Curriculum-Based Measurement Workshop

SENIA 2011

Shanghai, China

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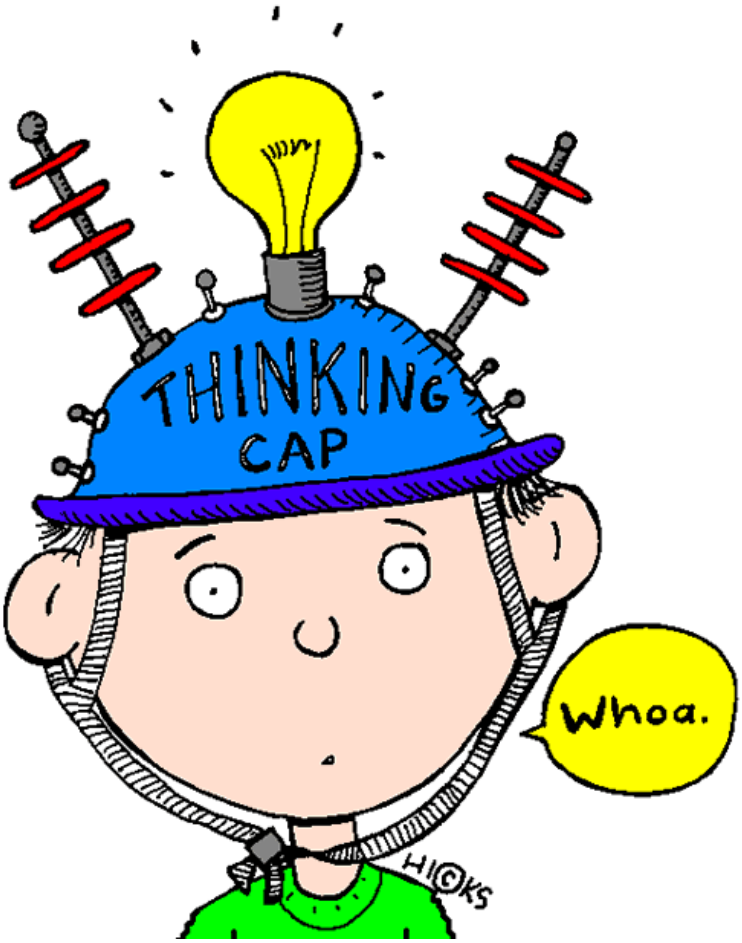


Mathematics
Multiple-Skills Computation Probe: Student Copy

Student: _____ Date: _____

75 -16	14 x 1	86 -11	2303 x 2
575 +27	33 -25	58 x 1	86 -51
3111 x 2	24 +67	34 -15	11 x 3

Created at: InterventionCentral.org

In this sample computation probe, what is the scope and sequence being assessed?

What did the special needs teacher take into account in developing this probe?

Mathematics

Develop your own probe. Select one of the following areas where the use of probes has been found to be effective:

- Counting and missing numerals
- Quantity
- Computation
- Concepts and Applications

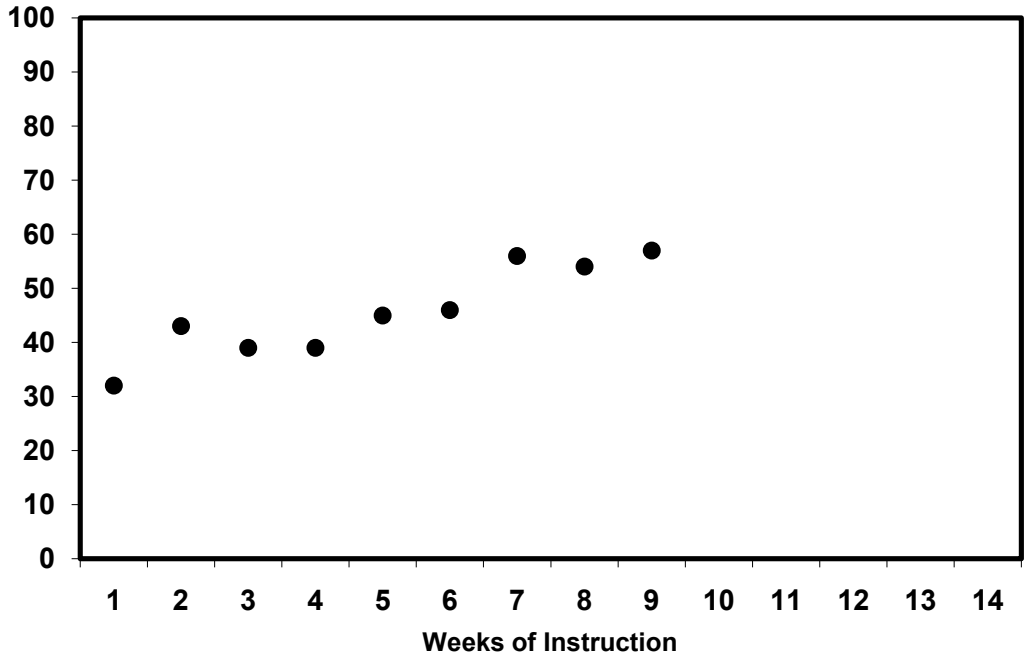
Mathematical area:_____

Developing your probe: What would be your scope and sequence? What should you consider in developing the assessment (probe)?

Sample 10 probe:

Trend and Goal Lines

A trend line uses data from each of the weekly probes to illustrate student progress over the instructional period.



How to plot the trend line:

Step 1: Divide the data points into three equal sections by drawing two vertical lines. (If the points divide unevenly, group them approximately).

Step 2: In the first and third sections, find the median data-point and median instructional week. Locate the place on the graph where the two values intersect and mark with an "X".

Step 3: Draw a line through the two "X's", extending to the margins of the graph. This represents the trend-line or line of improvement.

(Hutton, Dubes, & Muir, 1992)

A goal line connects the student's average initial performance and then illustrates the rate of progress the student must maintain across the instructional period to meet the long-term goal. To calculate student improvement each week to reach the goal, the educator can:

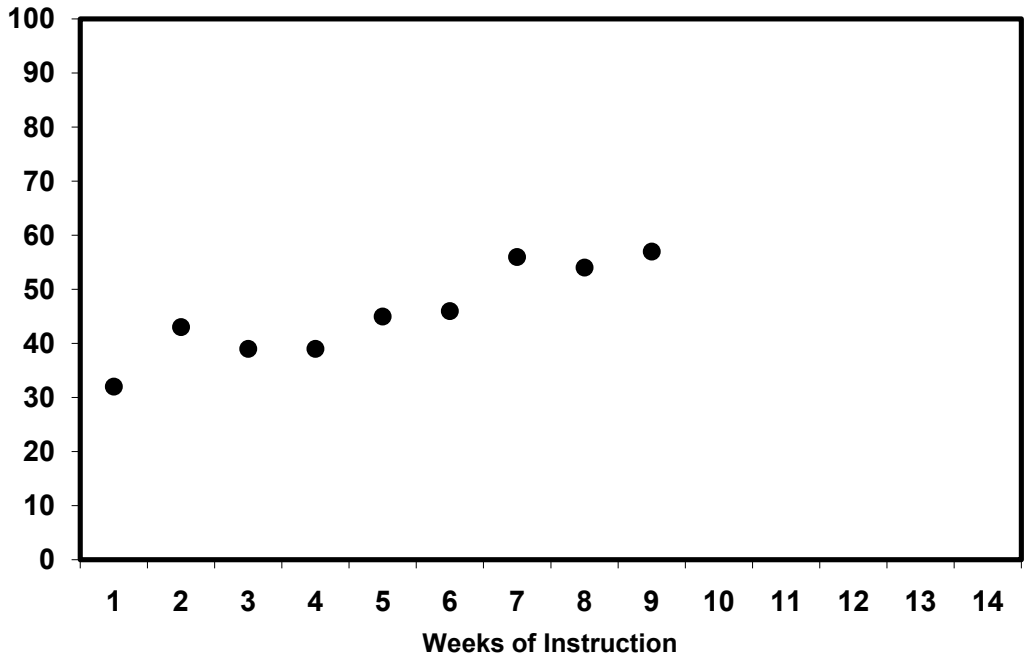
1. Subtract the average current performance from the long-term goal performance.
2. Divide the difference by the number of weeks occurring between week 1 and remainder of the period.
3. The resulting weekly rate of improvement, or short-term objective, is what the student needs to achieve in order to stay on track toward meeting the long-term goal.

How to identify the goal line:

Step 1: With an "X", identify the beginning point by averaging the first 3 probe scores. (Some people use only the beginning score.)

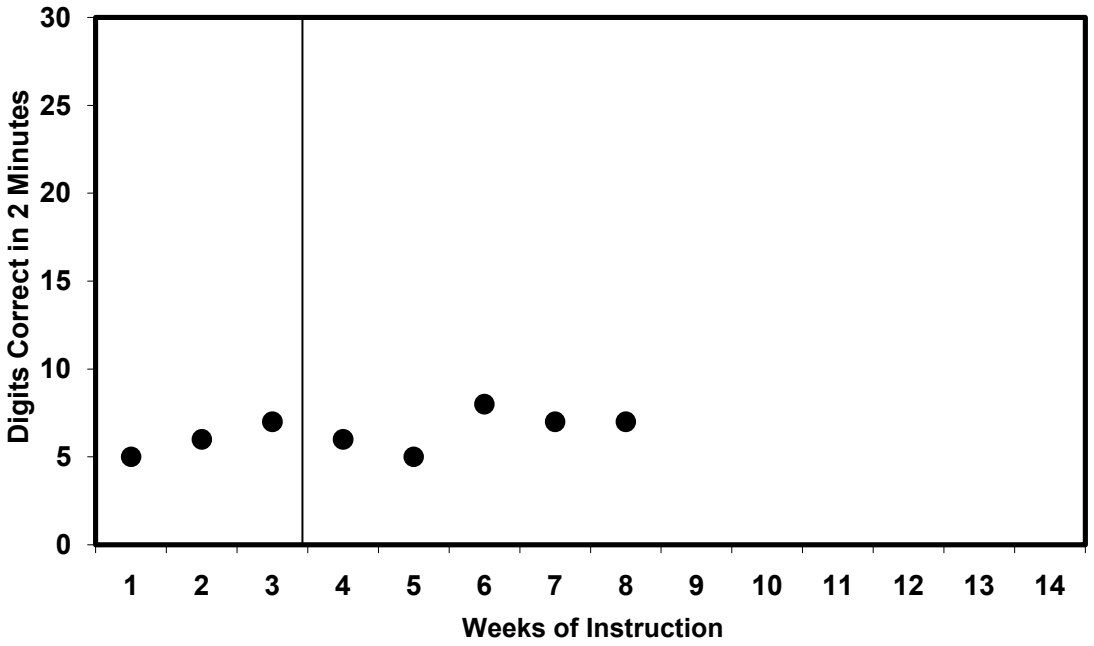
Step 2: With an "X," mark the point on the right margin of the graph that represents the goal for class or student during the instructional period (marking period, semester, or year).

Step 3: Draw a line through the two "Xs", extending to the margins of the graph. This represents the goal line.



Case Study: Mr. Downs and William

Class Goal for Academic Year: each student demonstrates proficiency in computation.



For the first 8 weeks of school, Mr. Downs has been graphing William's weekly probes.

Draw and label both a trend and goal lines of William's data. Compare the two and complete the following sentence: By the end of the 14 week marking period, Mr. Downs, the Learning Support Specialist, expects William will demonstrate _____.

What conclusions can you draw?

After week 3, Mr. Downs decides to use a skill profile to describe William's strengths and weaknesses:

A1 Adding with regrouping
S1 Subtracting without regrouping
S2 Subtracting with regrouping
M1 Multiplying single digits
M2 Multiplying with two digit multiplier
D1 Dividing single digits
D2 Dividing with two digit dividend
F1 Adding fractions with like denominators

A1		Proficient
		Developing
		Emerging
		Beginning

Analyze the data that he collected during weeks 4-8 to decide what changes should be made. Based on the skills profile, what instructional changes should Mr. Downs introduce into William's math program?

On the previous page, draw a vertical line of the graph after week 8 to indicate this change.

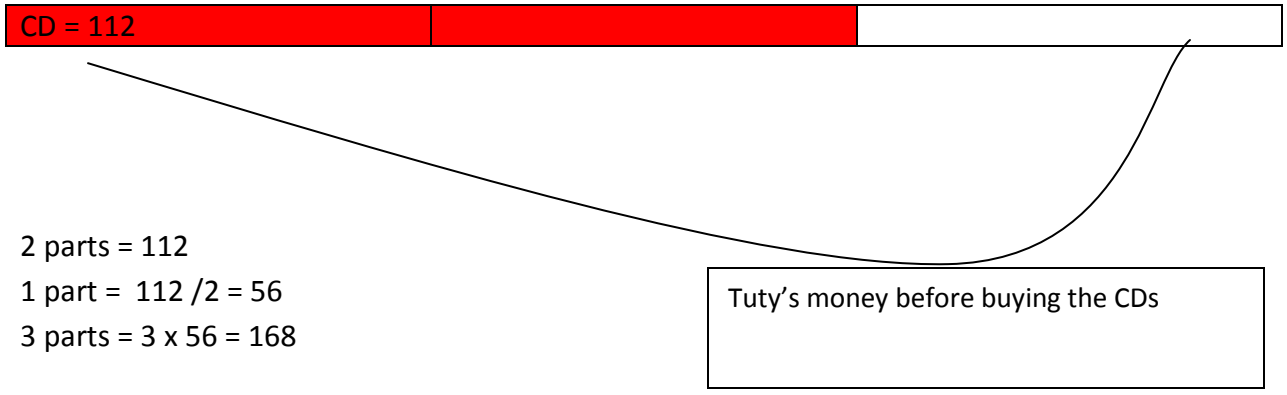
	4	5	6	7	8
A1					
S1					
S2					
M1					
M2					
D1					
D2					
F1					

Adapted from Fuchs, L.S., & Fuchs D. (2009). Introduction to using CBM for progress monitoring in math. National Center on Student Progress Monitoring.

Interventions: Visual Representations in Mathematics

Strip diagram

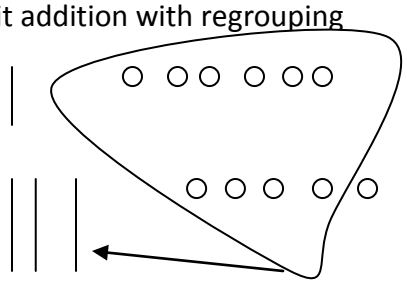
Problem:
Tuty spent 2/3 of the money she had on a new CD that cost 112 yuan. How much money did she have before her purchase?



2 parts = 112
1 part = 112 /2 = 56
3 parts = 3 x 56 = 168

Simple drawings of two digit addition with regrouping

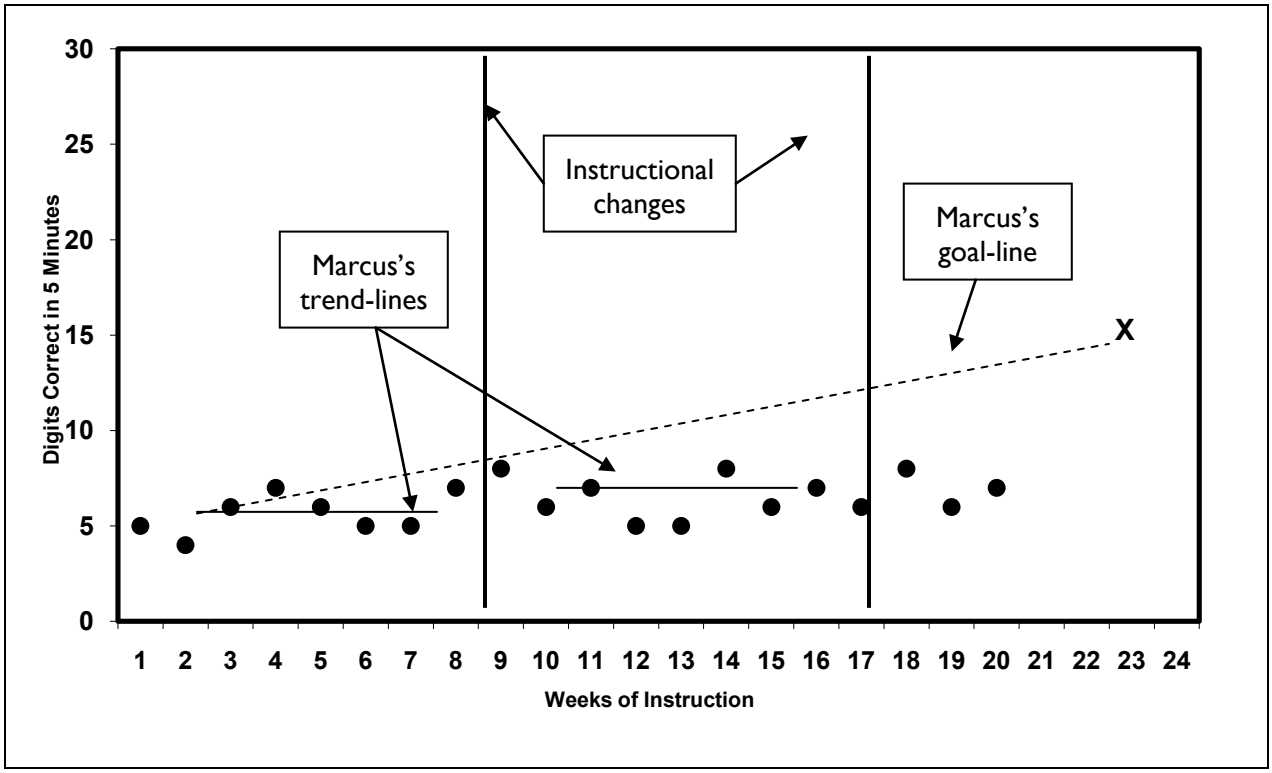
16
+ 25
_____



Case Study of Mrs. Fritz and Her Students

Mrs. Fritz, a special needs teacher, has been using CBM to monitor the progress of all of the students in her classroom for the entire school year. She has one student, Marcus, who has been performing well below his classroom peers, even after two instructional changes.

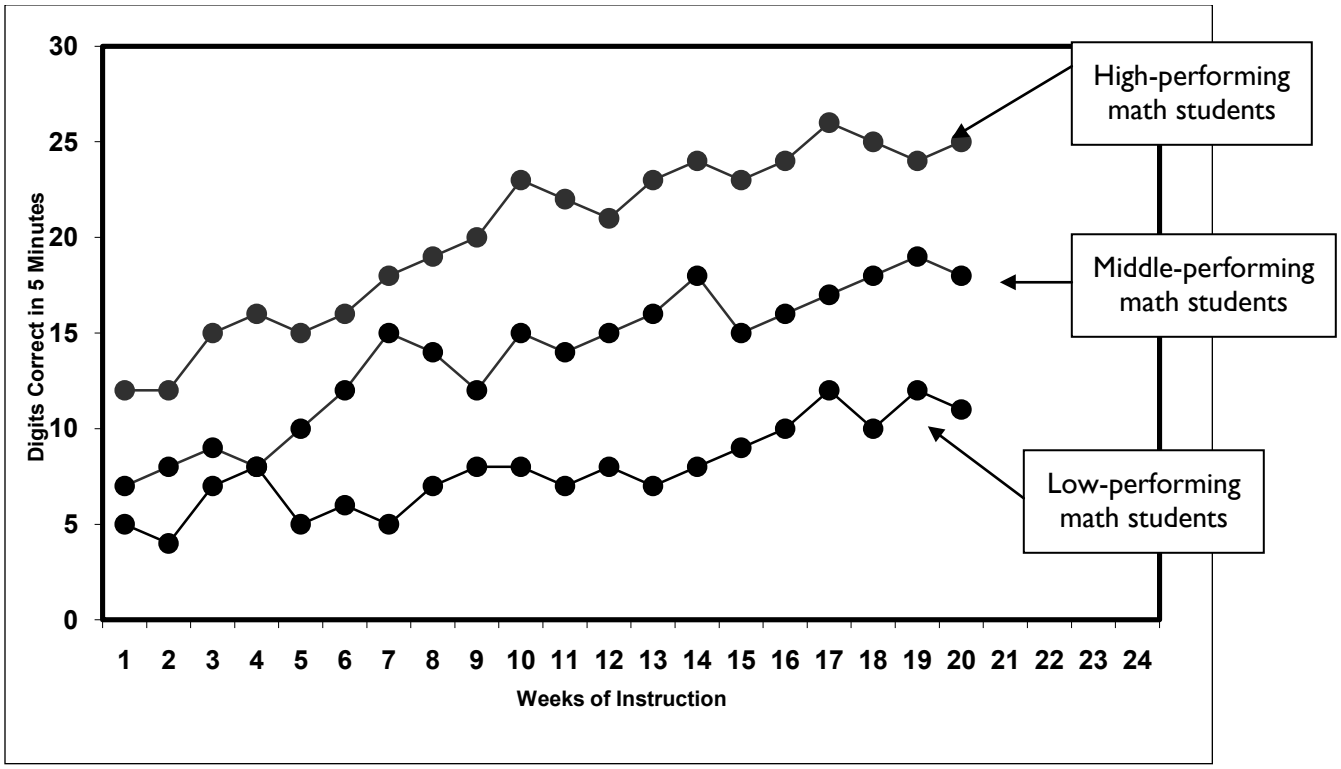
Study Marcus's CBM graph below.



After 8 weeks, Mrs. Fritz determined that Marcus's trend-line was flatter than his goal-line, so she made an instructional change to Marcus's math program. This instructional change included having Marcus work on basic math facts that he was counting on his fingers. The instructional change is the first thick, vertical line on Marcus's graph.

After another 8 weeks, Mrs. Fritz realized that Marcus's trend-line was still flatter than his goal-line. His graph showed that Marcus had made no improvement in math. So, Mrs. Fritz made another instructional change to Marcus's math program. This instructional change included having Marcus work on math fact flash cards. The second instructional change is the second thick, vertical line on Marcus's graph.

Mrs. Fritz has been conducting CBM for 20 weeks and still hasn't seen any improvement with Marcus's math despite two instructional teaching changes.



What could the graph above tell Mrs. Fritz about Marcus?

Sample Student Copy of Fluency Reading Passage

It was raining outside, and there was nothing for Norman to do.

"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. Watching a blank television was not something Norman wanted to do. He looked around at the four dismal walls that kept him out of the rain.

"Now what am I going to do?"

"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."

There was nothing Norman could say after his mom had made up her mind. He was going to have to clean out his closet.

The only problem was that Norman couldn't even open his closet door. He had it held closed with a large wooden block. There was so much junk in there that it wouldn't stay shut on its own. To push aside the wooden block and open the door would mean doom for Norman. He'd be crushed by falling trash as soon as he turned the knob. He decided that he would only pretend to clean his closet, but his mother came into his bedroom.

"Well," she said, placing her hands on her hips, "let's see you get to work."

Norman put both hands on the doorknob and tugged. The entire doorframe gave a mighty CREAK. There was a loud rumble as Norman was pushed back by the wave of forgotten junk he'd jammed into his closet. When the loud noise faded, Norman was lying on his back under a mountain of broken toys, dirty socks, and books. With a groan, he lifted himself to his feet.

There was an awful smell wafting from somewhere inside. Norman looked into the depths of his closet. It was dark, dreary, and mysterious. Anything—absolutely anything—could be hiding in there. Maybe trolls, ghouls, or gnomes, Norman thought. This job could be an adventure! Pushing up his sleeves, Norman got to work.

Source: Using Curriculum Based Measurement for Student Progress Monitoring in Reading (2009), p 8. National Center on Student Progress Monitoring.

Sample Teacher Copy of Fluency Reading Passage

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 28
as he switched on the television, the power went out. Watching a blank television 42
was not something Norman wanted to do. He looked around at the four dismal walls 57
that kept him out of the rain. 64
"Now what am I going to do?" 71
"You could tidy up your room," his mom suggested, "or organize your closet. 84
Your closet is a disaster, Norman. I'm actually frightened of what you might find in 99
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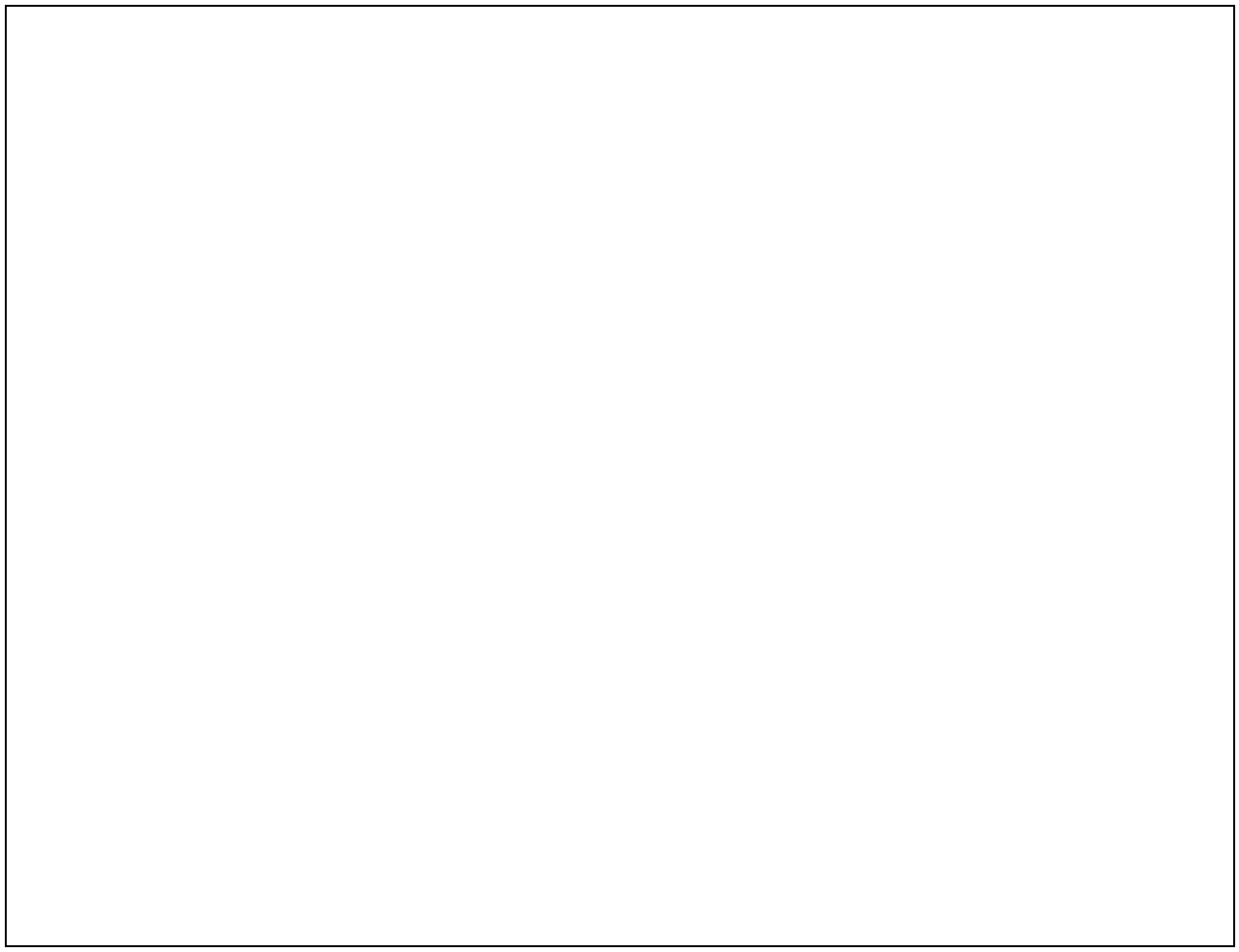
Source: Using Curriculum Based Measurement for Student Progress Monitoring in Reading (2009), p 7. National Center on Student Progress Monitoring.

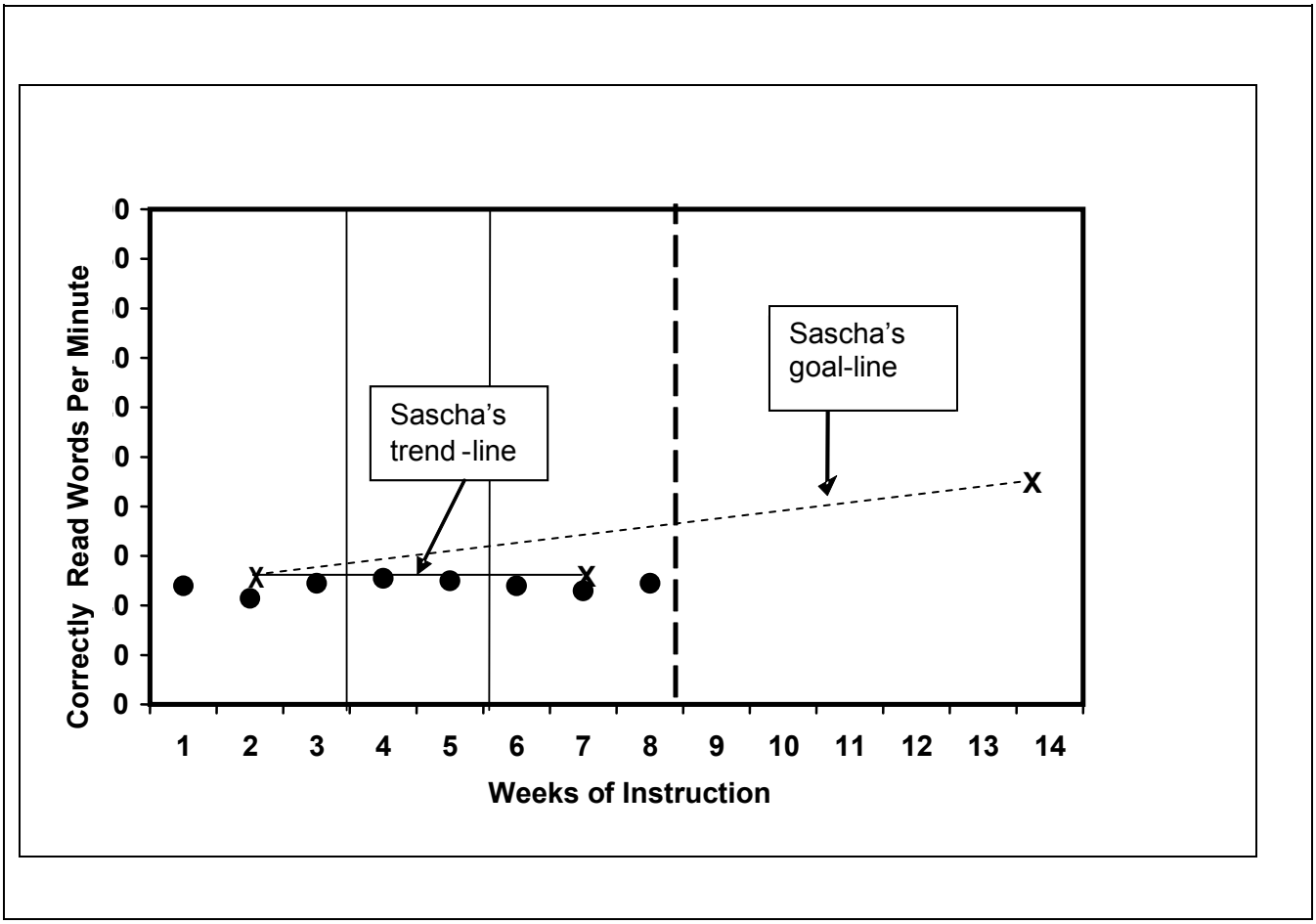
Complete the following graph with your results of your fluency reading passage.



What is your initial interpretation?

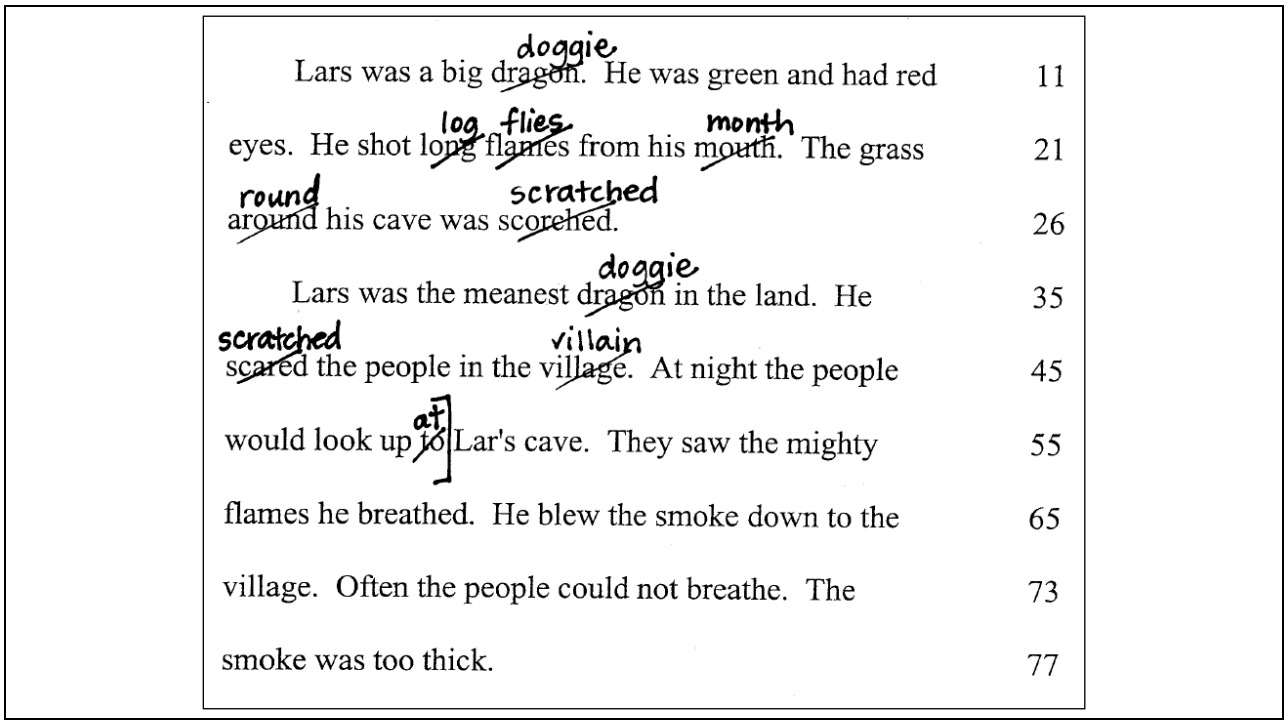
Case Study of Mr. Miller and Sascha

Mr. Miller has been monitoring his class using weekly CBM Passage Reading Fluency tests. He has been graphing student scores on individual student graphs. Mr. Miller drew a trend-line for Sascha's CBM PRF scores. This is Sascha's graph.



Since Sascha's trend-line is flatter than her goal-line, Mr. Miller needs to make a change to Sascha's instructional program. He has marked the week of the instructional change with a dotted vertical line. To decide what type of instructional change might benefit Sascha, Mr. Miller decides to do a Quick Miscue Analysis on Sascha's weekly CBM PRF to find her strengths and weaknesses as a reader.

The following is Sascha's CBM PRF test.



Lars was a big dragon. He was green and had red 11

eyes. He shot long flames from his mouth. The grass 21

around his cave was scorched. 26

Lars was the meanest dragon in the land. He 35

scared the people in the village. At night the people 45

would look up to Lar's cave. They saw the mighty 55

flames he breathed. He blew the smoke down to the 65

village. Often the people could not breathe. The 73

smoke was too thick. 77

This is Sascha's Quick Miscue Analysis for her CBM PRF test.

Quick Miscue Analysis

	Written Word	Spoken Word	Grapho-Phonetic	Syntax	Semantics
1.	dragon	doggie	yes-d & g	yes	no
2.	long	log	yes-first & last	no	no
3.	flames	flies	yes-first & last	yes	yes
4.	mouth	month	yes-first & last	yes	no
5.	around	round	yes-all letters except 'a'	yes	yes
6.	scorched	scratched	yes-first & last	yes	no
7.	dragon	doggie	yes-d & g	yes	no
8.	scared	scratched	yes-first & last	yes	no
9.	village	villain	yes-first	yes	no
10.	to	at	no	yes	yes
		%	90%	90%	30%

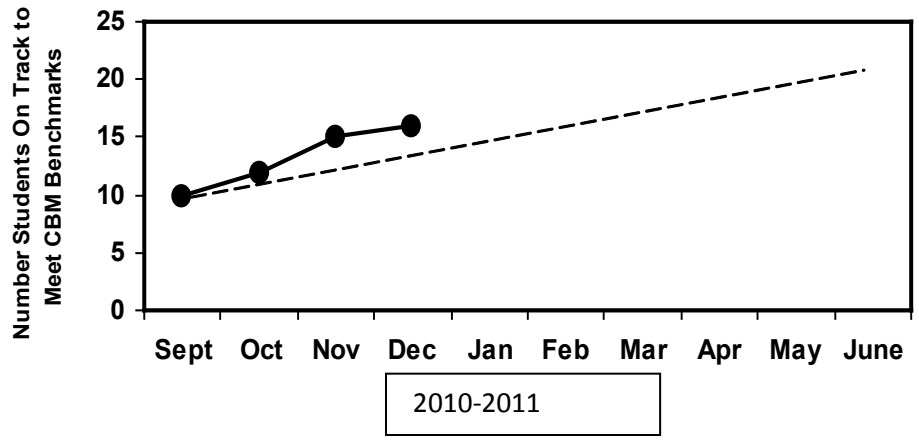
Source: Source: Using Curriculum Based Measurement for Student Progress Monitoring in Reading (2009), 15-16. National Center on Student Progress Monitoring.

Based on the Quick Miscue Analysis Table on the previous page, what instructional program changes should Mr. Miller introduce into Sascha's reading program?

Case Study of Students Receiving Learning Supports

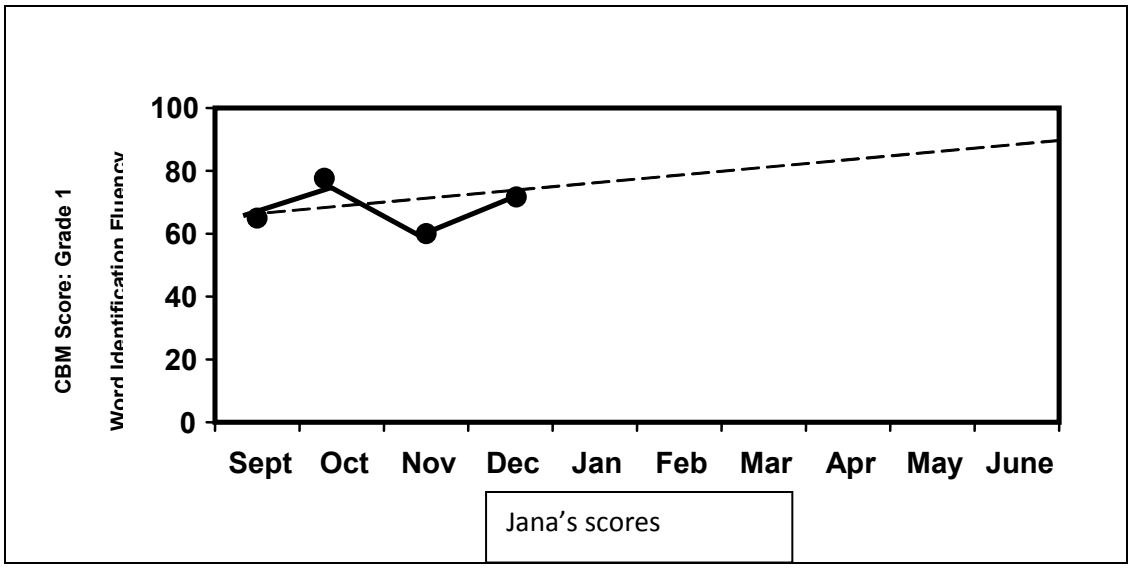
This is the graph of the total number of students in the school who are receiving learning supports in reading and mathematics for the academic year 2010-2011.

Progress of students receiving learning supports



Identify the goal line. What should the teachers and administrators learn from the data depicted in the graph above? What next steps could you suggest?

The learning support specialists also received graphs with information about the students with whom they work. Identify the goal line.



Adapted from: Using Curriculum Based Measurement for Student Progress Monitoring

How could Jana's specialist use the information in the above graph?

Web resources: Curriculum-based measurement

- Research Institute on Student Progress Monitoring: http://www.progressmonitoring.org/index.html

  This user-friendly site has information that would be helpful for families.

- National Center on Progress Monitoring: http://www.studentprogress.org/families.asp

  This site includes a base of research supporting CBM.

- Intervention Central: http://www.interventioncentral.org/index.php/cbm-warehouse

  Find a vast resource of examples of CBMs and teacher manuals here.

- National Center on Response to Intervention: http://www.rti4success.org/index.php?id=1172&Itemid=150&option=com_content&task=view

  This site contains excellent teacher manuals for implementing CBM in math, reading, writing, and spelling.

- Center on Teaching and Learning: Dynamic Indicators of Basic Early Literacy Skills (DIBELS) https://dibels.uoregon.edu/dibelsinfo.php

  This site includes a section that discusses the five types of early literacy measures and how to implement in the classroom. DIBELS measures can be downloaded for free. (K-grade 3)

- Hot Potatoes http://hotpot.uvic.ca/

  This freeware is for creating interactive multiple-choice, short-answer, jumbled-sentence, crossword, matching/ordering and fill-in-the-blank exercises.

- Create-a-Graph http://nces.ed.gov/nceskids/createagraph/

  At this site, find a web-based easy-to-use graphing program for students (as well as teachers!)