the back and played with her toys.

They had to drive for a long time. Jason looked out the window. He saw farms with animals. Many farms had cows and pigs but some farms had horses. He saw a boy riding a horse. Jason wanted to ride a horse, too. He saw rows of corn growing in the fields. Then Jason saw rows of trees. They were orange trees. He sniffed their yummy smell. Lonnie said she could not wait to taste one. Dad stopped at a fruit market by the side of the road. He bought them each an orange.

## A SCARY NOISE

Ray lived in Georgia. He was born there and had friends. One day Dad had come home $\qquad$ work to say that they would have $\qquad$ move far away. Dad worked in $\qquad$ factory. The factory had closed and Dad $\qquad$ a new job. Dad had found a $\qquad$ job and now they had to move.

Ray $\qquad$ sad because he did not want $\qquad$ leave his school.

He did not $\qquad$ to leave his friends.
"I am $\qquad$ , son," said Dad.
"It is OK," $\qquad$ Ray with a smile. He did $\qquad$ want Dad to
feel bad.
They $\qquad$ up the car and moved to a $\qquad$ state. Their new

## A SCARY NOISE

Ray lived in Georgia. He was born there and had many friends. One day Dad had come home $\qquad$ work to say that they would have $\qquad$ move far away. Dad worked in $\qquad$ factory. The factory had closed and Dad $\qquad$ a new job. Dad had found a $\qquad$ job and now they had to move.

Ray ___ sad because he did not want ___ leave his school.
He did not $\qquad$ to leave his friends.
"I am $\qquad$ , son," said Dad.
"It is OK," $\qquad$ Ray with a smile. He did $\qquad$ want Dad to feel bad.

They $\qquad$ up the car and moved to a $\qquad$ state. Their new


## Donald's Progress on Words Selected Correctly for CBM Maze Task

## Pre-Reading CBM

- Kindergarten: Phonemic-Segmentation Fluency
- Kindergarten: Letter-Sound Fluency
- Early First Grade: Nonsense-Word Fluency
- Early First Grade: Word-Identification Fluency


## Kindergarten

## Phonemic-Segmentation Fluency

Teacher: I'm going to say a word. After I say it, tell me all the sounds in the word.

## Example

Teacher: Sam
Child: /s//a/ /m/ (3 correct) or

Child: /s//am/ (2 correct)
Time: 1 minute

call<br>show<br>skin<br>thick<br>brook<br>do<br>young

## Kindergarten Letter-Sound Fluency

Teacher: Say the sound that goes with each letter.

Time: 1 minute

|  | U | Z | u | y |
| :---: | :---: | :---: | :---: | :---: |
| i | t | R | c | w |
| 0 | a | s |  | f |
|  | $\underline{\square}$ | i | S | h |
| k | m | n |  | V |
| Y | E | i | c | x |

## Early First Grade

## Nonsense-Word Fluency

Teacher: Look at this word. It's a makebelieve word: /s/ /i/ /m/ 'sim.' I can say the sounds of the letters, /s/ /i/ /m/, or I can read the whole word, 'sim.' For each word, say the sounds or read the whole word.

- Time: 1 minute

wab<br>lon<br>deg<br>pev<br>yil<br>baf<br>huz

## Early First Grade Word-Identification Fluency

Teacher: Read these words.

Time: 1 minute.
two
for
come
because
last
from
...

## High-School Content Area CBM

- Vocabulary matches
- Contact Chris Espin at the University of Minnesota
- espin001@umn.edu


# Three Purposes of CBM: 

- Screening
- Progress Monitoring
- Instructional Diagnosis


## CBM Screening

- All students tested early in the year
- Two alternate forms administered in same sitting
- Students who score below a criterion are candidates for additional testing or for more intensive service


## CBM Screening

## Examples:

- Beginning of Grade 1: students who say less than 15 sounds in 1 minute.
- Beginning of Grade 2: students who read less than 40 words from text in 1 minute.


# Progress Monitoring and Instructional Decision Making in General Education 

-Identify students whose progress is less than adequate

- Use information to enhance instruction for all students


## In general education, the focus is on the class report to enhance instruction for all students and to identify which students are in need of more help.

## CLASS SKILLS PROFILE - Computation

## Class

 Skills Profile-by problem type for each studentReport through 3/17

$\square$
$\square$
-
$\square$

COLD. Not tried
ㅔㅣ COOL. Trying these.

| 0 | 1 | 0 | 0 | 0 | 0 | 2 | 8 | 2 | 5 |
| ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| 3 | 8 | 0 | 5 | 14 | 3 | 16 | 10 | 3 | 3 |
| 2 | 1 | 0 | 1 | 3 | 6 | 0 | 2 | 0 | 1 |
| 5 | 3 | 8 | 4 | 0 | 4 | 0 | 1 | 1 | 0 |
| 13 | 10 | 15 | 13 | 6 | 10 | 5 | 2 | 17 | 14 |

## Average of Last Two CBM

 Scores and theSlope-Average Weekly Increase

Report through 3/17

| Name | Score | Growth |
| :---: | :---: | :---: |
| Samantha Spain | 57 | +1.89 |
| Aroun Phung | 56 | +1.60 |
| Gary McKnight | 54 | +1.14 |
| Yasmine Sallee | 53 | +1.34 |
| Kathy Taylor | 53 | +1.11 |
| Jung Lee | 53 | +1.23 |
| Matthew Hayes | 51 | +1.00 |
| Emily Waters | 48 | +1.04 |
| Charles McBride | 43 | +1.12 |
| Michael Elliott | 42 | +0.83 |
| Jenna Clover | 42 | +0.78 |
| Becca Jarrett | 41 | +1.14 |
| David Anderson | 38 | +0.79 |
| Cindy Lincoln | 36 | +1.04 |
| Kaitlin Laird | 35 | +0.71 |
| Victoria Dillard | 34 | +0.64 |
| Vicente Gonzalez | 29 | +0.28 |
| Adam Qualls | 26 | +0.60 |
| Michael Sanders | 25 | +0.70 |
| Jonathan Nichols | 25 | +2.57 |
| Amanda Ramirez | 23 | +0.85 |
| Anthony Jones | 19 | +0.05 |
| Erica Jernigan | 18 | +0.23 |
| Icon | 0 | +0.00 |

## PEER TUTORING ASSIGNMENTS

Teacher：Mrs．Smith
Report through 3／17

| M2 Multiplying by 1 digit | First Coach | Second Coach |
| :---: | :---: | :---: |
|  | Samantha Spain Kathy Taylor Aroun Phung Emily Waters Charles McBride David Anderson |  |
| M3Multiplying by 2 digits | First Coach | Second Coach |
|  | Matthew Hayes 囲 Cindy Lincoln Jung Lee Yasmine Sallee Vicente Gonzalez 囲 Jenna Clover | 四 Becca Jarrett <br> ［1］Kaitlin Laird <br> 四 Victoria Dillard <br> 四 Gary McKnight <br> ［ Michael Elliott <br> 四 Jonathan Nichols |

## Possible Peer Tutoring Assignments based on students’ recent CBM scores and Skills Profile

## CLASS STATISTICS: Computation

## Overall Class Scores

## and ID of

 students whose progress is poor compared to peersTeacher: Mrs. Smith
Report through 3/17

Score
Average score 39.5
Standard deviation
12.6

Discrepancy criterion 26.9
Slope
Average slope +0.98
Standard deviation 0.53
Discrepancy criterion +0.45

Students identified with dual discrepancy criterion

|  | $\underline{\text { Score }}$ | $\underline{\text { Slope }}$ |
| :--- | :---: | :---: |
| Anthony Jones | 19.0 | +0.05 |
| Erica Jernigan | 18.0 | +0.23 |

## Class Summary in

## Reading

-Class Graph
-Students in
Bottom 25\%
-Most Improved Across Last Few Weeks

## -Students Who Could Benefit from

 Instruction in Comprehension, Fluency, and DecodingTeacher: Mrs. Jones
Report through 2/15


## Comprehension Activities

Adam Brown Andrew Jones Angela Adams Carolyn Hudson
Cathryn O'Connel

Jermaine Jones Kenzie Williams Melanie White Quenton Miller Russell Carson

Sam Nelson
Wilson Carter

Fluency Practice

Phonics Instruction

| MAT/LAST | TIME | CAR | BEAT | HAPPY |
| :---: | :---: | :---: | :---: | :---: |
| Ladarius Freeman | Ladarius Freeman |  |  | Jalisha Sizemore |
| Mario Houston | Mario Houston |  |  | Shana Harmon |
| Nathanial Anderson | Nathanial Anderson |  |  |  |
| PUBLIC | RUNNING |  |  |  |
| Jalisha Sizemore |  |  |  |  |

## Class Skills

## Profile in

 Reading targeting need for comprehension,fluency, and
decoding
instruction

## CLASS SKILLS PROFILE

Teacher: Mrs. Jones
Report through 2/15


II Cold. Missing most of these words.
曲 Warm. Getting some of these words right.
Hot. Getting most of these words right.
MAT/LAST: closed syllable, short vowel, e.g., bed, top, hit, cat bump, mast, damp TIME: final e, long vowel, e.g., cake, poke, same, woke, mine, rose, gate
CAR: vowel r-controlled, e.g., fur, nor, per, sir, her, tar
BEAT: two vowels together, e.g., soap, maid, lean, loaf, paid, meal
HAPPY: divide between two like consonants, e.g., lesson, bubble, battle, giggle,
PUBLIC: divide between unlike consonants, e.g., elbow, walrun, doctor, victim, admit
RUNNING: dividing between double consonant with suffix, e.g., batter, sipped, hitting, tanned, bitten

## Class Scores

Teacher: Mrs. Jones
Report through 2/15

## Students meeting or not meeting end-of-year benchmark

| Name | Score | Growth |
| :---: | :---: | :---: |
| * The following student(s) are currently at or above end-of-year benchmark. |  |  |
| Jermaine Jones | 146 | +1.17 |
| Kenzie Williams | 133 | +1.32 |
| Wilson Carter | 132 | +3.05 |
| Carolyn Hudson | 132 | +2.37 |
| Cathryn O'Connel | 123 | +0.80 |
| Angela Adams | 122 | +0.30 |
| Sam Nelson | 120 | -0.31 |
| Andrew Jones | 115 | +0.49 |
| Russell Carson | 106 | +1.40 |
| Adam Brown | 105 | +1.61 |
| Quenton Miller | 104 | +2.61 |
| Melanie White | - 93 | +1.55 |
| Shana Harmon_ | - 77 | +0.69 |

* The following student(s) are currently below end-of-year benchmark.

Mario Houston_ 58 _ +0.95
Jalisha Sizemore__ 54 $\qquad$ +1.21
Ladarius Freeman $\qquad$ 38 $\qquad$ $+0.90$

* The following student(s) are currently below previous year's benchmark. Nathanial Anderson $\qquad$ 17 $\qquad$ $+0.45$


## Graphs are

 printed to provide student feedback every 2
## weeks.

## Reading feedback for

 individual student： Graph and Decoding Skills Profile

| MAT／LAST | ［1］ | 田 |
| :---: | :---: | :---: |
| TIME | Ш－ | ］ |
| CAR | ［］I］ | 囲 |
| BEAT | （1） | D1］ |
| HAPPY | ［1］ | 且 |
| PUBLIC | Ш1］ | $\square$ |
| RUNNING | Ш－ | 且 |

MAT／LAST：closed syllable，short vowel，e．g．，bed，top，hit，cat bump，mast，damp TIME：final e，long vowel，e．g．，cake，poke，same，woke，mine，rose，gate
CAR：vowel r－controlled，e．g．，fur，nor，per，sir，her，tar
BEAT：two vowels together，e．g．，soap，maid，lean，loaf，paid，meal
HAPPY：divide between two like consonants，e．g．，lesson，bubble，battle，giggle，
PUBLIC：divide between unlike consonants，e．g．，elbow，walrun，doctor，victim，admit RUNNING：dividing between double consonant with suffix，e．g．，batter，sipped，hitting，tanned，bitten

## For students whose progress is unacceptably poor, CBM is used for individual decision making.



## Trend of student data is less steep than goal line: <br> Make a teaching change.

Computation 3


Student's rate of progress is less than the goal line.
A1 囲 $\square \square \square$
s1 $\square \mathrm{m}$ (1) $\square$


м2 $\square \square \square \square \square$
D1 $\square \square \square \square \square$

## Trend of student data is steeper than goal line： Raise the goal．



OK！！Raise the goal．
Student＇s rate of progress exceeds the goal line

| A1 | 罒囲囲 |
| :---: | :---: |
| S1 | $\square \mathrm{mmm}$ |
| S2 | $\square \mathrm{mm}$ 四以 |
| M1 |  |
| 2 | $\square \square \square$ |
| D1 |  |

## In Summary, CBM Is Used:

- to identify at-risk students who may need additional services
- to help general education teachers plan more effective instruction within their classrooms
- to help special education teachers design more effective instructional programs for students who do not respond to the general education program
- to document student progress for accountability purposes
- to communicate with parents or other professionals about students' progress

Special thanks are extended to
Carol Hamlett of Vanderbilt for her assistance with this presentation.

Carol may be contacted for further information about the CBM computer programs at:

## carollhamlett@aol.com

or at 615-343-4782

